Anna He Purnabramha: Deorukhe Women’s Agency in the Making of Bodies, Cuisines, and Culture in Maharashtra, India

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ANNA HE PURNABRAMHA: DEORUKHE WOMEN’S AGENCY IN THE MAKING OF BODIES, CUISINES, AND CULTURE IN MAHARASHTRA, INDIA.

by

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A Dissertation
Submitted in Partial Fulfillment of the Requirements for the
Doctor of Philosophy

Department of Anthropology
in the Graduate School
Southern Illinois University Carbondale
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DISSERTATION APPROVAL

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Gauri Anilkumar Pitale

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the field of Anthropology

Approved by:
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Graduate School
Southern Illinois University Carbondale
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GAURI ANILKUMAR PITALE, for the Doctor of Philosophy degree in ANTHROPOLOGY, presented on *SEPTEMBER 29, 2017, at Southern Illinois University Carbondale.

TITLE: ANNA HE PURNABRAMHA: WOMEN'S AGENCY IN THE MAKING OF BODIES, CUISINES, AND CULTURE IN MAHARASHTRA, INDIA.

MAJOR PROFESSORS: Dr. David Sutton and Dr. Robert Corruccini

The world is changing. India is changing. Food is changing. Bodies are changing. What does this mean for the women of Maharashtra, India? Globalization and modernity manifest in new and interesting ways the world over. As people establish networks of global commodity, capital, and human circulation, anthropologists raise pertinent concerns. While some are apprehensive about cultural loss and western cultural imperialism, others make a case for the rise of glocalization. While some espouse the positives of a free market economy, others are critical of the nutrition transition in developing countries and what this means for the health of the people undergoing this transition.

The site of this study is the region of Konkan in Maharashtra, India. India is undergoing fast paced culture change since liberalizing its economy in the year 1991. I focus on the experiences of present day rural and urban Deorukhe Brahmin women (mothers and their daughters), who belong to an endogamous upper caste group that claims to be indigenous to Konkan. Generally, rural Indian regions are modernizing more slowly than urban areas. This study looks at how women are active agents in the changes that are taking place in their bodies, diet, and gender identities. A biocultural study, this
dissertation takes into consideration anthropometric data and ethnographic data to comprehend the manner in which women, who are the gastronomic decision makers at the household level, are responding to the increasing influx of non-traditional foods. My study focuses on the moral implications of changing dietary practices and the appearance of chronic non-communicable diseases on the notions of the self. By discussing the manner in which Indian women practice their agency, using traditional gender roles, I aim to demonstrate how these women adjoin that which is thought to index the global and the local to shape a new India.
DEDICATION

This dissertation is dedicated to Aai and Baba. Thank you for always believing in me and for supporting my dreams...
ACKNOWLEDGMENTS

This dissertation is the fruit of many years of labor. Though this document bears my name on it, it would not have been possible to write this dissertation without the help and guidance of my family, husband, friends, mentors, and most importantly all of my dissertation committee members. I am thankful to each and every person who has made it possible for me reach this stage in my career.

Thank you to my wonderful husband - Joseph Cadwell, who has been my rock and support throughout this process. He has spent countless hours proof-reading my work, listening to my stories, experiencing my frustration, and giving me the love and encouragement that I needed to get this degree.

This dissertation is dedicated to my parents - Mr. Anilkumar Pitale and Mrs. Seema Pitale, because they have always supported me and allowed me to pursue my dreams. Without their love and faith in my abilities, this endeavor would not have been possible.

My gratitude to my brother - Pankaj Pitale for fighting for me to have the chance to reach this place in my life. Many thanks to my all my other family members, you have all contributed in some way or the other to my success.

To my eternal cheerleader - Jessica Bertolozzi, you are amazing and awesome and I am proud to have you as my friend. I miss our long chats and never-ending lunches!
Many thanks to all the Deorukhe Brahmins who let me into their homes and/or gave me the contact information to recruit households for this study. Special thanks to the committee members of the Deorukhe Sangha, Mrs. Mrudula Nimbkar, and Dr. Sanjay Juvekar.

My peers at the SIUC anthropology department have been my pillars of support in times of self-doubt. To all of you, who have patiently heard my complaints, and taken the time to give me feedback, I am very grateful for your support and advice. The list of people who have been students at the anthropology department and who have helped me is far too long to include here. You all know who you are.

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able to write like a cultural anthropologist and took the time to teach me how to write ethnographic vignettes. Dr. Vallianatos has generously shared her knowledge and experience with me.

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GLOSSARY

Aai: Mother

Aaji: Grandmother, paternal as well as maternal

Achari: Cook

Ajoba: Grandfather, paternal as well as maternal

Alu: Colocasia leaves

Angarika Chaturthi: When the fourth day of the moon is in the second fortnight of a lunar month (Sankashti Chaturthi) falls on a Tuesday it is celebrated as Angarika Chaturthi

Anuloma: Hypergamy

Atta: Whole wheat flour

Baherchi: Literal meaning outsider. Also, a term used to refer to a menstruating woman

Balantpan: The period of childbirth

Balantin: A woman who has just delivered a child

Balwadi Shikshika: Kindergarten teacher

Batata Bhaaji: Sautéed potatoes or potato curry

Batatyachya Kaachrya: Very thin potato slices

Bhaaji: Vegetable dish made by sautéing the vegetables or preparing them in a form of a curry.

Bhel: Snack food made out of puffed rice, roasted or fried lentils, raw onion, lentil noodles, roasted peanuts, and chutneys made out of chilies, cilantro, dates, and jaggery

Bhikshu: Brahmin priest

Bhikshuki: Priestly duties that include performing religious rites on important religious occasions in return for alms given by the family for whom the rites are performed.
Brahman: All-encompassing divine

Chai: Tea

Chapati: Whole wheat flat bread

Chivda: A dry savory snack made out of flattened rice or puffed rice, roasted lentils, peanuts, chilies, and curry leaves

Chul: Traditional open hearth, u-shaped stoves made from local clay and plastered with earth found in the household yard

Daal: Lentils / Lentil Curry

Dabba: Packed meal

Dada: Honorary term for an elder brother

Dadpe Pohe: A snack dish made out of flattened rice, grated coconut, chilies, onions, and lemons

Dahi: Yoghurt

Deviche Dene: Gift from the mother Goddess

Dharmashastras: Hindu sacred religious law books

Dosa: A rice pancake made out of ground up fermented rice and lentil batter

Ganesha: Elephant-headed God in the Hindu pantheon of Gods

Gharche Lagna: Household wedding

Gobar Gas: A renewable biogas made primarily from the dung of livestock, especially cattle and compost

Gotha: Cattle shed

Gomutra: Cow urine - viewed as a purifying agent in Hinduism

Jaate: Grinding stone

Jati: Caste group in connection to the local village community
Jau: Sister-in-law, specifically a term used to refer to the husband’s brother’s wife

Kaki: Aunt, that is, paternal uncle’s wife

Kanik: Whole wheat flour

Karma: The ancient Hindu law of deed and its retribution

Ketti: Rhesus macaques

Khanawal: Eating places that serve traditional meals for lunch and dinner

Kheer: A sweet milk rice porridge usually served as dessert

Kirana: Local grocer shops similar to mom and pop stores in Western countries

Kokanastha / Chitpavan: Another Brahmin community that occupies the Konkan region

Kokum Aghal: The juice extracted from the fruit of *Garcinia indica*

Koshimbir: Salad

Krishna Paksha: The waning lunar phase during second fortnight of the lunar month

Ladoo: A ball-shaped sweet made out of flours, sugar, with other flavorings added.

Latna: Rolling pin

Loni: Cultured butter

Maas: Meat

Maajghar: Inner portion of a rural house in Konkan consisting of bedrooms, inner rooms, and the kitchen

Machchhi: Fish

Magic: A four-wheeled vehicle sold by Tata Motors often used for public transportation

Maida: Processed wheat flour
Makad: Monkey

Mau Bhaat: Soft rice, customarily prepared for breakfast in rural Deorukhe households

Metkut: A mixture of roasted lentil powders with a few spices

Milawat: Adulteration

Naivedya: Food offering to the Gods

Oti: Front lobby of a rural house in Konkan

Owli: Ritual impurity of a woman

Padwi: Back area of a rural house in Konkan comprising of the bathrooms, the bath water hearth, and the cattle shed.

Paan chul: Water hearth that heats up the bath water, usually located in the bathroom area in the back of the house

Paani Puri: A favorite road-side snack dish made out of semolina puris filled with boiled gram, mashed potatoes, tangy and spicy chutney, with flavored water added to it

Panchayat: Village council

Papad: A thin disc shaped flat bread made from seasoned lentil flours. These are dried after being rolled out, and served fried or roasted as an accompaniment for a meal or as a snack by themselves

Papad Lati: A piece of the unrolled seasoned papad flour

Pharal: Snacks

Phodni: The process of infusing hot oil with spices which forms the base of most Indian dishes

Police Patil: Government appointed person to contact in case of village related problems or concerns.

Polpat: Round board with a stand, on which the chapatis, parathas, puris, and papads are rolled

Pratiloma: Hypogamy
Puja: Worship

Raja: King

Rickshaw: Three-wheeled vehicles that have a seat for passengers behind the driver, usually hired for public transportation

Salwaar Kameez: A three-piece suit that is traditionally worn by women in the state of Punjab. Also referred to as a Punjabi dress

Sankashti Chaturthi: The fourth day of the Krishna Paksha (second half) of every lunar month in the Hindu calendar

Saree: A traditional garment worn by women in India that consists of a drape which is either 5 or 9 yards in length. This is worn over a petticoat and a bodice which is usually referred to as blouse. Though traditionally Marathi sarees were 9 yards in length, in the present day most Marathi women wear 5-yard sarees that are draped around their lower body and part of which is put on the left shoulder

Sasubai: Mother-in-law

Shimpi: Literally this word means ‘tailor’. People of this caste are categorized as belonging to the Other Backward Class – OBC group. Members claim to belong to the Kshatriya caste group

Sowli: Ritual purity of a woman

Tai: Respectful term for elder sister

Tawa: Skillet

Thapi: Traditional rice serving spatula

Tikli: Dot on the forehead

Til Gul: Sweets made out of jaggery and sesame eaten for Sankranti festival which usually falls on 14th January of every year when the Sun changes its course from southern hemisphere to the northern hemisphere

Toop: Clarified butter

Toorichi Daal: Split pigeon pea lentil curry
**Uthne-Basne:** Getting up and sitting down

**Vahini:** Sister-in-law, specifically a brother's wife

**Vanar:** Hanuman langur

**Varna:** Caste

**Vichitra:** Abnormal

**Vili:** Traditional Marathi cutting board.

**Wadi:** Colony or enclosure
CHAPTER 1

INTRODUCTION

On July of 2014, traveling around Konkan while battling the rain, wind, and humidity that comes with the western coastal monsoon of India, I went to visit Shravani and Tanisha for the second time that year. A family of five, their house was perched on a hill, very close to the town of Chiplun. When I walked into their house, me and my project recruiter were warmly welcomed and offered a hot cup of instant coffee on that wet cold day. Sitting in her warm kitchen, watching her cook lunch on a Saturday morning, I thanked her for offering us warm coffee since I felt like a wet miserable pigeon.

As Shravani cooked, I started interviewing her. My hungry stomach quickly reminded me that I had forgotten to have breakfast in the rush of trying to make it to my appointment on time. I started hearing the familiar sizzle of spices doing their little dance in the hot oil. Marathi people call this process of infusing oil with spices phodni. Instinctively I asked Shravani what was on the menu for lunch that day. Her answer took me by surprise.

“Today I am cooking Schezwan Fried Rice” she said, without missing a beat. “Oh, so something special on the menu today?” I asked. “The kids, they want to eat Chinese these days”, she said, adding chopped onions, bell peppers, carrots, and cabbage to the spices in the oil.

She looked at me and with a smile said, “I don't know how to cook Chinese food. The kids give me recipes and masala packets, I look at the instructions and cook the food accordingly. The rice is already cooked and I will
add in this schezwan chutney” she said, showing me the familiar packet of Ching’s Schezwan chutney, a popular brand of Indian Chinese food.

Since her daughter Tanisha was helping her in the kitchen, I asked her if she suggested the recipe. Tanisha smiled at me and said, “Dada (elder brother) gave this recipe to Aai (mother). He is very fond of Chinese food. Actually, he even went and bought the masalas for her so she could make this rice.”

Shravani continued, “He lives away from home for his higher studies. He is here for vacations and he is leaving to go back to school this evening. He has been wanting me to cook this fried rice for some time now. When he comes home, I cook everything he likes to eat because otherwise when will he get to eat the food of his choice?” Intrigued by her response I asked, “Where does he eat when he lives in the hostel?”

She said, “You know, the hostel mess (cafeteria) food. But it is bad for you because it is so unhealthy. That’s why I try to cook at home for him. It might be Chinese food, but it is Chinese food that I am making. I don’t just put in a bunch of rice and masala. I add in all these vegetables so that I can ensure that they like the taste of the food but at the same time also eat these vegetables which are so important for their health.”
Figure 1.1: Shravani showing me the packet of Schezwan chutney

Shravani was not the first mother I had met during my fieldwork who was cooking food that people in this part of India considered non-traditional, such as Chinese food, for her children. This was a common occurrence in the course of my yearlong dissertation fieldwork. Considering the fact that this study was intended to understand the effects of globalization on the eating habits and the resulting nutritional status of the Deorukhes, such instances were not surprising either. What was surprising, was the manner in which these mothers literally took global influences on the food choices of their
children by the horns and steered them in a way that allayed their anxieties about the well-being of the children. Being a householder and more importantly a mother, comes with a large responsibility in this part of the world. This responsibility means having to ensure that your family and especially your children eat a diet that enables them to be, what is considered to be mentally, physically, and spiritually healthy. The health of your family is a direct reflection of your capability as a wife and mother. More importantly, in India where cooking is a gendered activity, food making is closely connected to perceptions of love and care. Therefore, this dissertation focuses on the manner in which Indians are affected by and affecting global flows in the course of their day to day lives, especially in the domain of cooking which in turn is also affecting not only their nutritional status but also the manner in which they view their own bodies and health.

**Global Processes and Agency**

Globalization is a term that is used by a multitude of scholars and professionals today. There are proponents of globalization who believe that being global is an inevitable and also a largely positive process. This view is espoused mainly by economists who are confident that an open, free market economy results in the decrease in poverty and problems in developing countries such as India. Levitt (1993) asserts that multinational companies are a thing of the past and in the modern global world, global companies are the way to go. Thus, he states, “Only global companies will achieve long-term success by concentrating on what everyone wants rather than worrying about
details of what everyone *thinks* they might like* (Levitt 1993: 445). Certain that
global markets will result in a world where everyone will want to consume the
same products he asserts, “different cultural preferences, national tastes and
standards, and business institutions are vestiges of the past” (Levitt 1993:
450). That global markets are the only way of achieving success is touted by
many an economist. Often enough, economic liberalization, such as the one
that took place in India is accompanied by a rhetoric that chides the gradual
change that is characteristic of the Indian economic reforms. Thus, Ahuja et al.
(2006: 3) state, “the government intrudes where it need not, in everything from
coal mining to discos, and fails to manage the basic services that it should”.

Putting forth the economic success of the United States of America as an
example Ahuja et al. (2006: 1) strongly object to the “Gandhi-era economics” of
India that puts faith in “the nobility of a society of small-scale agriculture and
industry”. Similarly, Srinivasan (2003:1) calls the inward oriented economic
structure of India in the period before 1991, “a dysfunctional development
strategy”.

At the same time, anti-globalization activists propound the negatives of
globalization. On the whole, these arguments tend to focus on the negatives of
a free market economy and how global economic activity tends to be favored by
state governments over their citizens. The worrisome aspect in this case is that
since the rights of corporations tend to be valued more by a certain population
in the nation-state, corporations on the whole tend to have more power than
the nation-states. Anti-globalization activists attempt to give voice to those
people who suffer marginalization and loss of their ancestral lands and/or traditional occupations due large multinational corporations becoming ubiquitous the world over. Economic liberalization often results in income disparities and so Chakravorty (2005: 358) states, “economic globalization is associated with increasing regional polarization”. While discussing the views of the spokespeople of anti-globalization movements Starr and Adams (2003) stress that the fight is mainly about the lack of local autonomy that results from shifting to an open market economy. Speaking about the manner in which globalization affects world markets, Starr and Adams state, “globalization distorts all kinds of markets and destroys livelihoods without necessarily providing living-wage jobs in the process” (Starr and Adams 2003: 23). In the Indian context, no one has been as vocal about the detrimental effects of globalization as Vandana Shiva. Shiva has been actively fighting for the rights of rural small-scale farmers for more than a decade in India. Focusing on the spate of farmer suicides that have taken place and continue to take place in India, Shiva deplores the introduction of hybrid seeds, pesticides, and irrigation techniques during the period of the Green Revolution which have resulted in the current ecological and economic crisis for the agricultural sector in India (Shiva 2000). “The corporations are now trying to introduce genetically engineered seed, which will further increase costs and ecological risks” she states as she discusses the income disparities and marginalization that small rural farmers will face as a result of globalization (Shiva 2000: unpaginated). Urging the government to safeguard the interests of Indian farmers Shiva
asserts that globalization makes the food producing farmer into a consumer who has to buy seeds anew every year. This is in direct opposition to the manner in which traditional Indian agriculture has taken place for more than a thousand years. “This combination is leading to corporate feudalism, the most inhumane, brutal and exploitative convergence of global corporate capitalism and local feudalism, in the face of which the farmer as an individual victim feels helpless” (Shiva 2004: 3).

While both arguments about globalization are important to consider, it is also equally important to note that more often than not, the rhetoric that is used grossly simplifies the lived experience of globalization for a large segment of the population worldwide. For what exactly is globalization? Globalization is a polysemic term, the definition of which changes from one scholar to the other, depending on their perspective and their study design. What some call globalization, others call westernization (Pingali 2006, Popkin 2006), urbanization (McMicheal 2000, Ruel and Garrett 2004), affluence (Burkitt 1994), industrialization (McMicheal 2000), and modernization (Chakrabarty 2000, Zimmet 2000). The fact remains that global processes are complicated and indeed never uniform. Addressing the concept of a ‘flat world’ put forth by Friedman (2005), Christopherson et al. (2008: 345) argue that, “globalization is not flattening the world economy but accentuating its unevenness”.

Anthropologists have on multiple occasions demonstrated that every culture receives these global-flows with their own world view in mind and reconfigures it in new and different ways (Inda and Rosaldo 2008, Inglis and
Gimlin 2009, Jameson 1991, Wilk 2006, Srinivas 2012). What is even more troubling about the term is the view that is held by some, that global interconnectedness is a fairly recent development. Many a scholar has argued that global processes have been taking place for many hundreds of years (Gupta 2012). Indeed, colonization was its own form of globalization, albeit with a strong focus on expansion, assimilation, and exploitation. But one could go even farther in history to argue that humans have always been global creatures. One could argue that globalization began when the first *Homo sapiens* left Africa to occupy other parts of the world. Suffice to say, globalization is a rather loaded term, one which will be used in this dissertation but with some qualifications.

This dissertation focuses on the effects of global flows on the food habits, nutritional status, and changes in body preferences among my participants after the liberalization of the Indian economy in the year 1991. I focus on the way people manifest agency in the context of globalization, how they wrestle with effects of globalization, and how they make globalization a plural process.

Traditionally, before Marathi people begin their meals, they chant a simple prayer. A part of this prayer says, “Anna He Purnabramha”, which means food is the universe. Since Hindus believe that *Brahman* is the all-encompassing divine, that also means that they believe that food itself is God. This is an important theme of my dissertation, which aims to understand the way in which food is intrinsically connected in the life of my research
interlocutors to create their entire being. The title of this dissertation also mentions the term agency. A loaded term, agency has been defined in a myriad number of ways by scholars in social sciences. Therefore, it stands to reason that I need to define how I use the word agency in this dissertation and how other anthropologists have used this term.

In attempting to understand the recent trend of using the word agency in social science research, Ahearn (2010:28), provisionally defines the term as, “Agency refers to the socioculturally mediated capacity to act”. Ahearn’s demonstrates that the term is often used to imply “free-will” or “resistance”, though she is critical of this usage. According to Keane, agency is a term, that has in the recent decades, often been used to imply opposition not just of structure, but also culture. He encourages scholars to use this term carefully since discussions about interlocutors’ agency often focuses on self-interpretation (Keane 2003).

Feminist anthropology has its own notions of what the word agency means. For instance, deliberations on the practice of menstrual seclusion in early scholarships often did not focus on the importance of this practice to women. As Maggi puts it, “...women are not cast as agents, participants in the creation of cultural traditions, but as prisoners to rules made by and for men” (Maggi 2004: 118). Saba Mahmood’s writings about Egyptian female subjects has also focused on the varying meanings of agency. Speaking about feminist notions of agency, Mahmood notes that, “it is important to detach the notion of agency from the goals of progressive politics” (Mahmood 2005: 14).
There are many forms of agency, and oppositional agency is only one of those forms. The cultural contexts within which actions are situated also affect the use of what is called agency. The truth of the matter is that people’s decisions are steeped in social processes that surround them. Even as early as the mid-1800s, Marx pronounced that people are restricted by historical processes which have affected the social groups that they are a part of (Ahearn 2010).

I take Mahmood’s approach in addressing the agency of my interlocuter (2005). The term agency does not necessarily indicate subversion of norms. When people, especially women use the patriarchal structures and gendered expectations that are imposed upon them in new and inventive ways, this does not necessarily imply subordination or an outright resistance against social norms. As Mahmood states, “agential capacity is entailed not only in those acts that resist norms but also in the multiple ways in which one inhabits norms (Mahmood 2005: 15). Additionally, in the case of my interlocutors it is important to consider the historical processes that have shaped their perceptions of what it means to be an Indian and their resultant decisions. These historical processes, social and economic will be elaborated upon throughout this dissertation. As we embark on the journey of ethnographically comprehending my interlocuters actions and reflections on those actions, I would like to further point out that the actions of my interlocutors are also heavily affected by the religious and cosmological meanings that are attached to being a Deorukhe Brahmin female in contemporary India.
Before I continue on to discussions about global processes in India, I would like to define how I intend to use the word agency. In this dissertation, I use the word agency to imply navigation of the cultural changes, undertaken by my interlocutors, which can take explicit as well as tacit forms in the face of global processes. In this post-liberalized India, mothers make explicit choices to expand their cooking repertoire in the interest of ensuring the well-being of their children and family members. In this India, daughters tacitly approve of the globally inflected material as well as food culture that indexes where they belong in this changing landscape. I define agency as the active, conscious, explicit, as well as tacit navigation, by my interlocutors, of the cultural changes that are taking place in India today as a result of global processes.

The globalization that I refer to is that time period which followed after the collapse of the Soviet Union and those Eastern European nations that had centrally planned economies with associated centralized industrial planning (Srinivasan and Tendulkar 2003). Indian economy has changed drastically in the past 26 years since the advent of large scale Foreign Direct Investment (FDI). The classic definition of FDI refers to a company from one country making an investment into another country, typically by building a factory. However, FDI can take different forms in the present day. According to Graham and Spaulding (2005: unpaginated) “[...] given rapid growth and change in global investment patterns, the definition has been broadened to include the acquisition of a lasting management interest in a company or enterprise outside the investing firm’s home country. As such, it may take many forms,
such as a direct acquisition of a foreign firm, construction of a facility, or investment in a joint venture or strategic alliance with a local firm with attendant input of technology, licensing of intellectual property.” The increased influx of money and goods into the Indian market has also resulted in an increased rate of rural to urban migrations (Mathur 2005, Mitra and Muruyama 2008). This has also meant that metropolitan areas have been expanding (Mathur 2005, Roy 2009). The high rates of migration have also resulted in the development of towns with better infrastructure than the interior villages along the transport arteries and the peripheries of the cities (Mathur 2005, Pendse 2011). These are the factors that I consider when I think of globalization for this research project.

I envisioned this study as a means to bridge the divide between the two anthropological sub-fields of biological anthropology and cultural anthropology. My readings of nutritional anthropology, epidemiology, and cultural anthropology informed me that global modernity was unfolding in new and varied ways the world over. The question was to see, how it was unfolding in the present-day households of India. There is a definite gendered perspective to this study, the main focus of which are young and middle-aged upper caste Deorukhe Brahmin women living in rural villages, townships, and the giant metropolis of Mumbai. I began this study with the intention of noting the difference in the frequency of the appearance of obesity, diabetes, hypertension, and cardiovascular disorders among my rural and urban study subjects. This is because many an epidemiological study carried out in what
are sometimes called “developing” countries make a strong case for these Chronic Non-Communicable Diseases (CNCDs) appearing in close relation to globalization, westernization, and urbanization. These diseases are sometimes even referred to as ‘Diseases of Civilization’ or ‘Western Diseases’ (Burkitt 1994, Eaton et al. 1988). However, the more I read about epidemiological studies, the more I wondered how much ethnographic fieldwork was being carried out, something that could provide what Geertz (1973) called ‘thick description’ of the lives of the people who were being measured and studied. It occurred to me that purely biological studies often focused on observing their study subjects in a lab-based controlled environment while cultural anthropologists worked with their interlocutors in the environments that they occupy on a day to day basis. The sharp discontinuity between the manner in which the data collection takes place made me want to bridge the gap by carrying out anthropometric data collection while doing participant observation in the field. As such, this study is a result of a year-long fieldwork where I visited my participants thrice over a period of one year. In this dissertation, I discuss the dietary practices, food preparations, bodies, and body images in Maharashtra as a means of understanding the cultural processes that globalization brings about.

Through this study, I intend to discuss how globalization is unfolding in present day India and how people are active agents in globalization leading to the creation of new culinary, cultural, and bodily forms. This study focuses on the day to day lives of urban and rural Deorukhe women to illuminate the changing food consumption patterns, newly emerging gender dynamics, and
the perception of health and bodies. That Indians are dealing with and making culture change is true, but what does this culture change mean for the upper caste Indian households in general and Indian women in particular? The women I have interacted and engaged with during the course of my fieldwork are affecting the course of this globalization by practicing their own culturally situated agency. They are active subjects whose lives are changing not only as a result of external influences but also because of the choices they make. This study aims to provide a multidimensional picture of the lifestyle, food habits, food consumption preferences, the presence/absence of chronic non-communicable diseases, and the manner in which bodies are conceived of by these Indian women. People are complex creatures. Humans are biocultural creatures. In that sense, through this study I intend to demonstrate that a simple clear-cut separation of the two is not only impossible but inadvisable because the overlaps between culture and biology are significant. I use the term biology here in its conventional sense since there have been discourses that have argued that biology itself is a cultural practice and that the separation of bodily functions and biological issues from the cultural sphere is in itself a result of Western scientific thought (Daston 2000, Ingold 2000, Ingold 2011, Martin 1992, Martin 1998). Disentangling one from the other not only does disservice to the lives of the people we study but also provides nothing more than the partial truth of the reality of their existence. Therefore, using a mixed method approach, I attempt to understand the culturally situated but historically contingent notions of biology and bodies to
comprehend what globalization looks like on the ground. I aim to display the manner in which my participants use their agency to formulate new identities, thus creating a new India in the process. This is not an India without complications or contradictions, but an India where globalization transpires to create ethical and moral complications which in turn result in the formulation of new identities, culinary and eating practices, and bodies. Through this study, I will focus on the formation of these identities resulting from the manner in which my study participants mobilize their agency. I study the lived experiences of my participants by focusing on their cuisine, their cooking practices, their food consumption patterns, their lifestyles, their health, their reflections upon their own bodies, and what they self-identify as in this ever-shifting world of global flows and influences. Most importantly, this dissertation discusses agency and how this agency is envisioned in discussions of globalization as well as this agency’s relationship to culture, cuisines, bodies, and imaginings of the self and nation.

Post-Liberalization India

I would like to remind the readers that India, like most nation-states, struggles with its own complications. A country that was formed as a result of the colonial masters bringing together multiple different religious and ethnic groups that had lived in close contact with each other for several thousands of years under the umbrella of the Empire, India means diversity and plurality. India means different things to different people based on their religion, caste, gender, and socioeconomic status. Thus, it would be fallacious to fail to
mention, at the onset of this study, that the India I represent and refer to, is the India that I have experienced and the India that was portrayed to me by my study participants through their conversations with me.

Indian economy liberalized in the year 1991. The 1991 census of India shows that less than 12% of the entire country’s population inhabited the metropolitan areas of India. These metropolises were where the corporate headquarters were located. About 14% of the country’s population lived in towns that had a population of less than 200,000. The census therefore displayed that almost 74% of the country’s population occupied rural villages (Harris-White 2003). The 2011 census shows a change in this percentage. The 2011 census show that 32% of the country’s population now live in urban India and 68% live rural India (Chandramouli 2011). Globalization, as considered here, refers to the changes that have taken place in India after this 1991 economic liberalization.

Prior to 1991, the Indian economy developed within a market that had very little access/exposure to products that were not produced within India (Mathur 2005). The Indian government experimented with the mixed model economy for more than four decades before it decided in 1991 to open its markets to liberalize investment and trade activities (Panda and Ganesh-Kumar 2008, Vepa 2004). The 1991 economic reforms focused on industrial and service oriented sectors. This was a result of large scale structural transformations since India has historically been a primarily agrarian economy (Hnatkovska and Lahiri 2012). The removal of agricultural subsidies by the
Indian government in compliance with the World Trade Organization’s demands during the post-liberalization period is vastly different from the pre-liberalization India that was oriented towards supporting small scale farmers (Shiva 2004). This kind of economy was heavily influenced by the Soviet model of development (Wadhva 2004). Wadhva (2004: 260) calls this, “[a] strategy based on an ‘inward-looking import substitution model’”. Being a self-sufficient economy meant that most of the products sold in India were produced within its borders. During this period, the Indian government tightly regulated the import of goods as well as technology (Krishnan 2003).

Though India was a closed off economy post-independence and prior to the economic liberalization, Indian people were not unaware of the kinds of products and technological equipment being sold outside of India, especially in western countries. Much of their understanding of the western world came from Hollywood movies. Imported products were also freely available to those who desired to consume them, albeit being extremely expensive due to heavy taxations that were levied on items that were imported within the Indian borders. More importantly, Indians who traveled outside of India brought back with them, not just stories of the western world, most of which portrayed it as a sort of utopia, but also products which were much admired and coveted. This deserves a mention because it creates backdrop to understanding the manner in which Indians perceive global products and the qualities that they ascribe to them.
In the year 1991, India was undergoing a severe economic crisis that necessitated market reforms. The economy as plagued with extremely high rates of inflation. Along with that, India was struggling to meet external debt obligations and was on the brink of having to declare bankruptcy. Following the example of East Asian economies such as Thailand and South Korea, economies which were focused on exports and globally connected strategies, the (then) newly elected Prime Minister Narsimha Rao and his economist Finance Minister Manmohan Singh, decided to pass the economic reforms in the year 1991 (Wadhva 2004). These economic reforms were supported by the World Bank who approved of a $500 million structural adjustment operation. This operation had two main aims. The first aim was to help India mitigate the payment crises that it was facing. The second aim was to help India pass a policy reforms that would liberalize its economy, allowing for competition from within and outside India in the trade sector (The World Bank Group n.d.).

In 1991, the economic ideology of India changed significantly when the Indian government passed the economic liberalization policy (Krishnan 2003). The reasons for the implementation of the trade liberalization policy are varied and will not be discussed here in detail. A detailed discussion about this will be included in second chapter of this dissertation. To put it very simply, the economic changes taking place in modern day Indian cannot be understood without understanding India’s colonial past or the state of the Indian economy in the post-independence period. As a primarily agrarian economy, the effect that colonization had on the manner in which agriculture was practiced in
India was significant. The economic structures that existed in India prior to its colonization by European countries were distinctly different. India has been an important trade center since the protohistoric times (Kosambi 1965). By the time it was colonized, India was producing cash crops, opium, indigo, spices, and cotton in large quantities for the British. In its true sense, commercialization of agriculture began in India during the colonial British rule, drastically affecting the traditional agricultural and economic systems (Franke 1987, Gupta 2012, Roy 2002). This agricultural and economic legacy of colonial India was inherited by postcolonial India.

Western notions of “development” which meant advances in industrialization and a focus on increasing agricultural productivity with the application of scientific knowledge influenced the policy decisions of the newly independent nation-state of India. The development discourse that was prevalent then, and continues to be widespread in present day India, gave the “less developed countries”, such as India and China a model to emulate. By treating these countries as if they were historically in an earlier stage of development, the “more developed” western nations affected the economic policies of these newly independent countries. Indian leaders, especially Jawaharlal Nehru who was the first Prime Minister of India, was highly impressed by the high growth rate of Soviet Union after their adoption of the industrialization strategy (Gupta 1998). Nehru, who served 4 terms as the Prime Minister of India from 1947 until the time of his death in 1964, greatly affected the course of the India’s economic policies (Zachariah 2004). Low
agricultural productivity coupled with increasing population pressure meant that India needed aid, which was provided by the United States of America starting from 1956-1957 (Gupta 1998, Varshney 1989). Nehru himself was a devout believer in following the policy of non-alignment during the Cold War period. He did not wish to align India with either USA or the USSR, preferring instead to choose Britain as the lesser of two evils, thus joining the Commonwealth (Zachariah 2004). However, Britain itself was dependent on the United States of America for aid during the post war period (Gupta 1998).

Unwilling to alienate India, which was one of its key allies, Britain tended to tread more carefully, and not act in a bullying manner in the global trade market, something that Nehru appreciated since it contrasted sharply with USA’s behavior (Zachariah 2004).

Nehru’s sudden demise in 1962 left India with no clear understanding as to who would succeed Nehru and take up the role of being India’s leader (Zachariah 2004). In the mid-1960s, specifically 1965-66 and 1966-67, India experience profound drought. Food grain production was adversely affected. The food aid from USA tripled in quantity (Gupta 1998). Wheat imports from America in the manner of aid were contingent under Public Law (PL) 480. The sudden increase in food aid from USA resulted in the then President demanding monthly reports from India to determine how much wheat would be exported to India. When the Indo-Pak war broke in 1965, USA suspended food aid. Both USA and the World Bank demanded that the resumption of aid required India to agree to financial and agricultural reforms. Severe drought in
the year 1996-67 following the suspension of aid from America and the 1965 Indo-Pak war, resulted in Indira Gandhi, the then Prime Minister of India, who was also Nehru’s daughter, to accede to USA and World Bank’s demands. The Indian rupee was devalued in 1966 and some economic reforms were accepted (Gupta 1998, Varshney 1989).

To protect independent India’s self-sufficiency model of economy, India had imposed Quantitative Restrictions (QR) on imports. The government also subsidized exports. The 1966 liberalization required of India to substantially relax these restrictions. After the devaluing of the Indian currency in 1966, foreign aid did not resume. In turn, the Indian government repealed the economic liberalization reforms it had acquiesced to passing and reinstated quantitative restrictions on imports, albeit with less severe measures than the ones that existed before 1966. Export subsidies also returned (Johri and Miller 1988). In light of the agricultural crises however, the Green Revolution was accepted by the Indian government as a solution. This ushered in an entirely new system of farming, one that was drastically different than the traditional system that existed. Indian farming, though focused on cash crops as a result of British colonization, was primarily focused on subsistence farming. Apart from the cultivation of cash crops, the traditional mix cropping technique using grain had been genetically selected through centuries to suit the ecology, was still being used widely until the adoption of the Green Revolution. This kind of farming was also focused on using animal and human labor rather than machinery. Local crops depended on the Indian monsoons for their growth as
opposed to the hybrid crops introduced during the Green Revolution that were heavily depended on irrigation as well as the use of pesticides and fertilizers. All of this changed when the Green Revolution was adopted by the Indian government in 1966 (Bowles 2003, Chakravarti 1973, Parayil 1992, Shiva 1991).

The adoption of the Green Revolution resulted in a drastic increase in the food output of India, finally bringing about the self-sufficiency that the Green Revolution promised. The result was that India terminated the food aid it used to receive under PL 480 from the United States of America (Varshney 1989). Though food imports into India continued up until the 1970s, in the 1980s and 1990s India started to export food out of the country owing to surplus produce availability (Johri and Miller 1988, Larson et al. 2004). Quantitative restrictions on imports were further relaxed in 1977-78 with a view to begin reforms in the industrial policies of the country. During the 1980s, the Indian government further attempted to ease import restrictions, despite continuing with a rather restrictive trade policy. While this liberalization was taking place in the 1980s, there was a rise in macroeconomic imbalances which had a detrimental effect on India’s economic stability. The 1990 Gulf war resulted in a sudden increase in the price of oil in the world market, which made the Indian economic situation more vulnerable. At this juncture, the Indian government requested the International Monetary Fund (IMF) for aid. The IMF agreed to help the Indian government on the condition that the Indian economic structure was reformed and along with India’s restrictive trade policy. This was the start of
India’s 1991 trade liberalization which, as per the demands of IMF, drastically reduced the quantitative restrictions on imported and exported goods (Topalova and Khandelwal 2011).

Briefly stated, economic growth, poverty reduction, and food security were the main objectives of the 1991 economic liberalization policy (Panda and Ganesh-Kumar 2008). The economy was liberalized with the aim of improving the competitive efficiency of the economy in the global market (Wadhva 2004). The hope of the Indian government was to attract Foreign Direct Investment (FDI), relax the restrictions on imports, encourage exports, and to remove licensing and “monopoly” controls (Krishnan 2003). These were market oriented reforms that focused primarily on market liberalization and providing a larger role for private enterprises (Wadhva 2004). The most important outcome of this new economic policy was the liberalization of policies that governed external trade (Mathur 2005).

This resulted in a rapid growth of the country’s economy, making India one of the fastest growing economies in the world today (Deaton and Drèze 2009, Mathur 2005). The country has experienced a significant rise in its GDP after the economic liberalization. GDP growth, per annum, has averaged above 6.5% per annum in the last decade and a half (Panda and Ganesh-Kumar 2008). The two factors that result in what economic scholars recognize as a process that results in economic globalization are trade and Foreign Direct Investment (FDI) (Mathur 2005). The reforms policy passed by the Indian government in 1991 created an environment for the Indian economy to interact
with and be influenced by the global market. The tightly controlled economy of India prior to 1991 therefore contrasts sharply with the present day Indian economy.

Though often seen in a very positive light, there are certain unintended and negative consequences that have occurred in the wake of these economic reforms. For one, result of the economic reforms has been far from uniform all over the country. The data demonstrate that income disparities have increased greatly with the amount of poverty stricken population increasing at the same time that we see a rise in the GDP of the country (Panda and Ganesh-Kumar 2008, Wadhva 2004). Similar to growing income disparities, the disparities between the developed states of the country and “backward” areas also show a sharp increase (Wadhva 2004). This has resulted from an important change in state policies in the post-liberalization period. Prior to the economic liberalization, the Indian government strove for a balanced economic development all over the country. In the interest of achieving that goal, the government encouraged companies by offering them incentives in the form of subsidies and industrial licenses to set up their operations in the “backward” areas of the country. This state supported impetus lost traction when the economic liberalization took place. The result of this deregulation is the geographical clustering of economic enterprises around large metropolitan centers such as Mumbai. Companies and businesses prefer to set up base in and around these large metropolises due to ready availability of infrastructure. However, this also results in a considerable strain on the urban infrastructure.
This causes fast paced urbanization and a rapid rate of rural to urban migration (Krishnan 2003). Secondly, though the Indian economy has experienced accelerated growth since 1991, this has not translated into an increase in employment opportunities. Rural India, in particular, has suffered with unemployment rates rising from 5.61% in 1993-94 to 7.21% in 1999-2000 (Wadhva 2004).

It is however obvious that as a fast-growing economy, India’s burgeoning middle class, approximately amounting to a sizeable 350 million, is an attractive customer base for foreign corporations (Wadhva 2004). On the whole, the trend in regard to economic changes post-liberalization demonstrate that there is a positive correlation between caloric intake/consumption, expenditure, and family income (Panda and Ganesh-Kumar 2008). My own fieldwork demonstrates that per capita expenditure on groceries and food products can range between ₹312 (~$4.87) to ₹4,333 (~$67.70) among my rural households and between ₹1,250 (~$19.53) to ₹7,500 (~$117.18) for my urban households. The factors that affected this expenditure were the income of the family and the size of the family. Often, a higher income meant that a portion of the sum that was reported was affected by the cost of family meals at restaurants or food ordered in from restaurants.

A significant increase in Foreign Direct Investment (FDI) and Foreign Institutional Investment (FII), has been noted since the period of Indian economic reforms (Wadhva 2004). However, entering the global market also means having to function in close contact with corporate giants from developed
countries who have vested interests. Wadhva (2004) warns us in no uncertain terms that it is of utmost importance that the Indian government formulate good strategies to safeguard vulnerable sectors such as farming and small scale industrial units from the impact of global competition.

The year 2001 saw some more economic reforms having been passed. The Indian government had applied for quantitative restrictions on imports after 1991. Certain GATT (General Agreement of Trade and Tariff) and WTO (World Trade Organization) provisions allow member countries that are in an earlier stage of development, and can only support a lower standard of living, to apply quantitative restrictions on imports. The provision also expects the member country to publicly announce a schedule for when these quantitative restrictions will be eliminated. Initially the Indian government presented a schedule of 9 years. Since some European countries and the United States of America (USA) objected to the schedule, the Indian government presented a plan of 6 years. Though the other countries all agreed, the USA was opposed to this plan as well. The USA filed a dispute against India. The result of the WTO dispute panel was that India was told in no uncertain terms that the country would have to reach a mutual agreement with the USA or face arbitration. In the light of these events, India signed a mutual agreement with the USA in December of 1999 and in April of 2001, the quantitative restrictions on imports were lifted (Mehta 2000, Wadhva 2004).

With each successive government, the economic reforms of 1991 continue to be carried forward. The Indian government restricted FDI in retail
for many years post-liberalization in the interest of protecting the small time local retailers (Mukherjee et al. 2014). That changed in 2006 when the government felt the need to attract foreign retailers into the Indian market. In 2006, fulfilling certain conditions, 51% FDI in a single-brand retail enterprise was approved (Mukherjee et al. 2014). Subsequently, in December of 2012, at the then ruling government’s initiation a reform that allows a 51% Foreign Direct Investment (FDI) in multi-brand retail sector was allowed (Bailey and Jain 2016). One of the main corporations that was interested in this approval was Walmart. With this approval, Walmart is geared to enter the Indian retail sector soon (Bailey and Jain 2016, Baskaran 2011). This move has been lauded by most economists who claim that this approval will only further add to the growth of the Indian economy.

Indian markets are seen as a prime area for investment as the consumers continue to want access to foreign brands. A burgeoning middle class alongside rising GDP and availability of disposable income has changed the behavior of Indian consumers significantly. Most retailers, including the Indian government are aware of the rising brand consciousness of the Indian consumers. The significant growth of the retail sector is India has attracted more and more foreign brands to invest into the economy. The largest retail segment in India is the food and grocery sector. Apparel and clothing, catering, and food service follow the food and grocery sector. Supermarkets are evolving and becoming a norm. Additionally, online grocery shopping at very reasonable rates is gathering momentum (Mukherjee et al. 2014). Following suit of the
previous government, the current ruling government have further opened the gates by announcing the sanction of a 100% Foreign Direct Investment in multi-brand processed food retailing (Bailey and Jain 2016).

These provisions are sure to affect Indian consumers, local small-scale retailers, middle men, as well as farmers. Economists in favor of these policies cite success stories of similar economies having experienced positive economic growth resulting from FDI in the retail sectors (Fernandes et al. 2012, Jain et al. 2012). At the same time caution has been recommended by others (Baskaran 2011, Wadhva 2004). The ground reality of what sounds like a continuous series of events is very different however. The rise of supermarkets in India has led to genuine concern and fear among traditional grocery shopkeepers. This fear has led to increased resistance by local grocers, middle men, and farmers, all of whom find the liberalization of the retail sector threatening to their existence. After the announcement of investment plans by Wal-Mart in 2005, the US-based Association of Community Organizations for Reform Now (ACORN) created an organization called India FDI Watch which brought together farmers, middle men, Indian trade unions, and local grocers and shopkeepers to rally against the liberalization of the retail sector. Several protests (violent and non-violent) were carried out to in 2006 and 2007 in different parts of the country (Franz 2010). In September 21st of 2012, when the government began the initiation of 51% FDI in multi-brand retail approval, shop keepers, truck drivers, and laborers went on strike resulting in schools, businesses, and government offices being shut down in many parts of the
country for one day. Many cited their reason being that the local people would suffer if corporate retail giants such as Walmart were allowed to enter the retail sector (Bhattacharya 2012). Protestors held up signs that said, “Take back Walmart” in Hindi and some vocalized their fears by saying, “What happens to the local people? The way India does business is very different – the indigenous way of working is better. We don’t want the culture to be destroyed” (as quoted in Bhattacharya 2012). While the government continues to approve of the 2012 reform, scholars like Bhaskaran (2011) and Wadhva (2004) urge for the government to safeguard these sectors, sectors that they deem are vulnerable to foreign competition. Bhaskaran (2011) warns that allowing large corporate giants such as Walmart to monopolize the retail sectors will sideline the local small-time retailers. She also warns that it the loss of local retailers will leave the farmers at the mercy of corporate giants who will buy goods from them at the prices they see fit, mirroring the conditions that exist in western countries such as the USA.

My own experience in the field demonstrates that the typical kirana shops (local grocery shops) still exist in the towns and community development blocks of Konkan and Mumbai city. Based on the nomenclature used by the Indian government, certain areas of my study have been categorized as towns and others as community development blocks (Census of India 2011: Some Concepts and Definitions, Government of India 2011, Shah 1974). These categorizations will be discussed in detail in the next chapter of the dissertation. The local grocers in Mumbai however have to compete with the
super markets that are becoming more and more popular. One of the reasons
kirana shops continue to exist side by side with the super markets is that large
shopping marts require large spaces. Such large spaces are far too expensive to
buy or rent in areas that are usually known as ‘old city’. Such areas are the
heart of the cities, from whence the city continued to expand. This applies to all
of the suburbs of Mumbai. It is here that the kirana shops continue to thrive.
To gain and retain customers the owners have started arranging their shops in
the manner in which supermarkets are arranged so that the customers can
come inside the shop and touch and inspect the products they wish to buy.
The old pattern of kirana shops necessitated the customer to stand behind and
counter and ask for the shopkeepers to hand them products. Supermarkets
instead allow for people to touch and inspect the products they wish to buy.
Hence the local grocers are now setting up their shops to recreate the
supermarket ambience and experience. Most kirana shops are not typically air
conditioned while the supermarkets are. Therefore, the kirana shops are now
adding this feature to their shops. Furthermore, these kirana shops also try to
retain customers by asking them to come pick out / give in a list of their
monthly groceries so that they can then be home delivered by one of shop
workers. Madhavi (45 years of age), who runs a baby crèche at home, lives in
an old part of the city, and only gets Sundays off told me, “I spend about 10
minutes shopping for my groceries. I buy vegetables weekly from the local
farmer’s market but the rest of the dry stuff is bought from the kirana shop
that is a 3-minute walk from our house. I go to him, give him a list, pay him,
and he has one of the boys who works in his shop deliver the groceries to our house. He even grinds the wheat I buy from him into atta (whole wheat flour) for chapatis. We have been buying groceries from him for years now and it is the most convenient option.”

This is the India of the present day. An India of rapidly growing retail sectors. An India full of brand-conscious consumers waiting to partake in globalization. An India where small scale enterprises, farmers, and local retailers are resisting the entry of large foreign corporate retail giants. An India where the rural sector now constitutes for 55% of the retail market (Mukherjee et al. 2014). This is an India with small rural villages where people have to travel for several hours to do their weekly/monthly grocery shopping and also an India where in a large metropolitan area such as Mumbai, there are no less than 4 grocery shops within a walking distance from your house. Most importantly this is an India that is making new strides in the global economy while experiencing increasing income disparities, a rising middle class, and a reduction in poverty. For these reasons, I chose to study rural and urban India for this project.

**The Deorukhe Brahmins**

I chose India not only because I have been a student of Indian culture since my undergraduate years, but also because India stands poised as a perfect site to study the manner in which globalization affects the lives of people and how people navigate these global processes by being active agents of the process. In the year 2012, while in India for a period of two months I
attempted to establish contact with an endogamous caste group that would agree to be a part of my dissertation research project. I had decided in advance that the population I would study would be from the state of Maharashtra, preferably from the Konkan region. There were two main reasons for this. One, I wished to do an urban to rural comparative analysis to ascertain the appearance of Chronic Non-Communicable Diseases. Since Mumbai, the largest metropolis in India was situation in the Konkan region of Maharashtra, finding a population that ancestrally belonged to the rural Konkan region was the aim. The second reason was to reduce issues that might arise from the inability to communicate effectively since India is a multi-lingual country and each state has its own language. Born and brought up in the state of Maharashtra, I am fluent in Marathi which is the official language of the state and also my native tongue. Apart from these already mentioned reasons for my interest in India as a site of study, my personal experience as an Indian was another motivator in my wish to do my dissertation on India. The road that has brought to me to this topic has been a long but an interesting journey. My understanding of ancient Indian culture, history, and archaeology, coupled with my background and training in biological anthropology continues to affect the manner in which I conceive of my research and my interlocutors. However, my readings of cultural anthropology and nutritional anthropology made me curious to study and understand the manner in which nutrition transition takes place in the context of strong religious beliefs such as Ayurveda, the historical context of colonization, and the present state of global flows.
After initial unsuccessful attempts to engage heads of certain communities, I was introduced to the Deorukhe Brahmin community by Dr. Sanjay Juvekar, a medical anthropologist who works with the King Edward Memorial (KEM) Hospital’s rural Vadu branch. The Deorukhes self-identify as being autochthonous to the Konkan region. They have also been migrating at a consistent rate to the city of Mumbai. This seemed like a population which I would be able to study effectively. When I approached the community elders of the Deorukhe, they seemed excited at the prospect of being studied. Thus, began my journey to study the urban and rural Deorukhes. In a period of one year, I have visited 132 households to collect data for this study. With each household, I have come across people, most of whom have been kind, polite, and patient enough to answer my sometimes tedious, oftentimes invasive questions about their lives, their ideas, and their experiences. It is my hope that through this dissertation, I will do justice in portraying as accurate a picture as I can of these people who spent countless hours of their time talking to me, welcoming me into their houses, and many a times feeding me delicious meals.

**Literature about India**

A brief literature review is warranted in this chapter to lay the foundation of the avenues of analysis that this dissertation will be pursuing. The Indian society has a long history of the *varna* system, now referred to as the caste system (Prabhu 2000). When I began my research, the intention to study an endogamous caste group was to reduce the appearance of physiological
differences that could be explained away as resulting from genetic differences. However, choosing the Deorukhe Brahmins, an upper caste group, brought along with it social and cultural complications with regard to purity which I had not expected to come across during the course of my fieldwork. These complications will be expanded upon in detail in chapter 2 of this dissertation.

Hindus, especially the upper caste Brahmins have historically always been concerned with maintaining the purity of their caste group (Douglas 1966, Harper 1964). This purity is maintained not only by restricting their contact with people belonging to lower caste groups, but also by actively creating boundaries through means of food (Appadurai 1981, Appadurai 1988, Narayan 1995, Khare 1992, Khare 1995). Commensality with members belonging to different caste groups has been avoided for centuries in India. The Brahmins are especially concerned about this for the fear of corruption (Conlon 1995, Staples 2016). The question of caste is a looming one for everyone who lives in an Indian village. Speaking of relations between castes in an Indian village in his classic ethnography, Srinivas (1976: 164) states, “One of the first questions asked of a visitor was about his *jati* (caste group in connection to the local community), and the villagers regarded that bit of information essential in order to learn about his occupation, diet, and life-style. How they behaved towards him also depended to some extent on his *jati*.” While, my experience with rural Deorukhes has been similar to what Srinivas (1976) says, the experience in the cities is vastly different. Independent India has been working hard to reduce the inequalities caused by the caste system for several
hundreds of years, if not thousands of years (Staples 2016). Caste discrimination is heavily censured by the Indian government and in cosmopolitan spaces such as Mumbai, people often do not outright ask for someone which caste group the belong to. This is usually done by observing the person’s family name, behavior, clothing, and language.

Gender roles, especially those of women, play a large role in the manner in which food is distributed and consumed within the household (Appadurai 1981, Jassal 2012, Janeja 2010). The woman’s role as the household gastronomic decision maker is a common feature in most Indian households, whether they be rural or urban, past or present (Jhala 2012, Solomon 2016, Srinivas 2012, Srinivas 2013). Being the household’s gastronomic provider is a role that very few Indian women can escape from. This expectation affects women to the point of feeling guilty in case they are incapable of taking care of their kitchens as expected by their families and by the society at large (Janeja 2010, Srinivas 2013).

The foodscape of India has historically been affected by India’s trade contacts with its surrounding areas (Kosambi 1965). Be that as it may, colonialism left a rather deep impact on the Indian psyche (Chakrabarty 2009). In this postcolonial and post-liberalized India, eating global cuisines has as much to do with India’s past as it has to do with the global media and corporations which sell non-traditional foods as the means by which Indians can find their place in an increasingly globally connected world (Caplan 2009, Dash 2005, Kulkarni and Lassar 2009, Sameer 2012, Srinivas 2007). This
economic and social background is important to consider so as to comprehend the ethnographic experiences that I will be focusing upon and analyzing in this dissertation.

The economic liberalization of 1991 has affected the food distribution systems of India. The integration of food consumption, globalization, and urbanization in the lives and health of people in developing countries is a phenomenon that has been studied by several scholars (Kennedy et al. 2004, Mendez and Popkin 2004, Vepa 2004, Pingali 2004, Inglis and Gimlin 2009). Global processes affect food production, distribution, and consumption (Anheier and Isar 2007, Inglis and Gimlin 2009). India is one of the countries that is undergoing rapid economic transition since 1991 (Pingali and Khwaja 2004, Pingali 2006). The process of urbanization is closely related to these global and local economic changes (Bloem et al. 2004, Kennedy et al. 2004, McMicheal 2000, Mendez and Popkin 2004, Philips 2006, Ruel and Garett 2004, Vepa 2004). The study of how global and local economic changes have resulted in changes in the food acquisition and food intake in a developing country that is India, is an important aspect of this study (Kennedy et al. 2004, Koc and Dalhberg 1999, Pingali 2004).

Changes occurring in the gender roles of women, especially in the urban settings, as a result of education and employment outside the home, are factors that significantly affect the intrahousehold dietary patterns (Jassal 2012, Kennedy 2004, Ruel and Garett 2004, Yates-Deorr 2012). These dietary changes result in nutritional and health status changes, especially in the
occurrence of what are termed as “diseases of civilization” or non-communicable diseases (Eaton et al. 1988). Prime examples of chronic non-communicable diseases (CNCDs) are obesity, type 2 diabetes, hypertension, and cardiovascular disorders. These CNCDs are believed to arise due to the rapid and dramatic changes that are taking place in the diet and lifestyle of humans in the present day (Boaz 2002, Brewis 2012, Eaton et al. 1988, Pollan 2008, Popkin and Doak 1998, Popkin 2006, Schmidhuber 2004, Wells 2012, Zimmet 2000). Based on this premise, my main objective was to comparatively study the food consumption patterns of the Deorukhe mothers and daughters from rural Konkan and urban Mumbai. The expectation was that my interlocutors would mirror the health-related patterns such as the appearance of CNCDs (specifically obesity, hypertension, diabetes, and cardiovascular disorders) which have been observed in other industrialized countries as a result of nutrition transition.

CNCDs are important to study because data collected from developing countries all over the world shows a rise in death resulting from these diseases (Popkin 2001). In 2004, almost 50% of the deaths that occurred in India were as a result of CNCDs (Mahal et al. 2010). Many a scholar have taken to studying these diseases which are affecting contemporary Indians (Ebrahim et al. 2010, Mohan et al. 2007, Ramchandran et al. 2001, Solomon 2016). India ranks number one in the number of diabetics in the country and cardiovascular disorders are the number one cause for deaths in the country (Solomon 2016). This rise in the number of people afflicted with CNCDs has led
to studies about the Indian body pattern so as to note if bodies of Indian peoples are more susceptible to CNCDs. It has been now conclusively shown that Indians have a higher amount of body fat and abdominal adiposity. This results in Indians having higher incidences of CNCDs at lower BMI thresholds (Ahmed et al. 2009, Deurenburg et al. 2002, Dudeja et al. 20001, Kurpad et al. 2002, McKeigue and Shah 1991, Misra 2003, Misra et al. 2009, Modi et al. 2009, Ramachandran 2001). Studies on Indian infants have demonstrated conclusively that as a result of several years of undernutrition, Indian infants are born with a low birth weight. This connected to the thrifty genotype / phenotype hypothesis. This makes Indians more prevalent to developing CNCDs in contemporary India where urban peoples in general face overnutrition (Griffiths 2001, Yajnik et al. 2002, Yajnik et al. 2003, Yajnik et al. 2004).

In such a situation, it is necessary to note that Ayurveda forms an important backdrop. The ayurvedic episteme has affected how Indians think about food and their bodies for centuries. The Ayurvedic backdrop is not unique to India. Indeed, Anderson (1988) and Farquhar (2002)’s studies have demonstrated that a similar backdrop also exists in China. The Ayurvedic ideology of food asserts that, “Food mutually nourishes and cures the body and soul of a Hindu (Khare 1992: 208). Ayurveda believes that a person’s diet and health are closely connected. It is believed that each person’s body has three important humors, that of wind (vata), bile (pitta), and phlegm (kapha) (Khare 1992). The right kind of food when eaten will result in a good body and a good
mind. Ayurveda claims that to attain a spiritually higher position, one needs to consume foods that are right for both their age and their social position. According to Ayurvedic ideology then, the spiritual, nutritional, and medical aspects of food are intertwined (Khare 1995, Langford 1995). The Hindu body is then more than just a biological entity. It exists also as an entity that is reflective of one’s social, political, and caste status. And this body is made with the food that is imbibed. Similarly, illnesses and the way they are perceived of and dealt with are reflective of one’s status in society. Understanding this is vital to comprehending the food choices made by my interlocutors.

**Dissertation Plan**

This dissertation is divided into seven chapters. Chapter 2 gives an overview the study site and discusses the overarching methodology. This chapter will discuss the meaning of the words urban and rural as pertaining to discussions about the similarity or dissimilarity of the terms. What rural and urban mean as defined by the Indian government will be clarified, as will be the clarified the manner in which I intend to use these terms for the purpose of this dissertation. One of the purposes of this chapter is to demonstrate the characteristics of the region of Konkan while discussing the changes that have taken place socially and economically in the post-liberalization period that have resulted in the present condition of the region. The second purpose of this chapter is to discuss the experiences of the ethnographer in the field. A discussion on the manner in which the I was perceived as the ethnographer by my study participants and their resulting responses will enable the readers to
understand why certain field methods were given priority over others during the course of this fieldwork.

Chapter 3 discusses the significant overlap between biological and cultural data. I focus on the practice of menstrual seclusion to demonstrate that rural Deorukhe women do not conceive of a separation between the biological and cultural aspects when it comes to thinking about their bodies. Deep cosmological meanings affect the perception of health because bodies are seen as an extension of one’s cultural values by the rural Deorukhes. This chapter illustrates that rural Deorukhes view bodies as essentially cultural in nature, steeped in traditional Ayurvedic notions about food and caste purity. At the same time, the manner in which discussions about bodies are taking place among urban Deorukhes is shifting to include both Ayurvedic health notions as well as western notions of biomedicine. This chapter discusses the changes taking place in present day urban and rural India. While rural Indian women view menstrual seclusion is empowering because it gives them the ability to call themselves pure, urban Indian women believe that not practicing menstrual seclusion is empowering because it allows women to make decisions about their own bodies. This chapter demonstrates that the overlap between biology and culture is significant and should be considered carefully while discussing the appearance and perception of CNCDs.

Chapter 4 considers the anthropometric data that has been collected as a part of this dissertation fieldwork. In this chapter, I focus on the concepts of nutrition transition and thrifty genotype/phenotype to ascertain whether there
is a statistically significant difference between the rural and urban Deorukhe participants. At the same time, an intergenerational difference or similarity among the younger and older participants will be noted to observe the effect of age on the appearance of obesity, diabetes, hypertension, and cardiovascular disorders in this population. The hypothesis that were tested and the statistical analyses that were employed will be elaborated on and the results will be discussed in detail. Finally, this chapter will also take into consideration the reflections of the study participants about their own health and the manner in which they view Chronic Non-Communicable Diseases. I propose that Chronic Non-Communicable Diseases, despite being seen as highly problematic in the Indian context, are not viewed by the people who suffer from them as particularly problematic or in need of being treated but rather as diseases that occur due to aging. This chapter also then shows the way people attempt to live their daily lives when diagnosed with such diseases.

Chapter 5 discusses the importance of kitchens as sacred spaces among the Deorukhe peoples. The shift of the location of interaction from my interlocutors’ living rooms to their kitchens also affected our dynamic and the conversations that entailed. The chapter looks at how Indian women, particularly Deorukhe women see the kitchen as a space that is emblematic of the capability of a female householder. Ethnographic data in this chapter reveals the shifts in not just the kitchen technology from urban to rural Deorukhe households, but also the shift in attitude towards these kitchen implements and the symbolic and ritual significance of the kitchen hearth.
With exposure to media and the availability of cooking shows and channels, through this chapter I trace the differences in the attitudes of Deorukhe mothers and their daughters towards cooking in general and its indication of what it means to be a good cook. Finally, the chapter looks the connection between cooking and commensal groups and how this is highly significant for rural Deorukhes in comparison to urban Deorukhe households.

Chapter 6 will focus on the manner in which my participants use food to navigate and change global flows. I will focus on the food consumption patterns of the urban and rural Deorukhe to contrast and compare them. The frequency of taking family meals outside the house and the effect that location, household income, ideas pertaining to nutrition, and caste based restrictions has on this frequency, will be noted. The emergence of new food categories based on the manner in which the self is imagined in the context of the local, national, and global will demonstrate that that global influences on something as fundamental as food practices are never imbibed uniformly. The affective response towards the western and high class Indian eateries as opposed to the local food shops and street foods will be discussed. Most importantly, this chapter focuses on the expectations that arise out of being an Indian householder and a mother. The increasing anxiety of Indian mothers in face of the wish of their younger children wanting to eat non-traditional foods, as well as the perceptions of care attached to home cooking indicate that food globalization is a complicated process. This complicated process is affected not only by the demands and interests of the children in the household but also by
the control that is demonstrated by the mothers in the household who are the gastronomic gatekeepers and therefore very much agents of change in themselves.

Chapter 7 plots the possible future directions that can be taken using the data gathered during the dissertation fieldwork. It also briefly touches upon how bodies are perceived by Deorukhe women using some examples from the body size preference data that was collected in the field, but has not been expanded upon in this dissertation.

**Broad Implications of this Study**

The aim of this work is to provide an ethnographically detailed picture of the true nature of global economic changes and the manner in which it affects every aspect of the lives of people, no matter whether they live in interior rural village of Konkan or the giant metropolis of Mumbai. The hope is to add to the current understanding of how global flows are not passively received by people. The world is an ever-shifting landscape of interconnected webs that continue to affect one another. In such a case, it is wise to acknowledge that global processes are neither a completely positive, nor overwhelmingly negative. While nutritional studies continue to discuss the problem of increasing appearances of chronic non-communicable diseases among populations of India, it is important to understand how Indians themselves view these physical conditions. When scholars aver that cultural and national differences are the vestiges of the past, it is important to note that no matter the homogeneity of the object, the manner in which that object will be perceived and used will still
continue to change. The material cultures of the world may well become uniform one day, but the belief that this means that the whole world thinks in an identical, uniform manner is fallacious. I went into the field expecting to see a largely clear picture of how urban Indians regularly ate out while rural Indians ate at home. I also went into the field expecting to see mothers who were losing control over affecting the food intake of their children while feeling anxious about their well-being. What I saw was a very complicated picture that not only showed what I expected to find, but also told me that mothers were by no means letting go of the control they had over their children’s food intake. In urban India, I saw women who struggled and often successfully managed to fulfil their duties outside and inside the house. I met youngsters who while telling me they loved eating out also told me stories of how they miss their mothers’ food when they have to eat out far too many times. The results of my anthropometric data equally surprised me.

Therefore, this study is an attempt to demonstrate that colonial, postcolonial, global, and local are all continuous processes which overlap and affect each other in ways that change depending on various factors. Be that as it may, at the end of the day, humans never stop using their agency to change and affect their day to day lives. And in this process, they create a new world, and in the case of this study, give shape to a new India.
CHAPTER 2

STUDY SITE AND METHODOLOGY

Through this chapter I give a historical, economic, and a cultural background of the study site. In this chapter, I will also discuss my position as a native Indian woman and as an ethnographer. Additionally, I will also discuss the manner in which my participants perceived me and how that resulted in positive and negative experiences while carrying out my ethnographic fieldwork.

India: A Historic Background

I originally intended for my study to demonstrate the manner in which India has globalized after the liberalization of the Indian economy in the year 1991. However, as mentioned in the introduction chapter, the current form of globalization might be new to India, but India has been in contact with other cultures for many thousands of years. In this section, I lay down a brief history of India to demonstrate the types of crops that were being grown in India since the start of agriculture in India. I also mention the trade routes that have existed since the protohistoric times in the archaeological record of India.

India has been an agricultural nation since attaining independence in the year 1947. However, India’s agricultural history has been anything but short. Geographically located close to the Fertile Crescent, the Indian subcontinent is listed as one of the areas of the world that started practicing agriculture very early in human history. The climatic changes that took place during the Holocene period were important for the rise of agriculture. Starting
from the early Holocene period (10,000-7,000 BP), evidences of plant and animal domestication start appearing in the archaeological record. One among the many early centers of plant and animal domestication is the Indian subcontinent. The early Holocene climatic changes resulted in the appearance of the Indian ocean monsoon system. This monsoon system was highly favorable for the start of early agricultural societies. This almost four-month long monsoon season continues to affect the socioeconomic life of the people in present day India (Gupta 2004).

Archaeological records indicate that during the early Holocene period, the monsoon season may have been longer. The excess moisture may have led to the domestication of wheat and barley. Rice cultivation also appears at the same time. Sometime about 4000 years B.P., the climatic changes of the late Holocene period show the beginning of an arid phase. It is around this time that crops such as maize, millet, and a variety of lentils start appearing in the archaeological record. Based on the archaeological record, we can say with certainty that wheat, barley, rice, maize, millet, and lentils have been grown in the Indian subcontinent for almost 3000 years (Gupta 2004).

The appearance of granaries, cities, and satellite settlements during the Harappan period are indicative of the large-scale agriculture being practice during this period. Agriculture during this period was focused on the cultivation of wheat, rice, and barley. A thriving trade existed between Indians of the Harappan culture, the Egyptians, and the Mesopotamians. The collapse of Harappan culture is attributed to climatic changes that rendered the then
prevalent agricultural systems defunct. Despite this, agricultural societies continue in the Indian archaeological record (Kosambi 1965).

The Arthashastra, dated to anywhere between the 4th century B.C. to 150 A.D., mentions the economic and political workings of the Mauryan Empire. The compendium informs us that cereal grains, beans, pulses (lentils), sugarcane, root crops, and cotton were being cultivated intensively during this period. The text also mentions the cultivation of safflower, linseed, mustard, pepper, grapes, vegetables, green crops, and medicinal herbs (Rangarajan 1987). Cotton, sandalwood, and spices were also being grown during this period (Christian 2000). By this time, India’s trade network had gotten far more advanced than during the Harappan period. We gain a good understanding of how thriving the trade network of this period was from the records of Greek and Chinese ambassadors that traveled to India and reported what they had seen after reaching the places they had come from originally (Rangarajan 1987).

Trade during the Mauryan period flourished because, by this time trade networks and ports were better established due to advanced seafaring capabilities. By 100 B.C., the silk route was fully established and active. The archaeological record however, indicates that the silk route originated as early as 2000 B.C. in the Indian subcontinent. The silk route brought into contact China, India, and the Mediterranean world. By this period, India was exporting precious metals, precious gems, cotton, sandalwood, and spices (Rangarajan
All of this reinforces my statement that India has had trade contacts within and outside the Indian subcontinent since the protohistoric times.

By the time that Europeans arrive into the Indian subcontinent, India had been a successfully functioning trade center for hundreds of years. Asian goods were being bought and consumed by the Europeans who gained access to the goods at the Southern coast of the Mediterranean. However, the trade between Europeans and Asians underwent a significant change when Vasco Da Gama discovered a sea route that linked Europe and Asia in the 15th century AD. The Portuguese count’s discovery would forever change history because this is the first time that India and Europe would come into such close contact. In the discovery of this all-water route lay the foundations of European expansion and the eventual colonization of the Indian subcontinent by the Dutch, the Portuguese, the French, and the English (Prakash 1998).

By early 17th century, old trade routes had been abandoned for new sea route that allowed for Europeans to come into India directly to carry out trade. The Europeans had to pay for the goods that they bought in India using precious metals. Early European-Asian trade was characterized by India providing goods that were in high demand such as rice, sugar, oil, cotton, indigo, silks, muslins, and embroidered textiles. At this time India played a key role in determining the structure of the Indian ocean trade, not only owing to the kind of products it exported, but also due to its centrally located position, which allowed for easy access into other parts of Asia (Prakash 1998).
The colonization of India by the British was a direct result of the geographically strategic position that India occupied. The wish to occupy India resulted from the desire to monopolize the trade so as to achieve a better economic position in the world market. One of the major changes that were made during this period was the change in the people who were at the top of the society. British displaced the then existent ruling class. British officers and employees were sent to monitor and perform the duties that the ruling class used to perform in India (Maddison 1971).

Introduction of western education systems along with the infrastructural developments that were made to ensure easy access and transportation of goods for trade resulted in the formation of urban areas where the British established strongholds. First Calcutta (now Kolkata) located in the current Indian state of West Bengal and then Bombay (now Mumbai) located in the current Indian state of Maharashtra became important trade centers during the British rule in India. The formation of large urban trade centers resulted in migration of people to these centers (Maddison 1971). Mumbai become an important British stronghold in the late 1700s and rose to prominence as a large trade center. In such urban centers, people belonging to different parts of India and to different caste and religious groups started coming into contact with each other. First the first time in Indian history, these people lived in close contact with each other and had to work closely with each other, resulting in some relaxation of the caste barriers that existed. Additionally, the availability of education also resulted in an increase in social mobility (Maddison 1971).
The efforts that the British made to establish their educational system in India were minimal. Those Indians, specifically the ones who lived in urban areas, who were able to get access to the British created educational institutions became known as the professional elites. British rulers made several attempts to “westernize” India and change those practices that they viewed as barbarous and superstitious. These attempts proved largely unsuccessful though they resulted in the abolition of certain practices such as *Sati* (widow self-immolation) and the adoption of newer practices that allowed widows to remarry. Apart from this, the British passed on to India a partial copy of their educational system which was adopted with emphasis on traditional Indian educational priorities such as rote learning. More importantly, when the “westernization” efforts proved unsuccessful, the British established themselves as a ruling caste above all the natives. They refused to intermarry or mingle with the natives in any way whatsoever. It was ensured that the British homes and clubs were located in separate suburbs that were inaccessible to the local people. (Maddison 1971).

While the traditional Indian caste system continued to function in rural India, urban areas such as Mumbai were undergoing social changes. As a result of access to education, new classes began to emerge. Below the British were the Indian industrialists and the professional elites such as the Indian lawyers, doctors, journalists, and teachers. The elites mimicked the western lifestyles and habits of the colonial masters. Such elites, for all intents and purposes, behaved like the Englishmen. Along with this was the formation of
the bureaucratic bourgeoisie that consisted of a larger group of people in the cities who gained access to basic education and occupied the position of governmental clerks. Save for these new changes under the colonial British rule, the rest of rural India continued to function under the same caste and kinship laws as before. There were however, significant changes in the manner in which agriculture functioned under the British Raj. Most importantly, as a result of large scale exports, the amount of resources that were available to the native peoples and farmers reduced drastically during this period (Maddison 1971).

**Colonial and Post-Colonial Influences on Agricultural Practices in India**

That effect that colonization had on the manner in which agriculture is practiced in India should not be underestimated. European culinary patterns changed considerably during the European ‘Age of Discovery’. This was largely owing to the spice trade. The discovery of spices from different parts of the world was highly influential in determining the exploration of European traders. Early European explorers took great pride in discovering new spices and returning back to their countries with samples. Soon, it became evident that trading in spices was a profitable venture. As the spice trade gathered momentum, European nations attempted to overshadow each other. The influence of this demand was felt fully by the spice growing nations. India was one such spice growing nation. In addition to a sudden surge in the growth of spices, the Indian subcontinent also experienced the introduction of new fruits
and vegetables from the new world such as papayas, pineapples, potatoes, and chilies (Gupta 2012, Franke 1987).

The introduction of new world crops in Asia also had an impact on the eating habits of the Indian populace and more specifically on their agricultural habits. This is evident in the fact that many of the crops introduced into the Indian subcontinent from the new world are now considered to be a part of the “traditional” diet by present day Indians (Gupta 2012, Franke 1987).

The agrarian order that existed during the Mughal period that preceded the British colonization, was a rather complex one. To this existing order, the British added their own bureaucratic rules about property and ownership which were characteristic of Western capitalism (Maddison 1971, Stokes 1978). In this traditional system, power lay in the hands of a select few people who controlled the majority of the land at the level of the village. These landlords (zamindars) controlled the local economy and employed the villagers as agricultural laborers. These landlords and elites always belonged to the upper castes (Chaudhari 1984, Maddison 1971). Though the power structure at the village level did change to some extent as a result of the British introduction of a new form of private property, the rules implemented by the colonial powers often enriched the status of the local landlords (Stokes 1978, Chaudhari 1984).

The intent of the colonial powers was to provide money to the crop cultivators who would in turn provide the powers with a better yield. This ‘profit-oriented cultivation’ policy of the British was often improperly implemented since the British lacked a complete understanding of the then
existent social and political structures. A majority of the money thus went to the non-cultivating class of landlords who also greatly profited from the new private property recognition laws. As colonial trade expanded, the cultivation of cotton, opium, and indigo rose dramatically in the early nineteenth century (Roy 2002).

Traditional agriculture depended greatly on the annual rainfall. Areas with higher rainfall, such as the Konkan coast, tended to grow rice and had a higher population density. The demand of the British for cash crops during the colonial period also had a significant impact on the kind of crops that were grown (Roy 2002, Stokes 1978). In its true sense, commercialization of agriculture began in India during the colonial British rule. During this period, the production of industrial crops and cash crops increased rapidly and the cultivation of subsistence crops shrank in significance (Blyn 1966). This agricultural legacy of colonial India was inherited by post-independent India.

As a result of a sudden increase in the population of the country and due to droughts and famines experienced by India as a result of the vagaries of climate, the country underwent severe food crises between the years of 1947 and 1960 (Dantwala 1976). The 1960s marks the appearance of an agricultural technology best known as the ‘Green Revolution’. This was a period of great turmoil all over the world. The post second world war era, coupled with the loss of colonial power across the globe, resulted in the formation of many independent nation-states. This period also saw a vast improvement in medical technology. Owing to the availability of improved medical care to a majority of
the world population, the mortality rates declined all over the world. The outcome was a crises of population expansion overtaking agricultural growth (Khush 2001).

In 1966-67, India adopted the Green Revolution upon the express wishes of the United States Agency of International Development (USAID), the International Rice Research Institute (IRRI), the Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT), and the World Bank (Parayil 1992, Paddock 1970). The idea of Green Revolution was accompanied by narratives of benevolence. The researchers, corporations, and governments that largely mobilized the Green Revolution wrapped it in the rhetoric of working to alleviate world hunger for charitable purposes (Tierney 2008). The adoption of the Green Revolution was also accompanied by a promise of self-sufficiency (Gupta 1998). The adoption of the High Yielding Variety (HVY) seed program also affected the agricultural patterns of India. These new seeds require more water than the indigenous variety of seeds which had been passed down from one generation to another for several millennia. These indigenous variety of seeds require natural fertilizers and are dependent on the monsoon and/or water from the natural springs. The HVY variety of seeds cannot survive on the amount of water received from the rain and therefore require irrigation. They are also not resistant to the local pests and droughts which necessitates the use of chemical fertilizers and pesticides (Bowles 2003, Bowonder 1979, Chakravarti 1973, and Shiva 1991).
As miraculous as the results of the Green Revolution were for some of the states where the HVY seeds were introduced, it had its problems. Since the Green Revolution technology was primarily for irrigated farms, the spread of this technology in India has meant that prosperous irrigated rural areas get more prosperous while the dry agricultural areas that mainly depend on the annual rainfall for watering their crops cannot successfully adopt this technology (Dhangare 1987).

It is against this historical and agricultural background that we will be discussing the economic, social, political, and agricultural situation that I encountered on the Konkan coast in the state of Maharashtra.

**Konkan: Geographical Attributes**

Located on the western coast of the Indian peninsula, Konkan is situated in the state of Maharashtra. Maharashtra is the third largest state by area and the second most populous state in the country (Chandramauli 2011). Konkan houses the bustling metropolis of Mumbai. A stronghold of the British colonizers, Mumbai gained prominence starting the late 1700s and became an important trade center. Today Mumbai is the financial capital of India. Along with Mumbai, Konkan also houses numerous villages and semi-urban townships. I chose to study the Konkan region of Maharashtra because, apart from the city of Mumbai, Konkan remains, till date, difficult to access owing to its very uneven topography. Despite that, due to the southward spread of Mumbai and improved governmental infrastructure in the form of Konkan railways, the migration rate from Konkan to Mumbai has increased in the last
20 years and continues to increase in the present day. Konkan therefore houses within itself the largest metropolis in the country, small semi-urban townships, and interior rural villages. This spectrum of settlements allows for a very fruitful rural versus urban comparative analysis of my study population.

Konkan is a narrow, low-lying, coastal area in the state of Maharashtra in India that stretches from the Sahayadri mountains up until the coast, including hilly lowlands where the Brahmin villages are situated. The Deorukhe Brahmin people are native to rural Konkan and claim to be indigenous to the region for several thousands of years. This claim will be discussed in detail later in this chapter. The coastal area of Konkan stretches over an area of 720 kilometers between the Damanganga River (20° 20’ N) to the north and Terekhol Creek (18° 42’ N) to the south. The coast of Konkan is flanked by the Western Ghats, also known as the Sahayadri mountain range. The Sahayadri range, which runs parallel to the Konkan coast, separates the narrow coastal region from the Deccan plateau. Though a lowland coastal region, topographically Konkan region is anything but plain. This area is riddled with low elevations. Thus, Konkan is comprised mainly of the following three topographically distinct areas: the foothills and the interior lowlands, the coastal lowland plateaus, and a narrow coastal strip that is several kilometers wide. The geographical characteristics of the Konkan region considerably influence the lifestyle of local inhabitants (Pendse 2011).

The coastline is at its widest in the north at Mumbai with a width of up to 100 kilometers. The width decreases gradually and is the narrowest at only
40 kilometers, near Vengurla in the south (Shindikar n.d.). Thus, the terrain of Konkan is rather uneven from the foothills of the Sahyadris to the interior lowland areas. The presence of the Sahyadri ranges along the coast of Konkan isolates this coastal region from the interior of the subcontinent. This isolation becomes even more prominent during the monsoon season, especially during the historic times (Pendse 2011). Thus, as Pendse (2011: 18) stated, “every dimension of the social-cultural dimension of life in Konkan is strongly dictated by its physical personality.”

The Konkan area experiences three main seasons, summer (from March to May), monsoon (from June to mid-September), and winter (from November to February). The months of mid-September to late-October constitute a period of transition from the monsoon period to winter. The climate of the Konkan region is tropical in nature, being both warm and humid (Pendse 2011, Shindikar n.d.). Until the 18th century, the lowlands of Konkan were covered with a dense deciduous forest cover. However, from the late 18th century to the present day, a considerable amount of deforestation has taken place along the Konkan coast resulting in a radical change in the landscape of the present-day Konkan region (Pendse 2011).

The Konkan coast of Maharashtra includes the following six districts: Thane, Greater Mumbai, Suburban Mumbai, Raigad, Ratnagiri, and Sindhudurg (Shindikar n.d.).

The rural population sample considered in this study was drawn from the district of Ratnagiri in the Konkan region. Dhopave, Aarey, Talavli, Karul,
Nigundal, Vaghambe, Chindravaley, Sade Jambhaari, Kudli, Abloli, Guhagar, and Jambhaari were the interior rural villages from where participants were recruited. Dapoli, Chipuln, Kherdi, and Ratnagiri were the semi-urban towns from where participants were recruited. Urban participants were recruited from Mumbai city and the suburban areas of Mumbai as well as Thane city.

Rural Konkan was quite isolated for several years after Indian independence, largely because navigating it is rather difficult, especially without the proper infrastructure. Konkan became easier to access after the inauguration of the Konkan Railway in 1998 (Konkan Railway Corporation Limited 2016). This connected Konkan to Mumbai in a much easier manner than ever before. On one rainy morning Janhavi (55 years of age) was started discussing with me the changes that have taken place in her native village in rural Konkan. “I love Konkan, we have been visiting it since we were children and I like visiting our native village even now because it is so much cleaner and healthier to live in a peaceful non-polluted place like Konkan. Of course, nowadays it is so much easier to travel to Konkan. It is not like the old days anymore.”

Upon asking her to elaborate on what she meant, Janhavi said, “In the old days there was no Konkan railway and the roads were also not well-built. The only thing that went to Konkan was the rickety red box of an ST (State Transport Bus). There were no provisions for reserving your seats so it was on a first come first serve basis. It was always so crowded and full. We had to catch one ST from here to a town that was halfway to our village. Then we had
to catch another ST and reach the closest town. From there we would take a *rickshaw* to go to the interior roads. I remember that the roads were not even concrete and they were so bumpy. Finally, we had to carry our baggage and walk all the way to our house in the village for the last 2-3 kilometers because even a rickshaw could not drive on that sort of a *kaccha* (unfinished) road.

Today, it is so much easier. We can take the train to the closest town and from there get a rickshaw or a magic (privately owned four-wheelers that are called Magic because the company that created them, Tata Motors, named them Tata Magic) and it goes directly to our doorstep in the village. It is really a completely different experience now than from when I was growing up!”

Despite large scale deforestation, Konkan is a very green and scenic place. The train ride in the Konkan railways from Mumbai into my rural Konkan site made me constantly want to whip out my camera and take photographs. Lush green mountains with farm lands abound in rural Konkan. Konkan remains, till date, a difficult terrain to traverse. Despite new projects for road development taking place, topographically Konkan is very challenging which means that projects that begin take a long time to get completed. As I was reaching the house of one of my interlocutors who lived in an interior rural village, I commented on the concrete road that was being constructed for the village. To this she laughingly responded, “Several years will come and go before this road get completed.”

Because of the spread of urbanization from Mumbai to other areas of Maharashtra, there are today several middle-sized townships that have
developed along the main highways in Konkan. Despite this, excluding Mumbai and the surrounding suburban areas, most of the Konkan coast have not experienced much of urbanization until the mid-20th century. The census of 2001 indicates that the present-day population of Konkan, excluding Mumbai is 24,807,357. The population of Konkan constitutes about 13.26% of the state of Maharashtra’s population (Pendse 2011).

The population of Konkan has an east west distribution pattern with the fishing hamlets that are located away from the villages near the coast (refer to figures 2.2 and 2.3). The area between the fishing hamlets and the main villages are occupied by Muslim communities. It is the Brahmins that inhabit the main villages. These Brahmins traditionally carried out agriculture, trade, and plantation farming as their occupation. Lastly, the activities undertaken by Brahmins were supported by the Kunbis, who are traditionally lower caste tillers found in various parts of western Maharashtra (Pendse 2011). The occupational activities as well as the areas inhabited by each of these castes and/or religious groups traditionally dictated and shaped their diet. The Brahmins living in Konkan still occupy a very influential position in the society.
Figure 2.1: Konkan as seen from Konkan Railway
Figure 2.2: Fishing boats anchored at the coast
What does “Rural” and “Urban” mean?

Discussions about “urbanism” and “urbanization” are often steeped in historical processes such as colonization and industrialization. Urban centers and cities have existed for many thousands of years. Historical and archaeological records of urban cities and centers can be found dating from 10,000 years ago, in the Old World (Leeds 1984). The Harappan Civilization that flourished in parts of present day India and Pakistan between 2500-1500 B.C., had large well-planned urban centers. The cities of Mohenjodaro, Harappa, and Kalibangan stand testament to the fact that large urban centers
have existed in India for at least 5000 years (Kosambi 1965, Sankalia 1974). Historical and archaeological records/sources also show us the existence of large urban and educational centers such as Pataliputra, Nalanda, and Takshashila during ancient Indian period (Kosambi 1965, Mahajan 2001). The existence of these urban centers of the past is important to acknowledge before we embark on a discussion of what the present day urban centers and cities of India mean and signify.

The importance of acknowledging the effects of the capitalist expansion on modern day ideas about the meaning of “urban” cannot be stressed enough. The interconnected nature of the world at present has resulted from colonial and capitalist expansion. The result is a formation of a single overarching idea of what urban means, how the evolution of urbanization takes place, and as Leeds (1984: 292) calls it, “its acculturational by-products”.

Traditionally urban has meant different things in different societies. The western hegemonic understanding of how an urban city must be planned and developed, filters down and results in these ideas being applied in cultures without factoring in the geopolitical meanings of spaces that exist in their traditional systems. As Leeds (1984: 293) states, “[The] programs and plans are built on premises derived from the single, historically recent form of urban experience – the capitalist city in urban capitalist society.” While I completely appreciate and acknowledge Leeds’ discussion of what urban actually means, for the sake of clarity and for the purpose of carrying out a comparative study, I have to differentiate between the environments inhabited by my interlocutors.
And for this reason, I employ the oft used terms of rural village, semi-urban town, and urban city. I will clarify how I use these terms later in this chapter.

Human societies and communities are fraught with links and interrelationships. Even the most isolated of communities, must interact with communities that surround it. What’s more, no community, no matter how small, is completely isolated and self-sufficient in this day and age. The difference in the connections that any community has outside of itself is only a matter of degree. What we recognize as urban centers are those communities that have a high degree of specialized and hierarchal interconnections. It could then be argued that human societies have always been urban. Bearing this in mind, essentially all rural people are urban people. This is because, the perception of what is “urban” is entirely an Eurocentric idea probably put forth by early European anthropologists who classified societies as urban and rural based on their ethnocentric views of “social urbanization” (Leeds 1984).

Leeds’ (1984) theory about “social urbanization” not being a recent phenomenon strikes as very true in the age of present day anthropological thinking which disowns the idea of sociocultural evolution. The concept of organizing human societies in hierarchal order is problematic. Given that, the idea that any and every human society in today’s day is fundamentally urban owing to its relationships within and outside of itself, relationships that ensure survival, is I must agree, rather convincing.

The way social integration materializes differs from one society to another. Most non-capitalist urban centers were laid out to reflect the class
structure, relations, and class hierarchies. The detachment of labor from its geographical context is, per Leeds, a characteristic of a capitalist urban society. Hence, regarding the formation of what is typically defined as an urban city or metropolis, the capitalist urban center may have evolved directly because of the capitalist economic policies, thus resulting in what we term today as cities, towns, and villages. Such large urban centers depend on these rural towns and villages as centers of resources. These resources get transported to cities which function as places with concentrated capitalist resources. According to Leeds, these are systems of control that regulate flows of labor and capital. In such a system, the optimal use of resources is to connect these rural villages and towns to the metropolitan areas that we today recognize as urban (Leeds 1984).

As with India’s agricultural history, India’s colonial past has also affected the definitions of rural and urban. The rise of urban centers and their dependence on the surrounding rural villages and towns came up as a result of European colonization of India. The main focus of colonial expansion was to funnel the crops grown, and the labor produced, to ensure success in the then upcoming global trade network. At the same time that English colonial rulers used the then existing local labor to produce the crops and products that they needed for trade, they transmitted and translated their understanding of urban onto the upcoming Indian urban centers.

The British built large urban centers on previously existing coastal cities for the easiest transportation of goods and products. Mumbai was the most prominent trade center during the British colonial rule of India. The historical
context of Mumbai’s importance as a trade center and an economic stronghold, aids us to understand that the current trade networks and structural relations that exist between what we term as urban and rural areas, is another legacy inherited from the colonial masters of India. This process of linking agricultural hinterlands to cities and labor to capital is usually referred to as ‘integration’ by economists (Leeds 1984)

The transposition of a capitalist system that was ushered in when the British conquered India as a colony, on the traditionally existent feudal-like system, has resulted in social and economic complications. The traditional system, which aims to restrict movement of labor by rigorously demonetizing the laborers, can no longer remain active once capitalism starts taking over in earnest. As mentioned earlier, when the British colonized India they built urban centers and significantly affected the traditional systems of power by bringing in a capitalistic system that allowed for an easier movement of labor. Be that as it may, they did not make any fundamental changes to the caste-based power structures, and villages in particular, were rarely affected. The British, for all intents and purposes, gave impetus and concentrated more power in the hands of the rural rich, who owned most of the agrarian land.

The agrarian system of Indian continued to function in this feudal manner even after independence. By the time, India attained independence, almost 40% of the rural population comprised of agricultural laborers who did not own any land. Independent India was simmering with tensions that resulted from the existence of these landless agricultural laborers. In an
attempt to increase agricultural efficiency, regulate the rents being paid by the tenants, improve social justice, and increase tenants’ tenure security, the Indian government passed several acts of land reforms. These reforms were partially successful since they were implemented by the ruling elites, most of whom formed the higher order of the agrarian systems. The result was that the earlier system of unequal land distribution and the unstable position of the sharecroppers and agricultural laborers continued in much the same manner (Mearns 1999).

Keeping these historical processes in mind, and the changes that have been taking place in the past few decades in India, I have decided to define rural, semi-urban, and urban as follows. I define interior rural villages of Konkan as those where houses are difficult to access owing to their location on mountain tops or in valleys. Such villages do not have finished roads to access the houses in the villages. The houses do not always have the provision of having running water made available by the government and they often lack a strong electric connection.

These rural Deorukhes live in houses that are attached to their ancestral farmlands. Rural villages have 1 to 5 small local stores that sell everything from snacks to groceries and between 1 to 5 places that sell snack foods. The only means of transportation made available by the government are the State Transport buses that run between 8:00 a.m. to 6:00 p.m. Other than that, the villagers can hire privately owned rickshaws (three-wheelers), Magic (a four-wheeled vehicle sold by Tata Motors often used for public transportation), or
rented cars for the purpose of transportation. Most of the rural villages only have one school where primary and secondary education is available.

I define semi-urban towns as those which have a mixture of urban and rural characteristics. Such towns have finished roads, markets, shops, restaurants, electricity, and water connections provided by the government. These towns have a higher population density than the villages. Houses are easily accessible and a majority of the people live in apartment complexes. Such towns have multiple educational institutions and colleges. These towns are important transport centers. Apart from state transport buses, such towns also have local transport buses operated by the state government.
Figure 2.4: Rural villages located in the mountains
Figure 2.5: Path to the house of one of the rural Deorukhe households
Apart from state transport, a multitude of private transport vehicles, most importantly rickshaws are easily accessible and can be hailed on the roads. Most of the Deorukhes living in such towns were involved in non-agricultural activities. These towns are located close to many of the rural villages and the state transport buses allow the people in the towns to easily travel to the villages. These towns have become larger in size after the inauguration of Konkan railways, and most of these towns are important train stops.

I define urban as a city with a population of more than a million people which has a large spread beyond its official boundaries. The Deorukhes in the urban area live in apartment complexes. In most of the households, both men and women work full time and hold jobs unrelated to agricultural production.
These households have electric connections and water connections provided by the government. The urban area has large market areas, malls, restaurants, and easily accessible shops in and around the residential areas. In the city, public transportation such as buses and trains are run by the government and are easily accessible along with private transport systems such as rickshaws and taxis which can be easily hailed on the roads.

Rural and urban are terms that are often hard to describe. Sometimes the ethnographers’ usage of the terms can be at odds with how the terms are used by governmental agencies. However, my definition of urban, semi-urban, and rural are surprisingly in tandem with the Indian government’s categorizations. In the case of India, the government’s definitions of the terms have changed significantly after the 1991 economic liberalization. One of the major changes that has taken place in India since the economic liberalization, is the large-scale migration of people from rural farming communities to urban areas in pursuit of higher wages and non-agricultural careers (Hnatkovska and Lahiri 2012).

Owing to the economic changes that are taking place in India the liberalization, the government of India has had to modify their definitions of rural and urban areas. The urban areas during the colonial period, were port cities such as Mumbai, Kolkota, and Chennai which had gained prominence owing to their importance as trade centers. Industrialization of agrarian economies often result in certain changes taking place in regard to demography and amenities available. The major changes that have been noted worldwide
are population agglomeration, an increased amount of population engaging in non-agricultural activities, and the increased availability of certain social amenities. These settlements that have started to crop up all over India after the economic liberalization are known as census towns. In trying to keep up with the changes that are taking place and noting that there is a need for a new categorization for villages that have started gaining urban like features, the Indian government has put forth certain criteria for the categorization of rural and urban settlements in the country (Bhagat 2005).

The Indian government defines urban areas as being comprised of two types of administrative units:

**Statutory Towns.** These are places that have been categorized as urban by statute. Such places have governing bodies such as Nagar Panchayat, Municipal Council, and Municipal Corporation.

**Census Towns.** These are places that have a population of more than 5000 people. Such towns are governed by a Gram Panchayat (village council). At least 75% of their male work force should be employed or engaged in non-agricultural occupations, and the density of population in such towns has to be at least 400 people per square kilometer (Government of India 2011, Jenkins and Anuja 2012).

The category of “census towns” is a recent development. These are usually market town-type settlements that grow haphazardly. In such census towns, the local populace has turned to other professions because farming is no longer a viable career option. In Konkan, many such census towns have
popped up in the last two decades. The areas that I define as semi-urban are categorized by the Indian government as census towns. Though formally recognized as urban spaces, the Indian government refers to these areas as semi-urban owing to the bodies that govern them and the availability of infrastructure and amenities. These are spaces that are in transition from rural to urban but have not fully completed the transition (Jenkins and Anuja 2012).

Census towns, as opposed to statutory towns, are governed by *panchayats* (village councils). Therefore, for all official purposes as well as with regard to government policies, and in terms of being eligible for aid from the central government, these census towns are recognized as urban but continue to function as rural spaces that are marked for future development into full-fledged urban centers. These towns attempt to mimic urban living. At the same time, due to their official recognition as rural, they are exempt from certain taxes that are levied on urban centers. The facilities available in terms of finished roads, and the universal availability of water and electricity are uneven in such census towns. Such towns continue to flourish because they are located close to important urban centers. The excess population who cannot afford the high property rates and taxes of urban centers tend to settle in these census towns (Jenkins and Anuja 2012).

The number of census towns in India has risen from 1362 in 2001 to 3894 as reported in the 2011 census of India. That being said, a major portion of the Indian population continues to reside in rural villages. The 2011 census gives a total of 660,000 villages for the 8000 urban centers have been identified
in the country (Jenkins and Anuja 2012). Two-thirds of all the census towns in the country are found in 6 Indian states, one of them being the state of Maharashtra. According to the 2011 Census, 45.2% of Maharashtra’s population is now urban. This displays an increase of 3% from 2001 to 2011 (Meena 2011). While the bustling economic growth of India is one of the reasons for the appearance of these census towns, another reason is the movement of formal industrial sector into the rural areas of India. These industrial plants set up large scale factories that employ people from the towns and nearby villages. Large industrial plants also have the budget to make changes in the infrastructure and provide amenities when the government does not step in because the cost is not insurmountable for them (Jenkins et al. 2012).

While traveling in rural Konkan I encountered a long winding well-finished concrete road. As I remarked on the presence of such a road that was in perfect shape in the interior mountains of rural Konkan, I was informed that this road was not built by the Indian government. This was a road built by a large American electric firm that had a tie up with the Indian government. The car driver said, “Madam, this road was created by Enron for its employees and also so that their trucks can transport the necessary machinery easily. Most of the people living in these villages work for Enron.” Similarly, another company’s name kept being brought up by my interlocutors in rural Konkan. In relation to the widespread problem of makad (monkey) encroachment in rural India, my interlocutors kept holding one specific company responsible.
Many people blamed the “Jindal plant”. I was often told that the number of *makads* raiding their farms has become unmanageable because of deforestation done by the Jindal plant to set up their company, to build roads for transportation of goods, and also due to the construction of housing communities and schools for the families of their employees. One day as we were traveling through rural Ratnagiri, the rickshaw driver pointed out the Jindal plant that was purported to have wreaked havoc on the agricultural fates of the rural folk. JSW Energy, as the official name of the company goes, was indeed a spread out far and wide on the horizon as we rode past it.

*Figure 2.7: JSW Energy plant in rural Konkan*
**Deorukhes in the Rural Villages**

Keeping these aforementioned changes in mind, the condition that rural Indian lower caste tillers and agricultural laborers find themselves in post-liberalization is very different. The Deorukhe Brahmins are members of the the highest caste in rural Konkan villages. Most of them have inherited large swathes of agricultural lands and have functioned according to traditional Indian feudal power structures for many generations. In post-liberalized India though, they find themselves a part of a system that no longer functions in the same manner. After the liberalization of India, the rate of rural to urban migration has increased drastically (Hnatkovska and Lahiri 2013). The large-scale migration of a large number of lower caste families, more importantly males and youngsters, has resulted in cash-flow into their homes. This ability to be mobile results in people belonging to the lower castes realizing that for the first time, they are in a position that makes them no longer completely dependent on the upper caste landowners for employment and survival. Additionally, the availability of blue collar jobs has risen in rural India (Hnatkovska and Lahiri 2012).

The result is a rural society that, while still practicing old caste hierarchies quite rigidly in the social domain, no longer has the same power structure functioning in the economic domain of their lives. This is evidenced by the many Deorukhes in rural Konkan who lamented the lazy attitude of the lower caste people. As one Deorukhe patriarch put it, “The lower castes have become so lazy these days. They act entitled and demand exorbitantly high
wages for the agricultural tasks. If we refuse to pay them the wages they
demand, they refuse to work. Look at all this farmland go to waste. We have to
abandon farming because we can’t find any laborers who are willing to work at
a decent rate. Can you believe how lazy they have gotten?” This is the result of
the fact that working members of lower caste families either prefer to migrate to
the cities or work in the factories. Many of the small-time farmers who live in
the villages, the traditional land tillers, and the share-croppers have
transitioned from being laborers on agricultural farms to holding the blue-
collar jobs that are easily available in the factories in the nearby towns and
villages. In rural villages of Konkan, this friction between the traditionally
existent caste system which is functioning alongside the class system that has
arisen because of economic mobility has resulted in a dramatic rise of tensions
and resentment among the upper caste members. More importantly, data in
India demonstrates that the faster expansion of blue collar jobs in the rural
areas has meant a positive change in the economic status of the rural poor.
Distributional changes in wages and consumption indicate that the rural poor
are doing better than the urban poor. At the same time, the rural rich have not
been able to keep up with the urban rich. Educational status is a defining
feature that has affected the lessening of the wage and consumption gap
between the upper and lower castes (Hnatkovska and Lahiri 2012).

The problems that the Deorukhes face with regard to continuing farming
and cultivating crops are multi-fold. As a result of the social, economic, and
ecological issues, many Deorukhe households can no longer manage to survive
financially purely by practicing agriculture. Two main reasons were cited for not only depending on farming. One is the lack of availability of agricultural laborers at decent wages. Second was a problem in connection to *makad* encroachment. As I went from one house to another, I was told many times over that that the *makad* encroachment had gotten worse over the years. Deorukhes often told me that they could not afford to lose their vegetables to the *makads* and therefore preferred to not to grow vegetables anymore. I was told that harming *makads* in any way was illegal which further restricted their ability to deal with the issue.

There were two types of *makad* that I saw in the villages and mountains of Konkan. The ones that raided the farms habitually are locally called *vanar* (hanuman langur). The second type of primates are locally called *kelti* (rhesus macaques). *Kelti* were disliked more because they not only raided the farms but were emboldened enough to enter people’s houses to steal food and produce. And so, upon asking one Deorukhe woman if *makads* were a problem, she responded by saying, “Madam, not only is this a menace that is ruining our livelihoods but I am certain that someday these *makad* will come into the house and carry me off as well!” Since exploring the issue of primate encroachment on the livelihood of Indian farmers was not the topic of this study, I could not study this issue in further detail. However, it deserves to be mentioned and it is my hope that it will result in a very fruitful study in the future.
Figure 2.8: A pack of *vanar* (hanuman langur) encountered on the way to a rural Deorukhe household

In addition to the issues related to farming, the Deorukhes find themselves in an awkward position due to their high caste status. As Brahmins, Deorukhes occupy the highest position in the Indian caste hierarchy. The situation as it pertains to the Indian caste system, and the reason for why members belonging to lower castes acquiesced to occupying the lower position in social hierarchy can only be understood when we consider foundational thought behind the Indian caste system. The workings of the Hindu caste system have been explained in detail in the scriptures and holy texts. The caste hierarchy regulated the occupational, social, political, and
economic position of people. An ascribed status, one cannot change his/her caste. The caste structure is closely connected to the idea of *karma*. One is born in a specific caste group based on the accumulated *karma* from their previous birth. This also means that people are, per scripture, only allowed to perform those tasks that are ascribed to the caste group in which they are born. Upward mobility could only be achieved within the boundaries of one’s caste group. This hierarchal structure affects intercaste social interactions, demands caste endogamy, and was reflected in the upper caste members’ refusal to associate intimately with or share food with members of the lower castes (Conlon 1995, Khare 1992, Staples 2016). Caste based food boundaries were prevalent in India and are very much visible in present day rural Konkan.

Similar to the feudal system in medieval Europe which was regulated by religious ideology of the Great Chain of Being which laid out an established social order where societal tasks were mandated by God himself, the Indian caste system laid out a social hierarchy where people ranked from those with the lowest sins who were born Brahmins and those with highest sins who were born as untouchables. The caste system told people exactly where they belonged and what their purpose in life was. This system also regulated the occupations of people and were entwined with the workings of the economic system. The Indian caste system functioned unhindered until capitalist expansion and integration brought with it modern European ideals such as personal freedom, the promise of class mobility, the ability to shape one’s future. Additionally, the exposure to western ideas by the introduction of
western education also changed the worldview of certain Indians elites in urban areas (Leeds 1984, Staples 2016).

Traditional economic, social, and political structures were integrated in the everyday workings of lives for thousands of years in India. In this traditional system, religious mandates, royalty, and upper castes regulated the flows of knowledge, money, and resources. This old system worked on the principle of what Leeds (1984:309) calls, “the fixity of labor, fixity of class [or caste] membership, restricted uses of forms of competition, the geographical as well as social distancing of classes [or castes], and separation physically of their functions in the productive and sociopolitical process”.

Rural Deorukhe men, as a result of their high caste status, cannot work blue collar laborer jobs alongside members of the lower castes. They find themselves unable to hire agricultural laborers who demand wages equivalent to those paid by the industrial jobs in factories. Left with few options, these rural Deorukhe households often lease out their land to members of the lower tiller castes. In return for renting their land, the lower caste members grow crops, mainly rice, on their land, and pay them back by giving them a portion of their produce. Most of the Deorukhe families focus strongly on educating their children so as to give them a fighting chance to have a good career in the urban towns. None of the rural Deorukhe women hold full-time jobs. Apart from one household, none of the rural Deorukhe households that I interacted with depend any longer on farming as their primary occupation. They have emotional ties to the ancestral properties they have inherited, the village they
live in, and the land that they occupy. Deorukhe men either worked as 
bhikshus (priests), owned grocery shops in the villages, or worked as teachers 
for governmental schools.

Rural Deorukhe women rarely held jobs. The ones who did work either 
worked part time as balwadi shikshika (kindergarten teachers), helped their 
husbands run the grocery stores, ran food stalls in the village main street, ran 
a catering business from their homes, and in one case worked for the 
government as the Police Patil (government appointed person to contact in case 
of village related problems) of the village.

**Rural Geopolitics**

The manner in which social hierarchies materialize themselves in terms 
of geographical spaces is worthy of considering in the light of my ethnographic 
experiences in the field. The caste system is very much functional in the rural 
villages. The geospatial arrangement of rural Konkan villages is such that 
houses of religious and caste groups are located in specific areas of the village. 
Every village has an area where the Brahmins live. This is usually referred to 
as the Brahman Wadi. *Wadi* is a Marathi word that means colony or enclosure. 
All the Brahmins in the village live in this Brahman Wadi. This is the case with 
members of all castes and/or religions. The different *wadis* do not overlap each 
other in any way and people are freely able to traverse or pass through the 
*wadis*, regardless of their caste or religion. Everyone in the village is aware of 
the behaviors and societal norms that are to be followed upon entering these 
social spaces.
Rural Brahmin houses are broken into specific areas. This spatial arrangement is followed by all households. The front lobby of the house together with the living room is called *Oti*. This is an area that is accessible to everyone regardless of their caste and religious status. This is where most people sit when they socialize with each other. The middle portion of the house which consists of bedroom, inner rooms, and the kitchen is called *Maajghar*. This inner portion of the house is strictly off limits to people unless they are invited into these areas by the house members. The *maajghar* is especially important to be kept free of any pollution and desecration since this portion of the house contains the two most important areas, the household shrine and the kitchen, which affect the physical and spiritual purity of the Brahmans. Members of lower castes are aware of these spatial restrictions and they abide by them unless invited to do otherwise by the Brahmans.

Lower caste members are deemed unclean as a result of their low caste status as well as because they consume non-vegetarian foods. Food cooked in the household kitchen is offered to the Gods in the household shrine on a daily basis. Therefore, if this food gets contaminated, the shrine gets desecrated. These spatial restrictions are closely connected to the food habits of Brahmans, which demonstrates that the geopolitics of rural Brahmin houses is fundamentally affected by and navigated based on the food habits of the people who visit their homes.

The back portion of the house is called *Padwi*. *Padwi* encompasses the area that contains the household bathrooms, the *paan chul* (water hearth that
heats up the bath water), and the *gotha* (the cattle shed). This area also houses the water tanks that are filled using water gathered from the naturally occurring springs in the mountains of Konkan. These springs provide water almost 8-10 months out of the year. They go dry during the height of summer and become active again at the start of the monsoon season. During these summer months, the households have to order private water tankers to come fill up their water tanks. Rural households also usually have access to water from the wells that have been dug on their properties.
Figure 2.9: Oti (Front Lobby)
Figure 2.10: Water diverted and collected from naturally occurring springs

**Semi-Urban Towns**

As I started recruiting households for this study, I ran into a problem that I had not anticipated. As I began my snowball sampling strategy, it became increasingly apparent that it would not find all 33 of the rural pairs that I wished to recruit in the interior villages of Ratnagiri district. It became necessary for me to recruit study participants from the towns in Konkan, owing to the fact that many of the families with college aged children had migrated from the rural villages to nearby towns. For the purposes of statistical analysis, the mother-daughter pairs from these towns have been included in the rural sample. In the other parts of this dissertation, when I mention that participants live in a town, I refer to these semi-urban towns.
The characteristics that I have identified to define this as a semi-urban space have been discussed before in this chapter. As stated earlier, most of these towns are what are categorized by the Indian government as census towns. Though most of the Deorukhes that I have encountered in this study who live in these towns live in apartments, some of them have older properties that were bought by their ancestors before the village became a town. None of the Deorukhes in the towns practiced farming since the spread of the town has left no space for farm lands and fields. At first glance, the residential areas of the towns look akin to those of any other city. Upon closer inspection, I realized that the geospatial arrangements of the towns were not as cosmopolitan as I had assumed. I noticed that all of the Deorukhe households that I visited lived close to each other in buildings that were within an easy walking distance. This area, where most of the Brahmins lived was called Brahmin Colony. Most of the restaurants and *khanawal* (eating places that serve traditional meals for lunch and dinner) that were in close proximity to this part of the town served vegetarian meals.

The women from these households did not hold jobs and were all housewives. The most important reason cited by the family for moving to the town from the rural villages was the wish to give their children a good education. Easy access to good educational institutes that had courses to complete bachelor’s and master’s degrees was mentioned as an important reason to move to these towns. I recall one particular incident when I asked the father of two young daughters who regularly traveled to the nearby villages to
fulfil his priestly duties, why the family had moved to the town in recent years. He responded, “We never wanted to leave our village. But you see, we have no choice. My daughters need to finish their education. In today’s world, one must have at least a bachelor’s degree to be able to get a decent job. I decided that instead of sending my daughters by themselves to the town, it is best if we all moved here. I prefer to travel to the villages for my work rather than have my daughters live in the city by themselves.” Some families had moved to these towns due to the husband’s job posting. A few families had lived in the towns for several generations and no longer owned any ancestral property in the village.

The aspirations of the parents for their children and those of the daughters I spoke to, drew an interesting picture to consider. Almost all of the parents informed me that they would prefer for their children to either continue living in the towns or move to larger cities such as Mumbai and Pune so that they could have a good life. The daughters showed a great deal of interest in migrating to larger cities, citing a better lifestyle and a higher standard of living as the reason for wanting to do so. Parents with daughters of a marriageable age were specifically looking for grooms in larger cities. Some of the parents asked me if I had contact with any Deorukhes in larger cities who might be helpful for their children’s future careers or for future marriage prospects.

Those households that had close ties to the villages either because of part of their family lives there, or because they owned ancestral property in the village, visited their native villages often and had close connections with
village members. I was invited, on more than one occasion, to come visit their villages and to attend their festival celebrations. Such families also had a lot of food and produce that was grown on their farms and at times the produce from the village made up for almost half of the groceries needed to feed the family.

**Deorukhes in Mumbai and Thane**

Urban participants live in the Greater Mumbai, Suburban Mumbai, and Thane City. According to the Indian census meta data, the areas in and around the metropolis of Mumbai are categorized as Urban Agglomerations. Mumbai and Thane city are both governed by separate Municipal Corporations. The 2011 census data reveals that the urban agglomeration of Mumbai has a total population of 18,394,912. This urban agglomeration of Mumbai, also referred to as Metropolitan Mumbai Region (MMR), includes Thane city which has a total population of 1,841,488 (Chandramauli 2011, Census 2011, Government of India 2011).

Since the colonial times, it has been noted that as a result of their high caste status, Brahmins were able to grab the opportunity to migrate to cities much earlier than other rural caste groups. In his classic ethnography, “The Remembered Village” Srinivas (1976:5) calls this the ‘urbanization of Brahmins’. Brahmins were economically better off than other caste groups and for this reason they were the first to start migrating to the cities (Srinivas 1976). All of the Deorukhe households that I encountered live in apartments. The property rates in Mumbai are the highest in India with property rates in South Mumbai having risen to a record high of between ₹75,000 per square
kilometer (~1100 USD) and ₹100,000 per square kilometer (~1468 USD). Property rates are lower in suburban Mumbai and tend be lower when one lives in Thane city which is governed by a different municipal corporation. With high demand for properties and a population density of over 29,000 persons per square kilometer, urban settlements are spreading beyond the MMR (Karnik 2016).

Buying a property in the MMR is difficult which results in the entire region having a rather cosmopolitan character. Since Mumbai has been a cosmopolitan space for at least the last 100 years, discrimination based on caste and religious status is very much frowned upon. That is not to say that it does not occur but that the governmental penalties for discrimination in professional and social settings are actively discharged in a space such as Mumbai (Staples 2016). There are housing complexes and areas in the MMR which have a high density of certain religious or caste groups. Certain housing complexes, though they will not state it on paper, often tend to reject renters or house owners whose diet includes non-vegetarian foods. However, the presence of such housing complexes is a rare occurrence in MMR. The urban space of Mumbai is therefore very much cosmopolitan in nature where one does not usually have a choice of what caste or religious status one’s neighbors will be.

Almost 75% of the women in such Deorukhe households held a full-time job. Many of them told me it was necessary for them to join the work force due to the rising cost of living and to ensure that they will be able to afford their children’s future education and career. The ones who were housewives often
tried to help increase the household income by becoming small time entrepreneurs such as providing *dabbas* (meals) for people, selling cakes baked at home, working part time as kindergarten teachers, or running a crèche at home.

Urban Deorukhes came in close contact with members of other castes and religions in both social and professional settings. Food was often shared with the neighbors living in the apartment complexes. This meant having to accept food from those families who had a non-vegetarian diet. Most of the urban Deorukhes had tried foods cooked by members of other castes and communities either due to having interacted with them in a social setting or as a result of having shared food with them at lunch time in professional spaces.

Rural Konkan was often romanticized by urban Deorukhes. They told me that they loved visiting the villages and enjoyed the ability to visit the villages with a lot more ease as a result of roads having been built in the last two decades. Many of them worried about the large-scale deforestation and urban and rural migration. It was often mentioned that a large majority of the Deorukhes living in the villages now were old people. Most urban Deorukhes told me that they loved the unpolluted air and the greenery of rural Konkan and the lack of complications and worries that living in the villages afforded. Most of them had close contact with their ancestral villages and visited the villages at least once a year. Some families had lost contact with their ancestral villages all together. Such families rarely visited rural Konkan.
All the urban Deorukhes who lived in the MMR had been living in this area for more than 2 generations. Some of the Deorukhe women had migrated to the MMR from the villages after marriage. The reasons cited for their ancestors having moved into the MMR were for completing higher education or for occupational reasons. None of the urban Deorukhes wished to migrate back to the villages, though many of them told me that they loved visiting rural Konkan. The children of urban Deorukhes were expected to settle in Mumbai or some other Indian city. Several families and/or their children told me that they wished to migrate to the United States of America. Urban Deorukhes also placed a great deal of importance on education and pushed their children to complete their undergraduate and graduate school education, often citing the need for higher education to get decent paying jobs in the MMR.

**Who are the Deorukhes?**

The Deorukhes Brahmins are named as such because their name is etymologically derived from the village Devrukh located in the Ratnagiri district of Konkan. A majority of the Deorukhes live in the Konkan region of Maharashtra (Karve 1953 as cited in Singh 2004). Apart from the mention of Deorukhes in Singh’s (2004) volumes on the people of Maharashtra, the only sources that the provide information about the Deorukhes’ ancestral origins and their current status, are those published by the Deorukhe community. I call these, the self-mythologies of the Deorukhes. In the course of my fieldwork, I was often told to refer to some of the books that have been published by the Deorukhe community. These books, I was told, would provide all answers to
my questions about the origins of the Deorukhes, and more. Keeping in mind, the stories that were related to me about the ancestral origins of the Deorukhes, I expound below on these self-mythologies.

The Deorukhes are an extremely close-knit community. I was told that the total number of Deorukhes was estimated to be anywhere between 30,000 to 45,000. The community members take a great deal of interest in the history of their caste group. The result is a number of publications that aim to explain where the Deorukhes have come from, which villages they occupy, what professions they are traditionally known for, and the importance of the geographic location of the Deorukhe houses in the rural villages. During my fieldwork, I realized that, with the exception of those few Deorukhe families who had lost all contact with their native villages, all of urban and rural Deorukhe households that I came in contact with knew each other and were closely or distantly related to each other.

Deorukhes are one of four Brahmin groups in Maharashtra. The other three being Chipavan / Kokanastha, Deshastha, and Karadhe. The Deorukhes claim to be autochthonous to the Konkan region. The current lack of knowledge of the illustriuousness of the Deorukhe culture is a result of their small numbers. The Deorukhes believe that they are the most illustrious of all the Marathi Brahmins. In the present day, the Konkan belt is inhabited by two Brahmin groups, the Deorukhes and the Chitpavan/Kokanastha Brahmins (henceforth referred to as Kokanastha). The Deorukhes claim to be the original Brahmin inhabitants of the Konkan region. Originating from Devrukh, the
Deorukhes have, over time, moved into the interior villages of the Ratnagiri district. They claim to have occupied these villages for several hundreds of years.

Sometime during the late medieval period, the Deorukhe Brahmin community claims to have been sidelined by the Kokanastha Brahmins. The Kokanastha Brahmins, named as such for occupying the Konkan region, are noted to be mystifying owing to their light skin and light eyes, which are phenotypes not typically found among people of this region of India. It was mentioned by many of the rural Deorukhes that before the late medieval period, when the Kokanastha Brahmins gained social prominence, the Deorukhes looked down upon them and did not regard them as true Brahmins. In the early 1700s, the Kokanastha Brahmins are said to have risen in prominence and usurped the power and glory of the Deorukhes. In the present day, the Kokanasthas regard themselves as being superior to all of the other Marathi Brahmins. My interlocutors never grew tired of telling me that the Deorukhes are, in all ways, superior to the Kokanastha Brahmins, especially now that a lot of Kokanasthas have begun to consume non-vegetarian foods outside as well as inside of their homes. The Deorukhes greatly pride themselves on adhering to their strict vegetarian dietary rules.

The Kokanastha phenotypes were a topic of discussion that the Deorukhes often touched upon. Commenting on their possible foreign origins, I was told that their light skin and eye color were indications that they are not originally from this region of the world. Apart from the Kokanasthas, the
Deorukhes did not harbor a grudge against any of the other Marathi Brahmin groups and did not de-legitimize any of the other Brahmin groups.

The traditional occupation of the Deorukhes was cited as being Bhikshuki (priestly duties that include performing religious rites on important religious occasions in return for alms given by the family for whom the rites are performed). Many of the Deorukhe men in rural Konkan, the ones living in semi-urban towns, and even those living in Mumbai still continue to practice Bhikshuki. These are the traditional duties of Brahmins which are performed in accordance with religious texts. In the olden days, in return for the performed religious tasks, these bhikshus (priests) were given produce and clothing by their patrons. Presently, urban bhikshus expect or ask for a specific fee, to be paid in cash, in return for performing their duties. Rural and semi-urban bhikshus are sometimes paid in cash, but often given a basic remuneration in cash along with fruits, vegetables, lentils, rice, and saree sets for their wives. Despite the continued practice of bhikshuki, many of the Deorukhe men also hold jobs. Commenting on bhikshuki being an untaxed occupation as opposed to income from jobs and produce sold grown on one’s land, I was informed by one Deorukhe man, who was not a bhikshu, that the Indian government was soon going to start including bhikshuki as an occupation, the income of which could be taxed by the government of India. As mentioned in the earlier sections, those Deorukhe men who do not practice bhikshuki either hold jobs, own their own businesses, or run grocery stores in the rural villages.
The Deorukhes are known traditionally, for their mango orchards, coconut plantations, areca nut plantations, cashewnut plantations, kokum plantations, and their rice farming (Singh 2004). In accordance with Singh’s report, and my observation in the field, this is true. Rural deorukhes are well-known for growing these nuts, fruits, and for farming rice. I was told that they would also grow a variety of vegetables and root crops before the makad encroachment became a big enough problem that they abandoned this practice. They are heavily reliant on their land for the consumption of wild edible green leafy vegetables that grow on their land during the monsoon season. Jackfruit, papaya, and palm trees were ubiquitous on all Deorukhe plots. Unripe and ripe jackfruits were seasonal delicacies.

Most of the rural households had stopped relying on the produce from their plantations as a source of income. Rice farming was heavily relied on for household sustenance. I was told that the plantation produce could no longer be relied upon since the makads stole the fruits from the trees before they could be picked. Those households that heavily relied on produce from their land for income, especially mangoes, had to have their orchards guarded continuously for 2-3 months to fend off the makads. The Deshpandes of Khandala were the only rural family I met whose entire family income was reliant upon the produce from their land. They had a substantial sized mango orchard. One afternoon as I was talking to Sheela Deshpande, she told me that the people they hire to guard the mango orchards from the makads are not always successful at fending them off and this results in heavy losses. “If a
monkey jumps from one tree to another, we lose anywhere between 50-100 mangoes. That is why we have to hire these guards” she told me.

Traditionally a farming community, the Deorukhes made sure to inform me that their houses were always located close to a perennial water source. Most rural Deorukhe families, as mentioned earlier, used water from naturally occurring springs in the mountains. Many a times, small dams or storage areas allowed for rain water to be harvested or dammed. Some of the households that relied upon farming extensively, told me that their ancestors had built an elaborate labyrinth of waterways from close by rivers or dammed areas. They rigorously maintained these waterways and used them to water their fields and plantations. When these waterways were unblocked, due to the force of gravity the water was released into their fields.

All the Deorukhes I met were ecstatic upon learning that my study was focused on their diet and food habits. The Deorukhes took great pride in their cooking practices and were quick to inform me that being an achari (cook) is one of their traditional occupations. Upon closer observation, this seems to be true, at least in the modern contexts. A large proportion of the Marathi catering businesses and small home-made food eateries were run by Deorukhe men and women, in rural, semi-urban, and urban areas. Deorukhe women took pride in showing me their traditional recipes and told me that Deorukhe cooking was perfect because it contained just the right amount of sweet, sour, spicy, and tangy flavors.
Figure 2.11 Water being released in the fields through elaborately built waterways
The Ethnographic Method

The dichotomy between native and non-native anthropologists is problematic as it is and steeped in colonial history of the discipline. In the grander scheme of things, I am categorized as a native anthropologist. Born in Maharashtra and having grown up in Mumbai, I have life experiences that do allow me to understand intrinsically some of the things that my interlocutors were attempting to relate to me. Despite that however, I am also affected by my educational and personal experiences in the United States of America. As a member of the Indian diaspora, I am acutely aware of the changes taking place in India. Every visit to India is accompanied with a surprising number of new material objects appearing in the markets. This is accompanied by shifts in attitudes towards objects and food that are foreign or incorporated as native. In this context, I am just as much an outsider as an insider. My perspective on where I stand as a “native” anthropologist is best put forth using Narayan’s (1993: 672) words, “…I argue for the enactment of hybridity in our texts; that is, writing that depicts authors as minimally bicultural in terms of belonging simultaneously to the world of engaged scholarship and the world of everyday life.” In this sense, I agree with Narayan (1993) who argues for a better rethinking of the “insider” “outsider” stable categorizations.

There are several aspects to my own identity as an Indian woman. Someone who was born in Thane, a city just outside of Mumbai that is now recognized as belonging to the broader Mumbai Metropolitan Region (MMR), I am, as a native Maharashtrian, affected differently by the cosmopolitan nature
that characterizes the MMR, than someone whose ancestors moved to this region from a different part of India. My college life in St. Xavier's brought me face to face with the contempt with which some non-Maharashtrians view Marathi speaking people. My experiences in Greater Mumbai Area, locally referred to as ‘Town’, resulted in a struggle with my own identity as a native Maharashtrian. The colonial legacy of viewing many things Indian as backward is comprehensible to me because I remember discussions and debates that took place early in my college life about Indian society and its negatives.

Moving to the United States of America to pursue a career in anthropology also had a significant impact on my understanding of my own self and identity as an Indian who found herself a member of the Indian diaspora. For the first time, I realized exactly how much my own cultural identity affected the manner of my thinking and the way in which I viewed the world around me. Therefore, my personality today is as much molded by my early experiences in India as it is by my situation as an Indian anthropologist in the United States of America. These multiple dimensions to my identity are important to consider to situate myself as the ethnographer who went into the field.

“Native” anthropologists such as myself have many a reason to choose to study their own culture. M. N. Srinivas, one of the earliest known native anthropologists spends a whole chapter discussing his reasons for choosing to study the village of Rampura. Srinivas, much akin to myself, had a limited time frame and chose to study a village in Mysore because he was fluent in Kannada. Srinivas (1976: 4) states, “I could have worked in a village in any
language-area in South India, but I had the utmost facility in Kannada which
was the language of my street and school, though not of my home. I would
have no need of interpreters, and I would also be able to go to such original
documents as existed and did not need anyone's help to copy and decipher
them.”

The ability to be fluent in the language in which one interacts with their
interlocutors is vital to being able to do a good ethnographic study. In my case,
I chose to focus my study inside the state of Maharashtra because Marathi is
my native tongue. This allowed for me to speak to my interlocutors without any
third-party translator having to be present. My choice to study the Deorukhe
community was as much affected by the above stated reasons as it was by their
own acceptance of allowing me to study their community.

This project is the result of a year-long fieldwork carried out between the
January 2013 and January 2014. I had established contact with the Deorukhe
community during my preliminary fieldwork in the months of January and
February of 2012. As I began fieldwork, I recruited participants using the
method of snowball sampling. The Deorukhe community was very interested
and open to being studied. I had established contact with a rural social worker
who introduced me to my rural interlocutors. Urban interlocutors were
recruited with the help of the Deorukhe Sangh committee members.

The earliest phase of my fieldwork entailed introducing myself to my
interlocutors and asking them whether they would be open to interacting with
me by letting me visit their homes for a total of three times. Though most of my
interlocutors were open to the idea, some of them were not. It became quite apparent early on that most of my participants were interested in meeting with me initially because they were aware of the fact that I lived in the United States of America and was carrying out this research work as a part of my doctoral studies. The tag of being an NRI (Non-Resident Indian) bore many positive markers. For the older generation, it was a matter of pride that a young woman such as myself, born and brought up in India, and now doing her doctorate in the United States of America, would return to India to study the people of her homeland. For the younger generation, meeting someone who lived in the United States of America meant having higher social capital and the ability to experience living in the west through me. My placement as an Indian woman living and studying in the United States of America was often used by the rural social worker to appeal to Deorukhe families and convince them on why they should participate in my research. I gave the title field coordinator in rural Konkan to this rural social worker. I will henceforth refer to her as Meena kaki (aunt).

The responses of my interlocutors differed greatly based on their expectations of me and from me. I remember visiting a family of three in the semi-urban township of Chiplun. I sat introduced myself to the mother, a 56-year-old primary school teacher and the daughter, a 23-year-old who had just completed her Master’s in Psychology from the city of Pune and moved back in with her family after having completed her degree. While I spoke to them in the living room of their one-bedroom apartment, the lady’s husband was present
there as well. A man with kind eyes, he listened carefully to every word about my project. After they acquiesced to becoming my study interlocutors and signed the consent forms, I started asking them questions about the family demographics. Throughout the whole interview the father/husband sat quietly listening to our conversation and adding in information as and when needed. When I finished my interview, I was offered chai and snacks. As was typical with most households, as soon as I was done with my interviews, my research interlocutors became the interviewers and I become the interviewee. I was asked questions about where I live, how I live, what I do, and other particulars about my life. It was at this time that the husband/father decided to vocalize his opinion of me. He looked at me and said, “I think it is very commendable that you are carrying out this study. But beyond that, I think it is rather admirable that you are so proficient in the use of Marathi. You can speak fluent English, that much I can see. But your Marathi is equally good!” His response caught me off-guard because I was rather conscious of that fact that despite being my native tongue, I struggled with speaking fluent Marathi. I was so self-conscious of my inability of speak Marathi without using a smattering of English terms that before going into the field, I had memorized my opening letter and consent forms so that I did not revert to using English terms. Though the main reason for ensuring I spoke proper Marathi was so that the participants could understand me better, I also soon realized that this made them see me in better light because it made me more relatable rather than an exotic being who cannot be communicated with or related to.
However, the result of my fluency in Marathi and my attempt to fit in by wearing traditional clothes was received differently by the younger generation of my participants, especially ones in rural India. The young girls that I engaged with were often very polite and respectful and referred to me as tai (a respectful term for an older sister). They were also excited to meet with me because I lived in America and was working on my PhD. But their expectations of what I would look like and how I would speak were at odds with my actual appearance. My first visit usually consisted of visiting my participants and dealing with all the members in the family and sometimes multiple families from the village who would enter the house and listen in on my conversations with my interlocutors. But by the third time I visited these households, it was sometimes increasingly difficult to get them to commit time to meet with me, often because the youngsters did not find it interesting or even worthy of their time to answer questions about their day to day lives to someone who did not provide any social capital since she did not fit the image of a globalized non-resident Indian. I remember distinctly the questions I was asked by the two daughters of a family that I visited for the third and last time in a small interior rural village. After an increasingly frustrating experience of trying to get them to commit time for one last visit, I was finally able to meet with them. As I was about to enter to the house, one of the daughters pointedly told me, “I left college early just to meet with you today.” I thanked her for doing so. Before I could even begin my interview, the second and older daughter said to me, “Tai, why don’t you wear jeans and speak in English?”
I remember smiling inwardly and replying, “It’s because I want to be respectful to the people I study.”

Older Daughter: “So you do wear jeans and speak English?”

Gauri: “Yes I do, but not when I do fieldwork in rural Konkan.”

Older Daughter: “Why?”

Gauri: “The same reason you don’t wear jeans on a day to day basis. How do you think people in the village would react to you if you wore jeans every day?”

Older Daughter: “That is because I live in the village. You live in America so you should wear what you usually wear.”

Gauri: “But wouldn’t older people find it disrespectful to have someone who is not dressed traditionally coming into their houses and asking them questions? Also, how many people do you know who are fluent in English and will be able to understand me completely if I speak to them only in English?”

Older Daughter: “I suppose that makes sense.”

This interaction made me aware of what it was that I was expected to represent to these youngsters. As someone who lived in America, I was expected to appear at their house wearing western clothes and behaving like a westerner. When I did not fulfil that image, it was quite disappointing. Indeed, more so than that, I was interested in their traditional lifestyle, one that many of them thought was not as interesting as the life in cities or western countries, the images of which were consumed by them straight from the TV sets in their living rooms. Since everyone in small villages is aware of the goings on and the visitors to peoples’ houses, if they were to see me, it was preferable to these
young ladies that I appear to be an Indian who embodied the western culture that I interacted with and lived in daily. Instead they met with a woman who diligently wore *salwar kameez* (traditional Punjabi three-piece suit) with a *tikli* (dot) on her forehead and spoke in Marathi!

My position as a young woman interested in studying the predisposition of food related chronic health disorders was highly appreciated by the Deorukhe Sangh committee members. As mentioned in the earlier portion of this chapter, the Deorukhes are a close-knit community and the Sangh had an extensive list of all the Deorukhes in the MMR along with their addresses, phone numbers, names of family members, and birth dates. This list was made easily accessible to me. Committee members of the Deorukhe Sangh requested in return that I give them a copy of my dissertation and any publications that use the data I collected about the Deorukhe Brahmins.

All of my interlocutors, especially the mothers had questions about my life and food habits in the United States of America. I became aware in the early stages of my fieldwork that I could not ask my interlocutors questions about their food habits without discussing cooking habits and food preferences of the family. Health reasons were often cited for why certain foods were not eaten by the family. I was often told why certain lentils were not eaten because they were prone to causing acid reflux. I realized that most of the women I was speaking to, were the most comfortable talking about food, when demonstrating their prowess as cooks. Therefore, I requested them to cook a meal, any meal, and let me watch them as they do so. I realized that the
dynamic of me, being a newly married woman who had never run a household of her own, watching these married women work in their kitchen, made these women very comfortable and allowed me to have more in-depth conversations about the food habits of their household.

I was often doubted and questioned by the young girls and the men of the household as to why I needed to gather the information that I gathered. In one household from a semi-urban town, when I displayed the body size preference cards for a woman and her daughter, her husband got extremely angry and demanded that I leave their house immediately. The woman and her daughter, who were willing to talk to me, could only watch in horror as I tried talking to the man. The deeply disturbed woman contacted me via phone the next day to apologize and offered to give the rest of the information via phone but she said she could no longer have me come back to her house anymore. Such incidences, though scarring and sometimes incomprehensible for the ethnographer, do give us an understanding of the gender dynamics within some of the households. This gender dynamic would have gone unnoticed by me, had I not encountered this situation. Such experiences also provided me with a nuanced understanding of the behaviors expected of women and girls in certain households. In at least 3 rural households, the women of the household were unwilling to acquiesce to participate in my research until their husbands verbally agreed to it. In at least 4 of the households from semi-urban towns, I had to convince the men of the household to allow their wives and daughters to be my research interlocutors before having any interaction with them at all.
In the light of these incidences, I was careful to always address the men in the household. It became important for me to convince them that their wives and daughters be allowed to participate in my research. It also became very apparent that the mothers-in-law occupied a position of great importance in many of the rural and semi-urban households. In at least 2 cases, I had interlocutors withdraw from the study because their mothers-in-law refused to let them participate any farther. In one case, a woman offered to come to speak with me in my hotel room, without informing her household members. Such instances, though troubling at times, were eye-opening for my understanding of the position that women from certain households found themselves in. It is my firm belief that it enabled me to ask better and more informed questions when carrying out my ethnographic fieldwork.

**Conclusion**

In this chapter, I have provided the historical, cultural, and ecological background of the site of my research study. Konkan is a region of multiple topographical zones which, to date, remains difficult to traverse. Despite that, carrying out ethnographic and anthropometric fieldwork in rural Konkan was extremely rewarding and fascinating. The difficulties faced, specifically in case of finding an easy means of transportation, did limit my ability to use certain research techniques such as the use of pedometers. The inability to find a place to stay, close to my research interlocutors, in rural Konkan, without outright inconveniencing the research interlocutors themselves, resulted in an inability to shadow and properly note physical exertions in their daily lives. In
light of that unexpected development, I made use of Godin’s questionnaire, which called for participants to recall and provide a detailed description of their physical movements that approximated some form of exercise. Now that the background has been provided of the field study site, I will delve into the next chapters as listed at the end of the Introduction chapter.
CHAPTER 3

SACRED VILLAGES AND PROFANE CITIES: ON THE IMPORTANCE OF MENSTRUATION FOR THE PURITY OF FOOD AND BEING

Introduction

In January of 2014, I embarked on my doctoral fieldwork to collect anthropometric and food consumption data, as planned, from at least 33 Deorukhe Brahmin households from urban and rural environments. My intention was to collect data on their food consumption patterns in the form of semi-structured interviews and 24-hour food recalls. I hypothesized that I would find a statistically significant difference between urban and rural Deorukhes in the appearance of obesity, hypertension, diabetes, and cardiovascular disorders – all of which are diet related Chronic Non-Communicable Diseases. My approach was informed by literature in epidemiology and medical anthropology. And in that vein, I collected all of the anthropometric data that I set out to collect. However, the data that I wished to collect on food habits became increasingly entangled with discussions about purity.

As I interacted with more and more of my interlocutors, it became amply clear that for them the food and the body resulting from their food was one whole. While I proudly called my research biocultural, it became quickly apparent that for many of my interlocutors this distinction did not exist. They saw their bodies as a result of their culture and even more importantly according to them, their bodies also preserved their culture. Back from the field
now, and after having read literature on culture and embodiment, I noticed how important something as seemingly unrelated as menstrual seclusion was for many of the rural Deorukhe women that I had interacted with.

This chapter materialized out of my hope to explain why practices such as menstrual seclusion which are often discussed medically in terms of women’s reproductive health or discussed by feminist anthropologists to discuss women’s agency, are important to look at in the general context of the changes taking place in present day India. I believe that menstrual practices will enable us to get a better understanding of the anxieties, pride, shame, and the moral quandaries that are faced by rural and urban Indian women and men as well, in the light of the social and economic changes that are taking place in an economically liberalized India.

The economic liberalization of India in the year 1991 has resulted in fast paced social and economic changes that have taken place in the past 25 years. As more and more people migrate from native villages to city spaces, how does this affect the cultural practices of the Deorukhe Brahmins and also the manner in which they view themselves? The purpose of this chapter is to understand the existence of menstrual seclusion as a practice that is viewed in a different light by Deorukhe women depending on the social spaces that they occupy. This chapter delves into feminist anthropology’s discussions about seclusion practices surrounding menstruation and religious anthropology’s discussions about notions of purity and impurity that are attached to such practices. Culture and embodiment literature’s view that lived bodies are
assemblages of practices, discourses, images, institutional arrangements, and specific places and projects. And medical anthropology’s discussions about the existence of medical pluralism where traditional healing notions can sometimes compete or complement biomedical notions of what is seen as problematic.

So why is the subject matter of this chapter important? For one, this chapter provides a complex picture of the manner in which urban and rural Deorukhe women continue to legitimize their upper caste status as Brahmin women either through purity in terms of food consumption or purity in term of both food and the body. Secondly, it informs us of the manner in which certain conditions that are viewed by western biomedicine as problematic are viewed sometimes as not harmful in the context of religious beliefs and traditional medical beliefs. Thirdly, it demonstrates the identity issues that are faced by urban women in particular as they become bread earners while at the same time also holding the status of householders who have the duty of upholding ritual purity, transmitting cultural knowledge, and maintaining traditions. And lastly, in the light of the resurgence of Hindu nationalism in present day India, it considers the fears and the perceived threat felt from changing cultural practices in contemporary India which may have given rise to the current political and social situation.

**Shaila and Prisha**

I will begin this chapter by reviewing my experience visiting Prisha and Shaila in the village of Taregoan. I travelled to the village of Taregoan for the second time to interview my field informants in the July of 2014. Heavy
monsoon meant traveling through the lush green mountains of Konkan was a visual delight. The searing green in every direction with the pleasant breeze from the ocean that was always looming on the horizon was uplifting my mood while at the same time reminding me of the many puddles and the sticky red earth I would have to navigate as soon as I stepped out of the Magic that I was riding in. Taregoan had three households that I was going to interact with, so I had intended on staying at the place of one of my participants, who had generously invited me to spend the night at their house. Since I collected anthropometric data during each of my visits, I had requested the mothers and daughters from all three households to congregate at my host family’s house so that the measurements could be completed in one go while the interviews could be taken in the succeeding days. Meena kaki had also accompanied me to the village for this visit.

My generous hosts for the next two nights were 47-year-old Shaila and her 21-year-old daughter Prisha. Theirs was a household of 6 people consisting of Shaila, Prisha, Shaila’s husband, Shaila’s mother-in-law, and Shaila’s two unmarried brothers-in-law. Shaila’s husband was a bhikshu (a priest) who took care of the Ganesh temple that was located in the center of the village. He also provided his services for festivals to the people within their village and the nearby villages. They grew rice on their ancestral farmland, planted vegetables in their yard, and also had two water buffaloes. Every morning Shaila would milk the water buffaloes and deliver the milk to people in the village and nearby villages who were their regular customers.
On that wet monsoon day, as I entered Shaila’s house, I saw all of the women and girls gathered in their living room. Shaila’s daughter Prisha beamed at me and told me she had made sure everyone would be present when we arrived. I thanked her and started setting up my equipment so that I could complete the task of taking everyone’s anthropometric measurements. As the women interacted with each other and spoke about happenings in the village, I went to thank Shaila for being my host. As soon as I started to go near her, I noticed that she moved a couple steps backward and Prisha said, “Tai, you can take Aai’s measurements last. She is baherchi right now”. The word baherchi literally means an outsider in Marathi. However, in this context, it signaled the fact that Shaila was on her menstrual period.

Taken aback I looked at Meena kaki since I had never encountered this problem before. How was I to take this woman’s measurements and then stay in her house if she was on her period? I had certainly interacted with girls and women who were on their period during the course of my fieldwork, but I also knew that rural Deorukhes were very strict about touching someone who is menstruating. Women and girls on their period had to sit aside separate of the other household members. They slept on a different bedding, ate from different plates, drank from different water glasses, and were restricted to a specific area of the house. These women could not move around freely in the house, nor could they touch anyone or be touched by anyone for the first four days of their menstrual period. On the fourth day, they had to take a bath and wash their
hair to be considered clean and pure again. After that, they could get back to their daily tasks.

Meena kaki gave me a sheepish look and muttered, “I am sorry, I forgot to tell you that she was on her period. I should have told you to pack an extra set of clothes. Now you are going to have to take her measurements last and then shower yourself to be able to continue the rest of your fieldwork.”

Surprised as I was, I did not mind the idea of taking a hot shower on that cold humid evening but I was uncertain about what she meant about my clothes. Surely, I could just pack them up and get them washed later? Noticing the puzzled look on my face she said to me, “You have to wash yourself, your hair, and your clothes. You cannot pack them up and carry them with you.” It was then, that it dawned on me the predicament in which I had found myself. I had not packed an extra set of clothes and that meant not only that I had to use my next set of clothes on the succeeding day, but also that I was going to have to hope that my washed clothes would dry in the almost 80 to 100% humidity that accompanies the monsoon weather. Ignoring the panic that I felt, I started measuring my field informants. Finally, I measured Shaila. Before I started taking her measurements, I was told to keep my clothes ready for the shower. Prisha apologetically told me, “I know this seems excessive to you tai, but in the village we take this very seriously. I have started heating your bath water on the paan chul (the water hearth which is usually located near the bathroom area in the back of the house). Since Meena kaki did not remember to tell you about Aai, I guess you have not come with shampoo. Would Pantene shampoo
suit you? I use Pantene.” I thanked her and told her that I did not mind doing what was the custom in their household.

When I finished taking Shaila’s measurements, Prisha picked up the clean set of my clothes and told me she would give them to me when I called for them from the bathroom. She started walking towards the bathroom and I started following her. That is when both Shaila and Prisha exclaimed, “NOO, please don’t walk through the house.” Thoroughly confused about how to get to the bathroom I looked at both of them. Prisha said, “You cannot walk through the main house, now that you have touched Aai.” Shaila motioned for me to come walk to the back of the house through the side corridor, a part of which was reserved for Shaila and Prisha when they were on their menstrual periods. As I washed my clothes and took a bath in that stone floored bathroom of their house, I kept running the whole scene through my mind and wondered to myself what it was about menstrual periods that made women so unclean?

Making women sit aside as a part of their menstrual cycle is nothing new or unique to Indian culture. Indeed, many scholars mention the existence of this practice in multiple cultures (Buckley and Gottleib 1988, Gottleib 2002, Hoskins 2002, Pedersen 2002). In 1966 Mary Douglas wrote about Harper’s description of the Indian Havik Brahmin’s pollution rites. “They discriminate in ever finer and finer divisions, prescribing ritual behavior concerning menstruation, childbirth, and death. All bodily emissions, even blood or pus from a wound, are sources of impurity” (Douglas 1966: 34, Harper 1964). That this ideology continues to pervade the day to day lives of modern rural Indian
women is indicative of the fact that anthropologists need to question further the underlying cosmological meanings of what it means for women to experience body transitions such as menstrual periods. In attempting to address the rising occurrence of metabolic syndrome among the Indian populace, I argue that we should focus on the cultural underpinnings that affect modern health practices in India. The cosmologies that surround the discussion of women’s reproductive health sheds an important light on the sociocultural factors that are crucial to understanding the manner in which these women see themselves. And in this case, I argue that rural Deorukhe Brahmin women view themselves as embodiments of the pure priestly caste Brahmins.

Foucault was formative in his discussions about the body and what it exemplified. Having put forth the concept of Bio-power, Foucault discussed the manner in which modern western biomedicine saw the human body as being separate of its conscious self (Dighe 2011, Foucault 1984, Rabinow 1984). The objectification of the body by western bio-medicine remains problematic even in the modern day. Indeed, Langford’s treatise on Ayurveda addresses the notion that while the biomedical episteme continues to influence modern day Indian Ayurveda, Ayurveda in turn also affects how Indians perceive their health and bodies (Langford 1995). The origins of Ayurveda have been traced back to as early as 600 B.C. Langford also demonstrates that even though modern day Ayurveda tries to mimetically recreate healing spaces such as clinics in a western form, Ayurvedic doctors continue to defend it from the encroachment
of biomedicine (Langford 1995, Langford 1999). In this process, what takes
place is a sort of medical pluralism in which Ayurveda continues to compete
with biomedicine. While Langford’s work has been with urban Ayurvedic
practitioners and patients, my study looks at both urban and rural
interlocutors. And while I discussed with them how they ate their food and
what they thought about their own bodies, it became increasingly clear that no
discussions were to be had without delving into the basic ideas about how
social order was maintained through purity of both food and body. And these
prescriptions were in themselves steeped in the ideas propounded by Ayurveda.

So, through what medium does impurity transfer and how does one
make himself/herself pure again? Harper speaks about the daily bath which is
absolutely essential to a Brahmin. Without taking their daily bath, the
Brahmins cannot worship the Gods. In case the Havik Brahmins came across
anything that is ritually defiling, another full bath which including wetting
one’s hair needs to be taken immediately (Harper 1964). Such is the case even
today among the Deorukhes. Harper also provides a list of items that the Havik
Brahmins consider as conductors of the transfer of impurity. The dichotomy
between raw and cooked food is strong. While raw foods do not pass on
pollution, cooked food is liable to pass it on (Douglas 1966, Harper 1964).

On the succeeding day at Prisha and Shaila’s house I attempted to help
Prisha’s old half-blind 80-year-old grandmother cook lunch. It was the
auspicious day of Angarika Chaturthi that Tuesday. Every fourth day of Krishna
Paksha (the waning lunar phase during the second fortnight) of every lunar
month in the Hindu calendar is celebrated as *Sankashti Chaturthi*. *Chaturthi* is the fourth day of a lunar Hindu calendar. When this *Sankashti Chaturthi* comes on a *Manalwar* (Tuesday), it becomes extremely important and is celebrated as *Angarika Chaturthi*. On the day of *Angarika Chaturthi*, devotees pray to Lord *Ganesha* (the elephant-headed God in the Hindu pantheon of Gods) and ask him to fulfill their wishes. It is believed that on this auspicious day, if you fast during the day and pray to Lord *Ganesha*, your every wish will be fulfilled by him.

As I offered my help, Prisha’s grandmother readily accepted my offer to assist her. Giving me potatoes, a *vili* (traditional Marathi cutting board), and a bowl full of water, she asked me to cut *batatyachya kachrya* (very thin potato slices). I was happy to oblige since I got a chance to watch her cook on the *chul* (the open hearth) in their house.
While I sat there cutting potatoes on a vili, Prisha took a shower. Since it was an auspicious day, the meal that was being prepared as naivedya (food offering to the Gods) was of special importance. Everyone in the house was fasting that morning and would break their fast at lunch after the naivedya had been offered at the end of the puja (worship). Prisha’s father was especially busy since he had to do the puja at their household shrine as well as at the Ganesh temple in the village. Since I was cutting the potatoes, Prisha’s grandmother started cooking at the chul. As I heard the familiar sound of the phodni and the wafting aromas of spices, I asked Prisha’s grandmother if she
needed my help to cook the food since I was almost done with the potatoes. She said immediately, “No, that is fine. You have helped enough already.”

![Figure 3.2: The chul in Shaila’s kitchen](image)

I watched her cook when I was done with my task. At one point, I watched her struggle to mix the food inside a large utensil. Earlier on she had complained to me about how difficult it is for her to cook these days since she has lost half of her sight and she is old. Thinking to myself that she might be declining my help due to the impropriety of the guest having to helping her out, in spite of her quiet protestations I proceeded to mix the food in the utensil. The look on her face, I shall never forget. Quickly comprehending that I had
defiled the food by touching it, I profusely apologized and left the kitchen in horror.

Deorukhes in rural India definitely differentiate between raw and cooked foods as conductors of impurity. Lévi-Strauss discusses, in his work, the binary categories of the raw and the cooked that are often prevalent in culinary cultures across the world. Lévi-Strauss focuses on the idea that cooking transforms the food in an important manner. In this transformation, it is the cook himself/herself who performs the important job of socializing the food as he/she is transforming it from its raw to cooked state (Lévi-Strauss 1997). Harper and Douglas also mention the strong dichotomy between the raw and cooked foods. Harper goes into great detail to discuss how raw foods can be cleaned and washed by the lower castes, but it cannot be touched or cooked by them (Harper 1964). According to Douglas, this might have to do with the symbolic aspects of the food as much with the labor division that is common to the traditional functioning of the Hindu caste system (Douglas 1966).

Harper also provides a detailed list of what objects can and cannot function as conductors of impurity. The floor is definitely not a conductor, though certain areas of the house are not open to members of the lower castes, especially those castes that are traditionally considered as untouchables. Writing in the 1960s, Harper talks about the ritual defilement that accompanies touching objects that have been touched by members of the lower castes. In such a case, the Brahmin again has to purify himself/herself by taking a bath (Harper 1964). Harper’s descriptions of the Havik’s Brahmins’
ideas of what is considered pure and impure, as well as how mingling with the lower castes is navigated is surprisingly similar to my own experiences with the rural Deorukhe Brahmin households.

Anila’s Guest

One day as I sat talking to Anila and her daughter in their house, someone came to their door. She excused herself and went out to talk to the man. When she came back about 5 minutes later, she was holding a wedding invitation. She laid it down, looked at me, and said, “I will be right back, you talk to my daughter until then”. 20 minutes later she came back in a new set of clothes. Noticing the puzzled look on my face she said, “I had to shower again, I wish my husband was a home when that man came. The women in their community do not sit aside for their menstrual periods. I still haven’t cooked the naivedya today, I cannot cook it without purifying myself.”

Caste discrimination is no longer overtly practiced in India. Indeed, the Indian government heavily penalizes anyone who discriminates against someone based on their caste (Staples 2016). As opposed to my experiences in Mumbai though, rural India continues to be a space that is still highly affected by the underpinnings of the Hindu caste system. This is a system that affects everyone concerned, be they Hindu or not. Pork and beef eating social groups in particular are even more shunned because those are not just meats but taboo meats. These undercurrents, though not verbalized in the day to day life, continue to affect the manner in which the rural Deorukhes think of themselves in the broader schematic of the Hindu caste system.
Deshpande Family of Khandala

I visited and stayed overnight on two occasions with the Deshpande household in village of Khandala. The Deshpandes were a well-known and a very well-respected family among the Deorukhes. When we went to meet the Deshpandes, we were told by the other Deorukhes, that this was the ideal family for me to study. The Deshpandes were the epitome of Brahmin purity and success. Though many rural Deorukhes tend to live in joint families, none could boast a family of 13 members other than the Deshpandes. The family was very welcoming and insisted the I come to visit and stay with them in my subsequent visits to their house. So, what made the Deshpandes such a success story?

The family consisted of the grandmother and the grandfather, the grandfather’s unmarried brother, their two sons, the wives of both sons, and the children of both the sons, and one household help of the lower caste. The oldest son practices bhikshuki (priestly duties) and helps his younger brother to manage the family’s considerably large areca nut, mango, and kokum plantation. They also own two water buffaloes and run the kokum aghal (the juice extracted from the fruit of Garcinia indica) extraction plant that is adjacent to their home. The Deshpandes follow the old Brahmin customs to the last letter.

The women of the household wake up early every morning and start preparing breakfast. One of the women has to sweep the entire house, as is custom in every Deorukhe rural household. The mother-in-law ritually initiates
the household hearth and prepares *mau bhaat* (soft rice) for breakfast. Her daughters-in-law prepare the *dabbas* (packed meals) for the 5 children who have to go to school. They feed them breakfast and get them ready for school. Once the children have left, one by one they eat their breakfast and then go shower. After they are showered, they start the preparation of the *naivedya*. Since saliva is considered a medium of impurity, the women are not allowed to taste the food that they prepare. Since garlic and onion are considered to be foods that are not appropriate for the consumption of the Gods, the *naivedya* foods cannot have garlic or onions in them, though they can be added later after the food has already been offered.

Together, the three women work in the kitchen to prepare a full course traditional meal that consists of rice, *chapati* (whole wheat flat bread), *daal* (lentil curry), *bhaaji* (vegetable dish made by sautéing vegetables or preparing them in the form of a curry), *koshimbir* (salad), and *dahi* (yoghurt). The food is first served to the male members of the household in the dining area, then the children, and finally the women eat the rest of the food inside the kitchen. This, ritual practice, common several decades ago, is no longer practiced on an everyday basis in all rural Deorukhe households. That is not to say that ritual purity is not maintained. More the fact that since most households I visited consisted of a mother-in-law who was either deceased or too old to cook, the woman of the house, and a young daughter who was either in school or college and therefore could not help her mother with housework daily, the elaborate
naivedya that the Deshpandes prepare is no longer an everyday occurrence in other rural Deorukhe households.

One morning in December I observed the Deshpande women working in their kitchen from a safe distance. I spoke to Sheela, one of the daughters-in-law before she left to get showered. After a brief talk, she asked if I could continue talking to her daughter Sana so she could help her mother-in-law in the kitchen and continue our conversation later during the day. “As you know, my jau (sister-in-law) is on her periods so she cannot help Aai to make the naivedya today” she said as she left for the bathroom. As I stood near one of the kitchen entrances, I saw Sheela go inside the kitchen after her shower. Her mother-in-law asked her, “Are you still sowli or have you become owli already?” Sowli and owli are opposing terms used to determine a woman’s status of ritual purity. Sowli is a word that literally translates to mean ritual purity while owli translates to mean ritual impurity. As I watched Sheela and her mother-in-law prepare their naivedya for the day, I stood well away and outside the bounds of the kitchen to avoid what had taken place in Shaila’s kitchen. Once the naivedya had been offered, the Deshpande women welcomed me into the kitchen and even allowed me to eat lunch with them after the men of the household were done eating.

Chetna and Rhea

As I went from one house to the other, I kept noticing that rural Deorukhe Brahmin girls were adept cooks by the ages of 13-15. At the same time urban Deorukhe girls were still learning the basics of cooking. In the vein
of changing cultural beliefs and modernity, it was easy to put this down to the idea that modernization and economic changes occurring in India was causing traditional ideas about gender roles to change in contemporary Indian cities. While I do not contend the fact that traditional Indian gender roles cannot be applied broadly to women all over India, it is equally important to note that we recognize how these changes in behaviors are deeply tied to the notions of the self among rural and urban Indian women.

As I struggled to understand what exactly was causing this change in behavior, I stumbled upon one important factor that affected this change, as I was posing a question to Chetna. “Does Rhea cook?” I asked her. To this Chetna replied “Yes, she can cook everything. She learnt from a very early age. Now I can say with confidence that can cook a full meal for at least 8-10 people if she has to.” As I pondered on the idea of an 18-year-old being capable of cooking the elaborate traditional dishes I asked Chetna, “She seems to be a very proficient cook, I am impressed.” To this Chetna replied, “Our girls in the villages have to learn how to cook at an early age. She had to start learning to cooking at the age of 8 years. Before that my mother-in-law used to cook, but she passed away when Rhea was very young. So, it was necessary for Rhea to learn how to cook since I had to sit aside whenever I was on my menstrual periods. I would sit in a corner overlooking the kitchen and guide her on what was to be done. Slowly she started gaining confidence and now she is capable of handling the whole kitchen on her own.”
Chetna’s story suddenly brought into focus one important factor that I had overlooked. What role did menstruation play in the manner in which women are treated and expected to behave in the cities and the villages? Thereafter, I started asking women and girls if they sat aside for their menstrual periods after they answered the questions I posed about their cooking abilities. A definite pattern emerged. In households (comprising all rural households and some households from the towns) that paid strict attention to traditional rules pertaining to menstruation, all of the girls were capable of cooking traditional foods and entire meals by the ages of 16-20. All of them knew how to make every day Deorukhe foods and some even knew the elaborate foods that are made for festivals. Though all of these young girls did not always enjoy cooking, they all understood that it was expected of them to fulfil this duty in the absence of the older women and as future householders.

**Sudha and Indrani**

In sharp contrast to Chetna and Rhea’s story, is that of Sudha and Indrani. When I asked if she Indrani could cook, she gave me a sheepish grin and said, “Not much”.Marveling at the contrast between 21-year-old Indrani’s and 18-year-old Rhea’s cooking capabilities, I asked Indrani if she wanted to learn how to cook. Shrugging her shoulders, she replied, “I would much rather prefer to learn some special dishes than to learn how to cook every day food. It is boring. I like to make pasta, pizza, and cakes”. At this her mother responded, “But you better start learning how, it is high time.” Looking at me Sudha continued, “I did not push her to learn at a young age because I wanted her to
concentrate on her studies. But do you know what happened the other day? Should I tell her Indrani?” Indrani looked resigned to the idea that her mother was going to tell me the tale. Sudha continued, “About a month ago I had to go to South Mumbai for a reunion with my friends. I was gone all day long. Her younger brother came home and asked her to make some batata bhaaji (sautéed potatoes or potato curry) for him. I have tried in the past to teach her how to make simple batata bhaaji. If she had paid attention when I was teaching her, she would have been able to prepare it for her brother. But she couldn’t prepare it. In the end, he had to eat chivda (dry snack food) and wait till their father came home from work. He ordered food from outside. This is why I tell her that it is high time that she learns how to cook now”.

As Indrani heard her mother tell me about the incident, she said, “But I like making non-traditional foods. I help Aai when she bakes her cakes.” To this Sudha responded, “That is true. I take cake orders at home. I went to a baking class and learnt how to make cakes. My cakes are different because they are always made with kanik (whole wheat flour) and not maida (processed wheat flour). I also use loni (cultured butter) instead of butter or oil. People like my cakes a lot. But, I am not good at icing the cakes. Indrani went to the same workshop about a year ago. Now, not only can she bake cakes, but she is also very good at icing the cakes. Nowadays, I take cake orders that require icing because she can do the icing.”

Two things emerge clearly from the above story. One is that young Deorukhe girls from Mumbai are choosing to cook certain types of foods that
are non-traditional, over traditional foods cooked every day at home by their mothers. Secondly, more than Sudha’s disappointment at Indrani’s inability to cook food, what this story conveys is that despite certain changes in the gender roles and behaviors of urban Deorukhe women, the onus of cooking and being a householder continues to remain upon the women and girls of the household.

I asked Sudha about the restrictions in the house pertaining to menstruation. She replied, in a very matter of fact way, “I don’t have the luxury of sitting aside when I get my periods. It is different for the women in the villages. They have a support system that allows them to follow these traditions. In our case we have a nuclear family. My mother-in-law has never supported me. When my children were born she refused to take care of them in my absence. I had to leave my job and stay at home. So, we started living separately. You tell me, what am I supposed to do when I get my periods? Who will take care of the house and feed my children? I do not touch the shrine when I menstruate and neither does Indrani. But other than that, I have to cook for my family so I have to go in the kitchen. If I have an order for a cake, I have to prepare it. I don’t really have a choice.”

It is interesting that Sudha categorized sitting aside for menstrual periods as a luxury instead of a restriction. Based on Sudha’s experience, it is evident that even if she wanted to do so, she could not have continued the tradition in the urban context because of the neolocal residence patterns that are typical of urban India. The loss of kin support is a factor that many of my urban participants have mentioned. Some have also mentioned that as
opposed to large rural houses, the availability of space is limited in urban apartments. A combination of these factors might account for the changing practices in urban India when it comes to menstrual periods, cooking, and gender roles.

**Parnita and Padmini**

I wondered to myself then, if rural Indian women found themselves in a similar position, would they choose to follow the same path as Sudha? I believe not. As I spoke to 44-year-old Parnita in her 2-bedroom apartment in the town of Ratnagiri, I asked her and her daughter the same question that I had asked my other interlocutors. Parnita’s 16-year-old college going daughter was again, completely proficient at cooking. Parnita’s husband’s family had moved to Ratnagiri from their native village to ensure a better quality of education for their children. Their ties with the village though were very strong.

Parnita and her husband visit the village every month without fail. The family spends their summer vacations at their ancestral home in the village. They also travel back to the village to celebrate festivals. On their land, they have areca nut, mango, and coconut plantations. Since they do not live in the village, they have leased out their land to a lower caste family who grow rice on it and give Parnita’s family a portion of the produce. Parnita’s husband’s paternal cousin and his family live close to their ancestral house and watch over their land and house. I asked Parnita if they followed the traditional menstrual restrictions in their house. To this she responded by saying, “Of course, both me and my daughter follow it. Almost the same square footage as
Sudha’s apartment, why did Parnita choose to follow a different route? Certainly, there is the factor of individual agency, but I decided to ask Parnita more about why this tradition was continued by her and her family.

If kin support affected the continuance of this tradition, as was the case for Sudha, Parnita’s situation was the same. Even though her mother-in-law lived with the family, she was almost entirely blind. Parnita told me that her mother-in-law had been incapable of doing housework for at least the last 5 years. In fact, she required to be taken care of at all times. Questioning the assumption that I had made about spatial restrictions and their effect on the continuance of menstrual restrictions, I asked Parnita why they continued to practice the traditional restrictions in their apartment? I also asked her how she herself learnt to cook.

“When I was younger my mother fell ill unexpectedly. She passed away soon after that. I was quite young and the only daughter with 3 brothers. Despite the fact that girls learn to cook at an early age, I was not a very proficient cook. My father practiced bhikshuki. I struggled to learn how to cook and manage the house in my mother’s absence. In the early days, the Brahmin ladies from the village would come and help me. They would teach me how to cook and in the days right after my mother’s death, they would give us food. Slowly, I learnt how to cook and manage the entire household.”

When she finished I asked her, “But what about when you were on your menstrual periods? If you were the only woman in the house, how could you stop cooking?” “The neighboring Brahmin ladies gave us food for the four days
that I could not cook” she said. Then she continued, “You have to remember that the village is where the family Gods are. You cannot defile that space. Even now, we may be living in Ratnagiri but we go back to my husband’s village all the time. We have to maintain purity for these reasons.”

**Purity of the Deorukhes**

As I spoke to the Deorukhes, it became apparent that stronger ties with the village and the ancestral homes, meant that traditions were upheld more fiercely. In fact, the Deorukhe’s took great pride in informing me that despite having a large population of their community in the city of Mumbai, very few of the urban relatives eat non-vegetarian foods. The caste purity is maintained and that is primarily important to keep intact the purity of the community as a whole. In doing so, they also made sure to tell me that this purity is what separated them from other Marathi Brahmins. When I was speaking to the Deshpande’s oldest son who carries out priestly duties he told me with great pride, “Do you know that even in predominantly Konkanastha (another Brahmin community that occupies the Konkan region) village they will call a Deorukhe Brahmin to come do the priestly duties at their village temple? They do that because they know they are non-vegetarian eaters and we are purer than they are.”

The idea that Brahmins have started consuming non-vegetarian foods is quite prevalent. One day as I was being driven to an appointment in rural Konkan, the driver of the car, who is not a Brahmin, asked me if I had eaten fish since I was in Konkan. I laughed and told him that since I lived with
Deorukhe people and ate with them, I was unable to do so. “You have to eat fish if you are in Konkan!” he exclaimed. Then he continued, “You know, non-vegetarian food has become more expensive now. Do you know why? It’s because of all these Brahmins. We were able to afford non-vegetarian foods until the Brahmins started eating them. They don’t know how to cook so they eat them in restaurants. The demand has increased so much now that we all have to pay the prices of the restaurants if we want to eat maas (meat) and machchhi (fish).” Sitting behind me, Meena kaki nodded her head in disappointment. She said to him, “Not all Brahmins, it’s the Kokanastha! We Deorukhe never eat meat. Look at my children, I have complete faith in them. Even if they eat outside, I know they will never eat non-vegetarian food.” To this he replied, “Deorukhe men eat non-vegetarian foods outside as well. I have eaten non-vegetarian food with you nephew. It is all Brahmins I tell you.” Looking devastated Meena kaki muttered, “My nephew eats non-vegetarian food?!?” She had no response beyond that.

Most of the Deorukhe households that I came in contact with told me that they did not eat non-vegetarian food. That said, the ones who did, made it clear that they do not like to tell their relatives or the community members about this. Whether this results in Deorukhe children and men eating non-vegetarian foods outside of the without informing their families, is a question I could never answer during the course of my research among the Deorukhes. It was apparent that the Deorukhes prided themselves on their caste purity and
their continued practice of eating traditional foods and carrying out their traditional duties.

While rural Deorukhes continue Brahmin traditions that maintain the purity of the caste, it is also important to understand that the villages are sacred in the eyes of both the rural and urban Deorukhe Brahmins. Family Gods and Goddesses reside in the villages and visiting them periodically is expected. Many Deorukhes travel to the villages during important festivals to partake in communal ceremonies. Traveling back to the ancestral villages and praying to the family deities for protection and deliverance was important for most of the urban Deorukhe households that I encountered. Not surprisingly, those urban households that had lost contact with their native villages were the ones who told me that they found the Deorukhe’s continued insistence on purity nauseating and annoying.

**Samata and Avni**

Samata and her daughter Avni were talking to me about visiting their native village. Samata’s parents, who had lived in Mumbai for their whole life, moved back to their native village after her grandfather passed away. Her in-laws on the other hand, had always lived in in their native village. Discussing their ties with the village, Avni said to me, “I prefer to visit my maternal grandparents in the village rather than my paternal grandparents. My maternal grandparents are relaxed and it doesn’t stress me out to visit them. But visiting my paternal grandparents’ house stresses me out. Just the sheer number of rules and what is allowed and what is not allowed. It tires me out just to have
to live with that. We go there to pray to the Gods and then I start pesterling *Aai* for us to visit my maternal grandparents. Sometimes *Baba* stays with my paternal grandparents while *Aai* and I go to her parents’ house. I can have a real vacation when I visit them.”

At the same time, some urban participants raise concern about the changing landscape and technoscape of the villages. My urban interlocutors never explicitly stated that changes taking place in the villages were upsetting because they might be a danger to the sacredness of the villages. Their fears were of the villages becoming a replica of the cities. Many feared losing the beautiful greenery of Konkan and the pure air that was refreshing to so many. Quite a few of them were disappointed at the appearance of television sets in the villages though they were happy about the fact that they could travel with more ease now because of the start of Konkan railways and the development of tar and concrete roads. Some even try to recreate traditional lifeways, but in their own way, which legitimizes their urbanity while communicating their wish to go back to living simpler lives.

**Sachi and Saroj**

Sachi told me about the work she and her husband have put in to start farming on his family’s ancestral land. “It takes a lot of time and effort to grow crops, we know that. About seven years ago we decided to start farming on our ancestral land. It was hard work and for the past seven years my husband has rarely spent weekends with us. Every weekend he drives back to our native village to monitor the land and talk to the servants. We have employed 11 full
time servants who take care of the farm. We grow seasonal vegetables, rice, lentils, cashew nuts, and mangoes. It was big investment.” Sachi went on to tell me that when they began farming, they went to the local farmers asking for local organic seed because they believe in practicing organic pesticide free farming. As the farm has grown, they have set up an agro-tourism project that promises its customers the authentic rural Konkan experience. Food served is cooked on the traditional hearths. They give customers tours to show them how various fruits and vegetables are grown and harvested. And at the same time, they ensure that people are comfortable. And so Sachi said to me, “We may have a traditional house with rooms that can be rented by customers but at the same time, we have ensured that we have full western bathrooms with commodes so that the urban and western guests do not feel uncomfortable”. When asked about menstruation Sachi says, “I don’t cook too much so that aspect doesn’t bother me much. Both me and my husband have extremely busy professional lives so we have a full time live-in maid who cooks for us and takes care of the house. Of course, Saroj and I don’t touch the shrine when we are on our periods.”

**Feminist Anthropology’s Understanding of Menstrual Practices**

It became apparent that none of the urban Deorukhe women are able to sit aside while they are menstruating. While some of them think of the practice as archaic, others think of it as luxurious. But all of them agree that the shrine is not to be defiled at this time of the month. Discussing the menstrual practices of the Havik Brahmins, Harper (1964) mentions about how the Havik
women joke about being on vacation while they are menstruating. Similarly, when discussing the menstrual practices of the Balinese Hindu women, Pedersen (2002) gives an ethnographic vignette of a menstruating woman who was made to sit on a garbage heap. She then came down from the heap and spoke about how she was like a Raja (King) because everyone had to wait on her hand and foot.

One evening as I sat in Meena kaki’s house, awaiting dinner, I was talking to her daughter Mithila who was on her period. She was sitting aside and I was warned about keeping my distance from her. As she could not get up from where she was sitting, Mithila asked her younger brother to get her some drinking water from the kitchen. Her brother ignored her request and kept playing on his phone. After asking him several times, Mithila said to him, as she moved to the end of the carpet she was sitting on, “You better get me water or I will touch you.” Noticing suddenly how close she was to him, he sprang from where he was sitting, and with an angry gleam in his eye, brought her water. Such instances inform us why some urban Deorukhe women referred to menstrual restrictions as luxuries. This demonstrates that no matter the outward perception of the situation, what some western peoples might interpret as disempowering, these women may use to their advantage and interpret as empowering.

Feminist anthropologists have been attempting to understand the role that menstruation plays in the lives of women from different cultures the world over for at least the last 30 years now. Early anthropologists who came across
menstruation during their ethnographic fieldwork often focused on the idea of menstruation as being seen as unclean and impure (La Fontaine 1972, Weideger 1977). Buckley and Gottlieb’s (1988) edited volume Blood Magic created a formative change in the manner in which anthropologists discussed menstruation. Gottlieb’s work with the Beng served to demonstrate that menstrual practices go beyond the notion of purity and can be intimately connected to cosmological notions of fertility (Gottlieb 1988). Since then, rich ethnographic studies have demonstrated that there is more going on with regards to menstruation than meets the eye (Delaney 1991, Maggi 2004, Pedersen 2002, Hoskins 2002, Hanssen 2002). For example, speaking about the practice of menstrual seclusion among the Kalasha people of the Hindukush valley in Pakistan, Maggi states, “Far from being a prison in which women are separated from the rest of the Kalasha society and made powerless, the menstrual house is an important center for female culture and community and it enhances women’s agency, both personally and collectively (Maggi 2004: 119)

Today we know that women in various cultures deal with menstruation in different ways. In some cases, even if the menstrual restrictions with regard to movement are similar in two closely related cultural groups, the underlying religious meanings that inform these practices may differ vastly (Winslow 1980). What’s more, even in cultures that don’t outwardly restrict women’s movements during menstrual periods, there are occult meanings attached to menstrual blood flow (Hanssen 2002).
Spoorthi and Swarupa

In March of 2014 I went to visit Spoorthi and her daughter Swarupa in a suburb of Mumbai. The family lived in a one-bedroom apartment attached to a temple. When I walked in, Spoorthi welcomed me warmly and told me to have a seat in the temple lobby. I was very intrigued to carry out my conversations with this family inside a temple. As we started talking about her health, Spoorthi told me that she had blood pressure problems. I asked her if she was seeing a doctor for this or taking any medication. To this Spoorthi responded, “No, it just goes up and down sometimes. I am not taking any medication. Usually I have high blood pressure, not low blood pressure”. She then continued to say, “It is because of stress and all the abortions I have had. But I started having blood pressure problems in earnest after Swarupa was born”. This really piqued my interest. I asked her to elaborate more on what she meant.

Spoorthi was born and brought up in rural Konkan and moved to Mumbai after her marriage. She moved into the same house that they live in today when she married her husband, who is 9 years older than her. Spoorthi’s father was a bhikshu (a priest) and her family owned cattle and grew their rice on their farmland. Weighing 84 kgs with a height of 5.1 feet, Spoorthi’s BMI count was 35, which is puts her very definitively in the obese weight category. As we spoke about her weight, she told me that 9 months ago she used to weigh 56 kgs and in the last few months she has put on all of this weight. “Why is that so?” I asked her. She listed several things that had affected her weight.
The most important factor according to Spoorthi the reduction in the amount of physical labor that she did. “I had a lot of physical exertions until the last year. I stitched clothes for people, cooked *dabbas* for people, and I had to walk Swarupa to school, and take care of the house, and cook as well. Things have gotten much easier now. Swarupa is old enough that she doesn’t need to be dropped off to school anymore and my husband has a steady job now so I don’t have to find multiple ways to make money.” As I listened to her, she said, “I am also a bit depressed because my father-in-law passed away.” Then she continued, “But, I am going to lose this weight. I spoke to my doctor in the village and he told me that I should go walking for 45 minutes every day. If I do that, I will lose my weight.” Considering the fact that Spoorthi had lived in Mumbai for many years, I asked her why she spoke to her village doctor. To this she said, “I don’t trust these city doctors. They are the reason I had to have so many abortions.” In my succeeding visits to Spoorthi, she often brought up the idea that her abortions were the reason for many of her health problems. “My health went downhill after I had to get those abortions” she kept saying. So, I asked her why she had had so many abortions.

As I spoke to Spoorthi, she told me about the circumstances that surrounded the birth of Swarupa. “I was pregnant three times before Swarupa was born. Every time that I was pregnant, I would continue to have menstrual periods all throughout the pregnancy. This didn’t just happen once but three times.” As my surprise upon learning that fact became evident Spoorthi looked at me and said, “I know, the doctors here kept telling my husband and my
father-in-law that it meant complications for the pregnancy and that this was unhealthy and dangerous. Three times I was pregnant and each time, in the 4th month or so, I had to have the baby aborted because they kept saying that the baby was going to be born with birth defects which made my husband and father-in-law to pressurize me into getting abortions.” Searching my face for any indication of whether I agreed with her or not, Spoorthi continued as I nodded and listened. “This is why I don’t trust doctor’s in the city. What do they know? They claim to be in the big city and to know a lot but my village physician proved more knowledgeable in this case. When I was pregnant the 4th time, the same pattern continued. I was pregnant and still having my periods. I contacted my village physician through my family in the village and he sent word for me to return to the village instead of aborting the child.” “So, you went back?” I asked. “Yes”, she continued, “I went back to my mother’s house. As I was leaving, I was told not to return back if the child was mentally retarded or had any birth defects. They told me we will not take responsibility since you think you are smarter than the well-trained doctors here. I went anyway, I was not going to have an abortion this time round.”

Spoorthi continued to discuss her experience with me as Swarupa sat by her side and heard the entire story, which did not come as a surprise to her. “Having periods during your pregnancy might be uncommon but in the village, we call it a sign of the birth of a divine child. My doctor told me, this is deviche dene (gift from the mother Goddess). I guarantee you that this child will be healthy and fit. Do not worry, trust in me and everything will go fine.”
pondered over the paradoxical treatment of menstrual periods in this situation, Spoorthi said to me, “and nine months later Swarupa was born with absolutely no birth defects or problems. In fact, she is such a good girl. She is respectful, quiet, hardworking, a true embodiment of quiet strength and patience of the Goddess herself.”

Having been in the villages myself and having first-hand witnessed the kind of restrictions of movement within the house that girls and women face when they are on their periods, it was extremely puzzling to me that someone who had periods throughout her pregnancy was told by her family and her physician that her condition is the result of divine intervention. In the case of Indian women, the manner in which certain gynecological incidents are interpreted can differ widely from the western medicinal view. Marathi women from rural India who suffer from Reproductive Tract Infections (RTIs) that lead to white vaginal discharge often view them as problems caused due to a severe rise in the body heat. These women also attribute such vaginal discharge to weakness. More importantly, such a vaginal discharge is often viewed by their husbands as proof of their licentious sexual behaviors. As a result, though problematic many rural Indian women hide this problem (Bang and Bang 1989). Similarly, when women experience spotting during their pregnancy this is considered as a sign that an ancestral spirit wishes to return to the living world via the woman’s womb (Dighe 2011).
Who do Women’s Bodies Belong to?

Biomedical understanding of vaginal bleeding during pregnancy is very different from Indian cultural understanding of the same condition. Therefore, what would be termed by medical doctors as placental abruption leading to vaginal bleeding, was seen by her rural family and doctor as an indication of the entering of a divine spirit into the world through her womb. May be because western biomedicine views placental abruption as extremely dangerous to the fetus and the mother, medical doctors in Mumbai kept asking Spoorthi and her family to terminate the pregnancy so as to avoid complications (Ananth et al. 2006). Beyond just the idea of menstruation, and how it affects the manner in which women view themselves, this instance is telling in how the notions of biology and body vary in context of different medical practices. The fact remains that what one finds problematic, the other may not. What one sees as needing a solution, the other might hail as a positive sign. As Rabinow (2002: 141) states, “Secular rights cultures, cultures of consumption, and a wide range of religious and neotraditionalist moral discourses, and the symbols deployed by all three, function at times and in specific settings as competitors (or rank enemies), at times and for certain issues as complementary, and at times and for specific issues as simply co-present (or cordoned off one from the other)”. In the case of Indian medical landscape, Ayurvedic medical practices and biomedical practices often tend to complement each other. However, in instances such as these, especially when
it comes to the bodies and health of women, sometimes traditional ideas about biology and embodiment are at odds with biomedical understanding.

The question that bears asking then is, what is it about women’s bodies that is so important? Who makes decisions about a woman’s body? In the case of my participants I believe the guiding factor is what Chakravarti (1993) calls “Brahmanical Patriarchy”. What does women’s bodies signify? In the case of Brahmins, historical texts tell us that purity of caste is contingent on the purity of women. Bodies of women are regarded as literal gateways to enter the caste system (Chakravarti 1993). In Hindu traditional forms of marriage, anuloma (hypergamy) was accepted in certain circumstances while pratiloma (hypogamy) was severely discouraged. The Dharmashastras (Hindu sacred religious law books) expect people to maintain caste endogamy. But in certain cases where a man cannot find a wife belonging to his caste, he is allowed to marry women from lower castes. This practice of a man of a higher caste marrying a woman of the lower caste is called anuloma. The child born from such a union is usually treated as belonging to the caste of the father. However, the texts severely censure an upper caste woman marrying a man of the lower caste. Pratiloma unions where a woman of an upper caste marries a man of a lower caste are viewed as dangerous to the caste system in general. Children born of such a union are treated as belonging to the lowest caste, that of untouchables (Beteille 1990, Chakravarti 1993, Jha 1970). Caste endogamy was usually maintained in India since marriages were arranged by families. Despite that, ‘love marriages’ have been on the rise for at least the last 30-40
years. Such marriages often cross caste boundaries and though they cause some social friction, they are becoming more and more acceptable in urban India and even in rural India to some degree. In caste of inter caste love marriages, the focus is on the social and financial status of the groom and the bride’s family, though caste is a factor that is considered (Corwin 1977).

How does this affect the women and girls that I study? The Deorukhes pride themselves on maintaining their caste purity. In such a situation, Deorukhe women are under immense pressure and are often verbally told that they have to marry within their caste group. Marrying into another Brahmin community is acceptable, though not seen as ideal. And so, as a researcher who was meeting young Deorukhe unmarried girls, it became one of my tasks to inform people about which girls were of a marriageable age. The demands were usually from people living in rural Konkan, many of whom bemoaned the fact that girls no longer wanted to marry “our boys living in the village.” And so Shaila’s husband and Meena kaki’s husband told me that my study should focus on, “why are our (Deorukhe) girls not marrying our boys?” Meena kaki’s husband told me, “Can you believe that Deorukhe girls are marrying men from lower castes? Someone I know married a Shimpi (Literally this word means ‘tailor’. People of this caste are categorized as belonging to the Other Backward Class – OBC group. Members claim to belong to the Kshatriya caste group.) boy.” With an incredulous expression on his face his continued, “I mean, how lacking do these girls think our boys are that they are willing to settle for anyone?” Looking at his wife he said, “I have already told Mithila, she is only
allowed to marry a Deorukhe boy. None of this *vichitra* (abnormal) inter caste marriage business will be tolerated when it comes to my daughter.”

Rural Deorukhe people are still very rigid when it comes to caste purity, food purity, and body purity. The rigidity of how these traditions are practiced may vary a bit with each household, but the underlying cosmological, cultural, and medical assumptions about food, health, and embodiment remain similar and stable. But as Deorukhes venture out of villages and move to cities, the struggles that they face to maintain their caste and body purity are many and varied. In a city such as Mumbai where many do not get to choose who their neighbors are going to be, and more importantly you are forced to interact with them and depend on them in case of emergencies, this becomes problematic to navigate.

Since the onus is on the woman to maintain the purity of the home and the hearth, it becomes a responsibility that every woman must take seriously. It is through the women then, that the purity of the home and the hearth is maintained. It is this purity that enables the men of that caste to go out into the public sphere and be seen as the perfect embodiment of their caste group. As in the case of the Deshpandes from Khandala, the reason that they can hold their heads high in society is because their homes are pure, sacred, and traditional spaces. This is a home where purity is maintained because of the women of the household. This is in line with Chatterjee’s (1993) discussions about colonial India and the manner in which the *world* and the *home* came to be viewed by the nationalist movement of the Indian freedom struggle.
Chatterjee avers that women were meant to preserve traditions and maintain the private sphere inside the home. This inner sanctum, which was viewed as threatened by the colonial masters who aimed to proselytize India with their missionaries, was to be protected at any and all cost. This was the job of the women. However, to live in colonial India required for men to western clothing and adopt western cultural norms or behavior. And so, Chatterjee (1993: 121) states, “The material/spiritual dichotomy, to which the terms world and home corresponded, had acquired, as noted before, a very special significance in the nationalist mind. The world was where the European power had challenged the non-European peoples and, by virtue of its superior material culture, had subjugated them. But, the nationalists asserted, it had failed to colonize the inner, essential, identity of the East, which lay in its distinctive, and superior, spiritual culture. Here the East was undominated, sovereign, master of its own fate. ... No encroachments by the colonizer must be allowed in that inner sanctum.”

While Chatterjee’s assertions ring true for rural Deorukhe women, this is no longer the case for the women who live in Mumbai. Indians today are not struggling with the western masters who are perceived as a threat to their traditions and rituals. In present day India, the mimesis that was expected of men is starting to also be expected of women as they enter the public sphere and become a part of the modern Indian workforce. As more and more Indian women enter the workforce, the struggle between maintaining their status as the keepers of the tradition and purity continues despite the fact that they are
expected to compete as equals with their male counterparts in their professional lives. Additionally, the exposure to global world culture as a result of the economic liberalization, the many foreign direct investments, and the presence of the internet and global popular culture, are affecting the manner in which young women and girls are reflecting on their own cultural status. Western culture is no longer a threat in the nationalist discourse of present day economically liberalized India. On the contrary, India and Indians are finally in a place where they can impact the world with their burgeoning economy.

The home and hearth still continue to be viewed by religion as sacred. Brahmin women in particular face higher pressure to maintain this purity. What does it mean for the food culture of urban India? Does urban Indian women’s practice of cooking food while on their menstrual period, while still maintaining the purity of the shrine, mean that food separates itself from the idea of being symbolic of body purity? We cannot assume that can be truly the case. Because if it were so, urban Deorukhes would have abandoned their vegetarian diets. The fact that urban Deorukhes still attempt to maintain their purity via food indicates that even though urban Deorukhe women may be forced to make changes in certain behavioral practices, as a result of living in the cities, they are attempting to maintain caste purity in whatever manner that they can.

**The Notion of Purity**

On the last day of my monsoon season visit in rural Konkan, I started my menstrual periods. I mentioned it to Meena *kaki*, who was a Deorukhe
woman who follows strictly the rules pertaining to menstruation. I asked her to tell me what I was supposed to do and how I was supposed to navigate things. We were on our way home from having visited a household in the nearby village. She told me, “You don’t need to do anything different.” Surprised at her response I said, “But when Mithila gets her periods she has to sit aside, doesn’t she? I don’t want to create a problem. Just tell me what to do and I will follow what rules need to be followed.” She just nodded her head and said, “It’s alright, don’t worry about it.” The rest of the day followed as always. I tried to make sure to not enter her kitchen and asked her if I should take my meal in a separate room. She told me to carry out my activities as before and I ate my meal in the inner house, as usual. Confused and perplexed I asked her again if it was alright for me to be in her house. She again said it was okay.

The next morning, she came to drop me off at the bus stop so that I could return to Mumbai. Along the way, we passed her lower caste maid. The maid nodded and pointed to something in her hand. I heard Meena kaki say, “Make sure to sprinkle it everywhere.” Catching the drift of the conversation I said, “Is she going to purify your house with gomutra (cow urine)?” Meena kaki nodded. “Why didn’t you tell me to do what I needed to do?” I asked exasperatedly. Shaking her head, she said, “Gauri, you will not be able to do it. By the time you told me you were on your periods you had already touched everything. You cannot touch ANYTHING when you are on your periods. You have to use separate bedding, separate utensils, and a separate bathroom. It
would have been too hard for you to do. Don’t worry though, we will purify the house will *gomutra* and it will all be fine.”

**Conclusion**

Meena kaki’s response told me volumes about how women in the village view their bodies as opposed to women in the city. That Deorukhe women in the villages literally view the urban women and women of lower castes as incapable of embodying the purity which they themselves embody. Their notions of being pure and upper caste have much to do with what some city women consider ‘archaic’ and ‘unteachable’ practices. Even more interesting is the sharp contrast in the perception of menstrual seclusion by urban and rural Deorukhe women. While some urban women are to some extent guilt-laden about being unable to continue the seclusion practices at home, most of them find the practices restrictive and emblematic of male patriarchy which seeks to control women’s bodies, women’s sexualities, and women’s movements. On the other hand, the fierce pride that the rural Deorukhe women feel about continuing these prescribed seclusion practices, is equally important to consider. Why would women choose to continue practices that are often viewed as disempowering from the perspective of western notions of feminism? For that, it is important to factor in discussions about assumptions make in feminist theory.

Early feminist theorists from the 1960s may account for rural Deorukhe women’s insistence on continuing the restrictive practice of menstrual seclusion to be the result of having internalized patriarchal norms. However,
since the 1970s, discussions about women choosing to make decisions that are perceived by western feminists as being counteractive to their own emancipation have become entangled with concerns pertaining to agency and subversion of restrictive practices so that they are redeployed to suit women’s own interests. Discussions about freedom abound and the feminist notion of freedom often holds the concept of individual autonomy as paramount. It is frequently assumed that self-realization and self-choice is more important than following rules pertaining to tradition. Nevertheless, it is important to note that there is also another kind of freedom. One where women find spaces that are autonomous of the coercive presence of men. This kind of freedom demonstrates that despite being treated in a way that some may label as being “marginal”, women find ways to empower themselves using these same practices (Mahmood 2001).

I argue that it is important for us to pay attention to the context in which we find certain practices embedded. While on the face of it, it might seem that rural Deorukhe women’s insistence on menstrual seclusion is directly against their own self-interest, we cannot interpret the practice in a transparent manner to be indicative of female repression. It is imperative to remember that this practice has meanings that are part of a larger cosmology. More importantly, we need to stop thinking of power as one thing, and rather think about the different relations between analytic terms like status, control, influence, autonomy, and freedom. And finally, we need to always be attentive to the ways that practices become meaningful in relation to specific social
contexts that are different across cultures and across rural and urban lifeways. In this case, urban Deorukhe women’s discontinuation of menstrual practices is one example of freedom. Freedom resulting from access to education, the ability to freely move out of their homes, and to be able to, at some level, be financially independent. However, the rural Deorukhe Brahmin women’s choice of continuing the practice of menstrual seclusion is also its own form of freedom. For rural Deorukhe women, these practices create certain kinds of social spaces which are not spaces of shame or subordination but of connection and status.

Further, I would like to note that the national discourse of India is no longer the same as the one during colonial India. While rural villages are geospatially laid out in a traditional manner that separates each caste group in their own specific area of the village, thus reducing any occurrence of “contamination”, which is a special concern for members belonging to a priestly Brahmin caste such as the Deorukhes, the cities are laid out in a vastly different manner that, in no way conforms to the traditional lay out of the village. In such cities, which are cosmopolitan spaces, where one cannot choose one’s neighbors, traditional caste boundaries are crossed again and again resulting in “contamination” that is typical of urban spaces in present day India. In this India, I argue that the villages have now become the sacred inner sanctum while the cities are viewed as profane spaces.

Finally, something that may seem unrelated such as menstrual seclusion is also important to consider in the light of the current resurgence of Hindu
nationalism in India. Today more and more Indians voice their concerns about maintaining traditions and the prescribed behaviors expected out of women. This is an India where popular temples release statements about wanting to create machines that will allow them to scan women so that they cannot enter temples while they are on their periods. This is also an India where in response to this news report, urban Indian women all over the nation create a campaign called #happytobleed. This struggle is not restricted to India. As in, the recent massive march in which women made clear with their hats that they would resist the current attack on their bodies and body parts. In such a milieu, I believe it is important to pay attention to the concerns of rural women who try ever more rigidly to uphold traditions that their urban and western counterparts find disempowering. In the light of the resurgence of Hindu nationalism in present day India, this research informs us how social change resulting from exposure to global media and entry of urban Indian women into the professional work force can be viewed negatively and as a threat to the purity of the caste group by rural Indian women. Finally, this chapter also demonstrates that it is vital that a community’s biology be studied in tandem with their cultural beliefs, for cultural beliefs affect people perception of their own bodies and the care they take of their bodies.
CHAPTER 4
UNDERSTANDING THE PREVALENCE AND PERCEPTION OF DIET-RELATED CHRONIC NON-COMMUNICABLE DISEASES AMONG RURAL AND URBAN DEORUKHE BRAHMAN WOMEN

The Chronic Non-Communicable Diseases (CNCDs) which I focus on for this dissertation research are food and lifestyle related disorders. CNCDs are looked upon as largely being of non-genetic causation – that is, they are mostly environmentally caused (Lieberman 2014). As a part of my fieldwork I collected data on the prevalence or the presence of obesity, hypertension, and type 2 diabetes (referred to as diabetes from her on) among contemporary Deorukhe Brahman mothers and daughters. The trend of changing diet worldwide, especially in what are sometimes referred to as “developing countries” is referred to as the ‘nutrition transition’ which is often noted as a reason for the occurrence of diabetes, obesity, and hypertension (Ahmed et al. 2009, Doak and Popkin 2001, Popkin 2012). Also referred to as metabolic syndrome, these CNCDs are seen to disproportionately affect low and middle-income countries (Alberti et al. 2009, World Health Organization 2017).

The words globalization, westernization, and urbanization are often used in context of the appearance of the phenomenon of nutrition transition. Though it is clear that the words urbanization, globalization, and westernization each have several meanings attached to them in terms of social changes that are taking place the world over, in this chapter I use these words as they have been used in the biological anthropology literature, to refer to certain conditions that
make it possible for the occurrence of overnutrition and a highly sedentary lifestyle which accelerate the appearance of metabolic syndrome.

The study of food consumption, the changes occurring as a result of globalization, and the appearance of urban centers across a developing country such as India, can shed light on the phenomenon of nutritional transition taking place in developing countries across the world (Inglis and Gimlin 2009, Kennedy et al. 2004). To examine the concept of nutritional transition, I compare the nutritional status of rural and urban Deorukhe Brahmin mothers and daughters from the state of Maharashtra in western India, using anthropometric measurements. The collection of anthropometric measurements allows for the ability to statistically analyze these measurements in conjunction with my ethnographic research. Through my ethnographic research, I note the underlying cultural and socioeconomic causes which influence the food choices that are made by my research interlocutors.

The effect of certain patterns of food consumption, changes taking place in the global trade market, and urban features appearing in the lives of people in developing countries is vital to gaining a comprehensive understanding of the resulting health disorders among people in countries such as India. These changes have been studied by several scholars (Kennedy et al. 2004, Mendez and Popkin 2004, Vepa 2004, Pingali 2004, Inglis and Gimlin 2009). However, these studies have focused only on either the physical anthropometric aspect or the social and economic aspect of food patterns. Although several scholars
(Inglis and Gimlin 2009, Landrine and Klonoff 1992, Hadley et al. 2011) have stressed on the importance of carrying out interdisciplinary studies so as to gain a better understanding of why dietary patterns have undergone a change in developing countries, there have been very few studies that have attempted to combine the physical anthropological understandings of health and nutritional problems with the cultural beliefs and reasons that underlie the dramatic changes taking place in the diets of Indians in the present day.

Globalization is a widely occurring phenomenon in the world today, and the globalization of food production, distribution, and consumption is no exception (Inglis and Gimlin 2009, Anheier and Isar 2007). Food is one of the most basic requirements to stay alive and therefore utterly essential for human existence. In the present day, India is one of the countries undergoing rapid economic transition (Pingali 2006, Pingali and Khwaja 2004). Closely related to the process that is called globalization is the appearance of another process that is called urbanization (Bloem et al. 2004, Kennedy et al. 2004, McMicheal 2000, Mendez and Popkin 2004, Philips 2006, Ruel and Garett 2004, Vepa 2004). The study of how globalization has resulted in changes in food systems in a developing country like India is an important aspect of this study. The intensification of global economic relations results in a vast restructuring of food systems (Kennedy et al. 2004, Koc and Dahlberg 1999. Pingali 2006). A food system is, “the whole array of activities, ranging from input distribution through on-farm production to marketing and processing, involved in producing and distributing food to both urban and rural consumers (including
farmers)” (Staatz 2000: 1). One of the key features of these global economic changes is dietary change. India, like many other developing countries in the world, is undergoing a nutritional transition. Nutrition transition refers to a shift to the increased consumption of processed foods, which typically have higher levels of salt, sugars, and fats (Hawkes 2006, Pingali 2006, Pingali and Khwaja 2004, Vepa 2004). My study intends to understand how this nutritional transition combined with socio-economic factors affects the health, physical activity, and the nutritional status of Deorukhe Brahmin women in the state of Maharashtra in India.

**Thrifty Genotype / Phenotype Hypothesis**

There have been discussions about certain populations that are genetically predisposed to the appearance of metabolic syndrome. The thrifty genotype/phenotype is a concept that is widely used in understanding the etiologies of widely occurring Chronic Non-Communicable Diseases (CNCDs) especially Non-Insulin Dependent Diabetes Mellitus (NIDDM), Obesity, and Cardiovascular Disorders (CVDs). The abovementioned CNCDs are resulting in increasing mortality rates across the world. The thrifty genotype concept was first proposed by Neel (1962) in relation to the increased occurrences of diabetes. Neel hypothesized that the human body was in a state of complex homeostatic mechanism that is now out of balance as a result of western dietary patterns coupled with a sedentary lifestyle that is low in Physical Activity Levels (PALs). Neel argued that the ancestral human genes were thrifty as a result of experiencing constant strain from food shortages and lean
periods during certain times of the year. Therefore, these genes stored any extra nutrients for use during scarce periods. This resulted in the human body having a quick insulin trigger. However, this adaptation is now a disadvantage since western populations no longer go through scarce periods and the result is the appearance of diseases such as diabetes. Neel attempted to understand the genetic makeup of the disease and hypothesized that the future generations would profit from this genotype because the exploding world population would result in food scarcity in the future.

In his updated 1998 article about the thrifty genotype, Neel mentions that he was specifically referring to NIDDM in relation to the hypothesis. Neel stated that the disease is multifactorial in origin and codes on several genes thus making is that much harder to treat using genetic therapy. He also stated that there is a need for better research to understand the social and cultural factors that result in the appearance of this disease. Lastly, he mentioned that NIDDM, Obesity, and CVDs usually appear together in an affected individual. This he calls Syndrome X. Neel mentions the possible use of Eaton et al.’s (1988) Paleolithic Prescription in treating Syndrome X.

A later update to Neel’s hypothesis was proposed by Hales and Barker (1992). Barker and Hales mention that their hypothesis is derived from that of Neel’s but instead of focusing on genotype, these authors argue that what they call the Metabolic Syndrome (same as Syndrome X) results from developmental plasticity which occurs as a result of fetal malnutrition. They call this the Thrifty Phenotype (TP) hypothesis. Hales and Barker argue that instead of
focusing on the genotype, it is far more important to understand how this

genotype later results in phenotypic expression that causes the occurrence of

NIDDM, Obesity, and CVDs. As opposed to Neel, Hales and Barker (1992)
argue that LOW, not HIGH birth weight results in the appearance of the

Metabolic Syndrome.

In his 1997 article, Hales proposes that low birth weight is the result of
maternal malnutrition that results in interuterine growth retardation (IGR).
This IGR results in a poor development of certain important organs, especially
the islets of Langerhans and Beta Cells, both of which regulate glucose
consumption. Thus, IGR genetically programs the child to live in an
environment that is low in nutrition. However, when infants with low birth
weight are exposed to a lifestyle of abundant of nutrition, this results in the
appearance of diseases such as NIDDM. In their 2001 article, Hales and Barker
go on to propose that based on several epidemiological studies along with
experiments on rats, they believe that the hypothesis is strong enough to be
used in medical interventions and policy decisions. Lastly, Barker (2012)
claims that the placental size is closely related to the infant birth weight that
results in later life appearances of CNCDs.

Stoger (2008) further updated this hypothesis to propose the Thrifty
Epigenotype Hypothesis. He argues that the metabolic changes put forth by
Hales and Barker are the result of an epigenetic mechanism. This mechanism,
as a result of gene canalization is safe from DNA perturbations and therefore is
safe from mutations. This is passed down intergenerationally, thus making it
harder to remove its harmful effects when one lives a sedentary lifestyle coupled with high caloric intake.

In the past couple of years, the thrifty phenotype hypothesis has come under severe criticisms for perpetuating the age old racial typologies. Whaley (2003) has written a scathing criticism of epidemiologists who equate social race with genetic causes of certain CNCDs. Whaley believes that instead of equating social or biological race or ethnicity with an increased risk of certain diseases, it is important to take into consideration the social and economic context of that population. Instead epidemiologists make people believe that their bodies are somehow inferior to Euro-American ones because they have higher incidences of CNCDs, thus causing the idea of racial superiority to increase. That certain populations are more susceptible to CNCDs is clear, but the reasons underlying the causes are not only biological in nature but also cultural and economic.

Montoya (2007) also mentions a study along similar lines undertaken among the Mexican people that equated social and economic status of DNA donors for that study to their biological profile, thus biasing their DNA as somehow inferior to that of the Euro-American scholars studying it. Last but not the least, the most scathing criticism comes from Fee (2006). Fee believes that old racial typologies are being resurrected in the name of science and are being defended in the name of scientific objectivity. Fee defends Neel as well as Hales and Barker claiming these scholars NEVER claimed that populations with higher incidences of CNCDs were inferior. Neel in fact claims the
differences in occurrences of CNCDs depends on WHEN the said population transitioned to a western lifestyle thus indicating all of us have a thrifty genotype/phenotype and equal propensity to acquire CNCDs under similar conditions. Also, frequently encountered is the thought that Euro Americans have had longer (theoretically) to genetically adapt to CNCD susceptibility (earlier widespread industrialization and “development”). Lastly, Fee claims sociocultural differences as well as socioeconomic differences play a large role and should not be ignored in understanding the reasons behind the prevalence of certain CNCDs within certain populations.

Be that as it may, the concept of thrifty phenotype has been fundamental in understanding the high prevalence of CNCDs among specific populations. For example: the high rates of obesity and diabetes among the Pima Indians. In the Indian context, the TP hypothesis is central to understanding the high rates of NIDDM and CVDs. Fall (2006) states the importance of understanding the higher susceptibility of different ethnicities, specifically Indians and Asians, to the appearance of CNCDs. This she relates specifically to the composition of their physique. How is Indian physical composition related to making them more susceptible to CNCDs? Modi et al. (2009) did an MRI scan on healthy newborn Indian infants. What they found out was that Indian infants had a high amount of central adiposity. This is very important because even though they had a low birth weight, they had high adipose tissue concentration, especially abdominal adiposity. Yajnik (2004) further elaborates this.

Yajnik (2004) says that even though TP is important to understanding
the Indian scenario, she calls this phenotype the ‘Thin-Fat Phenotype’. Studies have shown that Indian infants have low birth weight and have lean limbs thus meaning a low muscle mass. However, these same infants also have a high amount of adipose tissue. Yajnik believes that the intrauterine adipogenesis regulation is the key to understanding why so many Indians, despite being within the BMI index show a higher prevalence to the presence of NIDDM, Diabetes, and CVDs.

My study takes into consideration this ‘Thin-Fat Phenotype’ that has been noted among the Asian Indian infants as well as adults residing in contemporary India. This adiposity coupled with catch-up growth during infancy, nutrition transition to calorically dense processed foods, as well as a sedentary lifestyle with low PALs is expected to affect the appearance of CNCDs in the population I study. The important aspect in my study is to note the differences in the appearance of CNCDs between my rural and urban population group. More importantly, since one of the most important aspects that affects Indian babies is maternal nutrition (Hales and Barker 2001, Yajnik 2004), it is imperative that anthropologists understand the sociocultural factors that affect the position of women and mothers in India.

**Methods**

A total of 33 mother-daughter pairs from each environment, rural and urban, were recruited for this study. Sample size of $n \geq 30$ is a common minimal goal in epidemiological paired designs and regression studies. Since this study is qualitative as well as quantitative in nature, a larger sample size
would have entailed a longer research period as well as a higher expense. As a result, a sample size of $n \geq 30$ was chosen based on the central limit theorem. According to the concept of the central limit theorem, the distribution of the sample means “approaches” a normal distribution with increasing sample size and is perfectly normal when the sample size reaches $n=30$ (Gravetter and Wallnau 2002).

**Sampling Strategy.** The sampling method utilized for this study is that of paired stratified sampling. According to the sampling method, I have divided the Deorukhe Brahmin population into the strata of Rural and Urban. These categories were further divided into strata of Mothers and Daughters within the Rural and Urban categories. Stratified sampling is being employed for this study so that the independent strata will allow me to draw inferences about the specific sub-groups.
Study Design. This is an observational study design, which is cross-sectional in nature. Such a study examines a group at one point of time to gather information about the exposure to, as well the outcome of certain diseases without a prior knowledge of either the exposure or the outcome. The results from this study will help me examine rural and urban Deorukhe Brahmin mothers and daughters to observe and predict the prevalence of obesity, hypertension, cardiovascular disorders, and diabetes based on their diet and lifestyle. (Margetts and Nelson 1997, Bruemmer et al. 2009, Jacobs and Temple 2012). A cross-sectional study is especially valuable as it aids in creating a record in behavioral changes occurring among populations over time, in this case, changes in diet, lifestyle, and health. (Boushey et al. 2006, Bruemmer et al. 2009). This study is categorized as a cross-sectional study.
because it aims to record the effect of consuming a non-traditional diet and living an urban sedentary lifestyle on the appearance of diseases such as obesity, cardiovascular disorders, and diabetes. Using the data of such a cross-sectional study, one can carry out a prospective study where the expected outcomes can be evaluated in detail over a long period of time (Boushey et al. 2006, Bruemmer et al. 2009). The data collected in this study thus enables a historical study to be carried out in the future (Jacobs and Temple 2012).

**Anthropometric Measurements.** Anthropometric measurements were undertaken to assess the nutritional status of the subjects. Standard anthropometric measurements such as height, weight, mid-upper arm circumference, waist circumference, hip circumference, as well as triceps and biceps skinfolds were recorded (Frisancho 1990). These measures have been used widely in nutritional assessment studies, especially in India (Bose and Chakraborty 2005, Bose et al. 2008, Chakraborty and Bose 2008, Urade et al. 2004). Anthropometric measurements were taken twice to correct for error in measurement as per the Anthropometry Manual of Intergrowth 21st (Intergrowth 21st 2012). Several body measures such as Waist to Hip Ratio (WHR), Waist Circumference (WC), and BMI (Body Mass Index) will be used concurrently to evaluate for obesity as well as a high risk for metabolic complications so as to derive the most accurate measure (Akpinar et al. 2007, Ashwell 2011).
**Body Mass Index.** Body Mass Index (BMI) and Waist to Hip Ratio (WHR) were calculated based on the collected anthropometric measurements. BMI correlates to the body fat content. “The World Health Organization (1998) defines obesity as a condition with excess body fat to the extent that health and well-being are adversely affected” (Deurenberg et al. 2002: 142). BMI was calculated with the use of this formula: weight (kg)/height squared (m²). The WHO guidelines of cut-off points for the BMI of Asian populations are different than those that are used for European populations (World Health Organization 2004). WHO’s recommendations for lower BMI cut-off points amongst Asians has been supported by several studies done on the appropriate anthropometric cut-off points for obesity measures among the Indian populace (Dudeja et al. 2001, Misra et al. 2006, Razak et al. 2005, Subramanium and Smith 2006). According to the WHO recommendations, the following BMI cut-offs were adopted: < 18.5 = underweight, 18.5 - 22.9 = normal weight, 23–27.5 = overweight, >27.5 = obese (World Health Organization 2004).

**Central Adiposity Measures.** Abdominal fat (central adiposity) also plays an important role in indicating obesity related morbidity. BMI is a generalized measure of obesity. The sites of the accumulation of adipose tissue can be variable. Though rare, there have been cases where BMI cannot differentiate between the subject being overweight and over muscled. Hence, WC and WHR have been used as complementary measures along with BMI (Akpinar et al. 2007, Ashwell 2011, World Health Organization 2008). The Waist Circumference (WC) cut-off points as adjusted for Indian women are ≥ 72
cm = overweight and ≥ 80 cm = obese (Misra et al. 2006). Waist to Hip Ratio provides a measure of the body fat distribution of the subjects. WHR is calculated using the formula: WC/HC. Participants with a WHR of >0.80 cm have been marked as individuals with a high risk of the occurrence of metabolic complications. This is the cut-off point for Asians as recommended by the WHO (World Health Organization 2008). In the recent years there has been a movement to include Waist to Height ratio (WHtR) to calculate abdominal obesity and the risk of developing metabolic disorders (Ashwell 2009, Ashwell 2011). However, this measure is not as of yet recognized by the World Health Organization. It is also unclear how this variable contributes to our understanding of the data for a high risk of developing chronic non-communicable diseases. Therefore, this measurement has not been considered for this study.

**Blood Pressure.** Blood pressure of the subjects was collected using a microlife digital blood pressure monitor, model number BP3MC1-PC.

“Hypertension (HTN) is defined as a systolic BP > 140 mmHg, a diastolic BP > 90 mmHg” (Zirakzadeh 2012: 247). Hypertension has been noted to be one of the main causes of cardiovascular diseases. The literature suggests a linear correlation is observed between weight and blood pressure indicating that obesity is one of the factors resulting in hypertension (Zirakzadeh 2012).

**Diabetes.** As a health indicator diabetes was self-reported by the subjects of the study as has been previously studied by Mohan et al. (2008). Diabetes is clinically diagnosed when an individual has a fasting plasma
glucose (FPG) concentration that is ≥ 7.0 mmol/L (≥ 126 mg/dL). Lifestyle-related factors, the amount of physical activity, certain aspects of diet, and obesity are believed to be factors resulting into the appearance of type 2 diabetes. Incidences of type 2 diabetes are on the rise all over the world. Diet, a sedentary lifestyle, and obesity are believed to affect the appearance of type 2 diabetes in a population (Temple and Steyn 2012).

This study was carried out using a mixed methods approach. Qualitative and quantitative methods were utilized for this study. Qualitative methods have a long history of being used in social sciences (Pope and Mays 1995, Sandelowski 2000). Qualitative methods were employed as a part of this study to complement the quantitative analyses (Pope and May 1995). Semi-structured interviews, participant observation, and self-reported diabetes are a part of the qualitative data collected. Anthropometric measurements and blood pressure data form the quantitative data of this study.

**Hypotheses.** The overall objective of collecting anthropometric data for this research project is to use previously tested methods in nutritional anthropology to understand the effects of urbanization and globalization on the health and nutritional status of my research interlocutors. Given that this study specifically looks at the occurrence of obesity, hypertension, and diabetes among the study participants, the following hypotheses will be tested using statistical procedures.
**Hypothesis 1.** Rates of obesity, hypertension, and diabetes will be lower among participants from rural Konkan and higher among participants from urban Konkan because of a change in their diet and lifestyle.

**Predictions 1. Obesity Measures:**

a. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of obesity between urban Deorukhe participants and rural Deorukhe participants. That is, urban subjects will not be more obese than rural subjects.

b. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of obesity between urban Deorukhe participants and rural Deorukhe participants. Urban subjects are expected to have equal or higher rates of obesity than rural subjects.

2. Hypertension:

a. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of hypertension between urban Deorukhe participants and rural Deorukhe participants. That is, urban subjects will not have higher rates of hypertension than rural subjects.

b. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of hypertension between urban Deorukhe participants and rural Deorukhe participants. Urban subjects are expected to have equal or higher rates of hypertension than their rural counterparts.
3. Diabetes:
   a. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of diabetes between urban Deorukhe participants and rural Deorukhe participants. That is, urban subjects will not have higher rates of diabetes.
   b. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of diabetes between urban Deorukhe participants and rural Deorukhe participants. Urban subjects are expected to have equal or higher rates of diabetes than rural subjects.

**Hypothesis 2.** Rates of obesity, hypertension, and diabetes will be lower among Deorukhe daughters and higher among Deorukhe mothers as a result of metabolic slowdown due to age related changes in biology.

**Predictions.** 4. Obesity Measures:
   c. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of obesity between mothers and daughters. Mothers will not have higher obesity measures than their daughters.
   d. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of obesity between mothers and daughters. Mothers will have equal or higher rates of obesity than their daughters.

5. Hypertension:
   a. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of hypertension between mothers and daughters.
Mothers will not have higher incidences of hypertension than the daughters in the sample.

b. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of hypertension between mothers and daughters. Mothers are expected to have equal or higher rates of hypertension than the daughters.

6. Diabetes:
   a. Null Hypothesis $H_0$: There will be no statistically significant difference in the occurrence of diabetes between mothers and daughters. Mothers will not have higher rates of diabetes than the daughters.
   b. Alternative Hypothesis $H_1$: There will be a statistically significant difference in the occurrence of diabetes between mothers and daughters. Mothers will have an equal or higher occurrence of diabetes than the daughters in the sample.

**Statistical Procedures**

Means, standard deviations, minimum, maximum, and range values of all anthropometric measures for all subjects have been calculated. The same values have been calculated for all anthropometric measures for the independent strata of the sample. A Fisher’s exact test was run on the self-reported diabetes data. Independent samples t-test was conducted between rural and urban participants as well as mothers and daughters. Two-Way ANOVA was conducted with Rural-Urban and Mother-Daughter as independent variables and all of the anthropometric measurements as dependent variables.
Paired sample t-test was conducted between rural mothers and daughters and urban mothers and daughters. A Fisher’s r to z transformation test was conducted on the correlation coefficients derived from these paired sample t-tests to note the differences in mother-daughter correlation based on their environment. This was used to determine if there is a “heritability” difference between mothers and daughters from different environments. All statistical analyses were undertaken using the Statistical Package for Social Science (SPSS) program.

Outliers

Outliers are usually extreme values in a data set. It is a good practice to check for outliers in data set. Extreme outliers can often be the result of measurement errors or input errors. If that be the case, it is best to remove these data points from the data set so as to not affect the statistical results. Often time though, outliers are actual data points in the sample that are farther away from the mean than expected. The practice of removing these data points from the data set is frowned upon. This is because these data points are actual representatives of the said population. In small sample sizes, it is not possible to attain normal distribution. In such cases, it is best to retain the outliers.

In the case of my data set, the outliers are all actual data points that display the variation within the said population. The statistical procedures used for these studies were run both with and without the outlier criteria. The results indicated that the variance within the sample strata decreased
significantly and the variation between the sample strata increased. This implies that the removal of the outlying data points only makes the results stronger, thus giving us an artificially stronger result for an assumption for which extreme values were rejected. Fitting one's data to an assumption is bad practice and not scientifically or methodologically sound. That being the case, outliers were retained in this data set and the results reported below are ones that are significant or not-significant with the inclusion of outlying data points in the sample.

**Results**

**Descriptive Statistics.** Means were calculated for every sub-strata of the sample.

**Weight.** The means for the anthropometric variable of weight indicate that the weight of urban participants is significantly higher than that of rural participants. The same applies for weights of mothers and daughters. Additionally, the weights of both urban mothers and daughters tend to be higher than that of their rural counterparts. The difference between the weights of urban and rural mothers is not significant. However, there is a significant difference between the weights of urban daughters and rural daughters in the sample (Table 4.1 Figure 4.2)

**Height.** The means for the anthropometric variable of height indicate that the height of the urban participants differs significantly from that of the rural participants. On the whole, urban participants tend to be taller than their rural counterparts. The height of mothers and daughters demonstrates that
daughters tend to be significantly taller than their mothers. Within mothers, urban mothers are taller than rural mothers. However, there is no statistically significant difference in the heights of urban and rural daughters (Table 3.2 Figure 4.3).

**Waist Circumference.** The means for the anthropometric variable of waist circumference indicate that there is a statistically significant difference between the rural and urban subjects. The waist circumference of mothers is significantly higher than that of the daughters in the study sample. There is no significant difference between the measures of urban and rural mothers. However, urban daughters do have significantly higher waist circumference measures than their rural counterparts (Table 4.3 Figure 4.4).

**Hip Circumference.** The means for the anthropometric variable of hip circumference indicate that there is a statistically significant difference between the hip circumference of urban and rural participants. The hip circumference of the rural participants tends to be lower than that of the urban participants. There is a significant difference between the hip circumference of the mothers and daughters in the sample. There is no statistically significant difference between the hip circumference of urban and rural mothers. However, urban daughters have a significantly higher hip circumference than rural daughters in the study sample (Table 4.4 Figure 4.5).

**Upper Arm Circumference.** The means for the anthropometric variable of upper arm circumference indicate that there is a statistically significant difference between urban and rural subjects of the study. Urban subjects tend
to have a higher upper arm circumference than rural subjects. The upper arm circumference of the mothers is significantly higher than that of the daughters in the sample. There is no statistically significant difference between the upper arm circumference of urban and rural mothers. However, urban daughters in the sample have a significantly higher upper arm circumference than that of the rural daughters in the sample (Table 4.5 Figure 4.6).

**Biceps Skin Folds.** The means for the anthropometric variable of biceps skin folds indicate that there is no statistically significant difference between the measurements of urban and rural subjects in the sample. The biceps skin folds of the mothers in the sample is significantly different than the biceps skin folds of the daughters. There is no statistically significant difference between the biceps skin folds of either the urban and rural mothers or the urban and rural daughters (Table 4.6 Figure 4.7).

**Triceps Skin Folds.** The means for the anthropometric variable of triceps skin folds indicates that there is a statistically significant difference between the triceps skin folds of the urban and rural subjects in the study sample. Mothers differ significantly from the daughters. There is no statistically significant difference between the triceps skin folds of urban and rural mothers. There is a significant difference between the triceps skin folds of the rural and urban daughters in the study sample (Table 4.7 Figure 4.8).

**Systolic Blood Pressure.** The means for the systolic blood pressure indicate that there is no significant difference in the systolic blood pressure measures of urban and rural participants. The systolic blood pressure
measures of the mothers in the sample are significantly higher than those of their daughters. There is a significant difference between the measures of urban and rural mothers, where rural mothers have a higher systolic blood pressure mean than that of the urban mothers. There is no significant difference between rural and urban daughters in the study sample (Table 4.8 Figure 4.9).

**Diastolic Blood Pressure.** The means for the diastolic blood pressure indicate that there is a significant difference between rural and urban participants in the study sample. Rural participants have a higher diastolic blood pressure mean than the urban participants. There is a significant difference between the mothers and daughters in the study sample with mothers having a higher mean than daughters. Urban mothers differ significantly from rural mothers, where rural mothers have a higher mean than urban mothers. There is no significant difference between urban and rural daughters in the study sample (Table 4.9 Figure 4.10).
Table 4.1:

Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Weight (kgs) of all the sample strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>58.47</td>
<td>11.59</td>
<td>33.73</td>
<td>88.10</td>
<td>54.37</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>60.80*</td>
<td>9.91</td>
<td>40.47</td>
<td>87.73</td>
<td>47.26</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>56.15*</td>
<td>12.72</td>
<td>33.73</td>
<td>88.10</td>
<td>54.37</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>63.58*</td>
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<td>42.83</td>
<td>88.10</td>
<td>45.27</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>53.38*</td>
<td>11.29</td>
<td>33.73</td>
<td>78.97</td>
<td>45.24</td>
</tr>
<tr>
<td><strong>Urban Mothers</strong></td>
<td>(n=33)</td>
<td>65.20</td>
<td>8.40</td>
<td>53.60</td>
<td>87.73</td>
<td>34.13</td>
</tr>
<tr>
<td><strong>Rural Mothers</strong></td>
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<td>61.95</td>
<td>10.40</td>
<td>42.83</td>
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</tr>
<tr>
<td><strong>Urban Daughters</strong></td>
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<td>40.47</td>
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<td>33.73</td>
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<td>45.00</td>
</tr>
</tbody>
</table>

*p < 0.05, t-tests adjusted for equal variances
Figure 4.2: Box Plot displaying the means of the sample strata for the variable of weight
Table 4.2:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Height (cm) of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size (n)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
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<td>Urban Participants</td>
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<td>143.17</td>
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<td>27.83</td>
</tr>
<tr>
<td>Rural Participants</td>
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<td>6.59</td>
<td>136.47</td>
<td>171.97</td>
<td>35.50</td>
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<tr>
<td>Mothers</td>
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<td>136.47</td>
<td>168.43</td>
<td>31.96</td>
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<td>Daughters</td>
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<tr>
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<td>33</td>
<td>153.34*</td>
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<td>Rural Mothers</td>
<td>33</td>
<td>150.54*</td>
<td>5.94</td>
<td>136.47</td>
<td>168.43</td>
<td>31.96</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>33</td>
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<td>5.26</td>
<td>147.40</td>
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<tr>
<td>Rural Daughters</td>
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<td>153.87</td>
<td>6.87</td>
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<td>171.97</td>
<td>29.64</td>
</tr>
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</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.3: Box Plot displaying the means of the sample strata for the variable of height
Table 4.3:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Waist Circumference (cm) of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
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<td>64.33</td>
<td>108.70</td>
<td>44.37</td>
</tr>
<tr>
<td>Rural Participants</td>
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<td>79.76*</td>
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<td>117.00</td>
<td>64.27</td>
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<tr>
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<td>10.98</td>
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<td>106.03</td>
<td>53.30</td>
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* p < 0.05, t-tests adjusted for equal variances
Figure 4.4: Box Plot displaying the means of the sample strata for waist circumference data
Table 4.4: Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Hip Circumference (cm) of all the sample strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
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<td>85.50</td>
<td>120.97</td>
<td>35.47</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>96.95*</td>
<td>10.08</td>
<td>79.00</td>
<td>128.07</td>
<td>49.07</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>102.94*</td>
<td>8.45</td>
<td>85.37</td>
<td>128.07</td>
<td>42.70</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>94.99*</td>
<td>8.84</td>
<td>79.00</td>
<td>113.93</td>
<td>34.93</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>104.42</td>
<td>7.77</td>
<td>89.27</td>
<td>120.97</td>
<td>31.70</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>101.46</td>
<td>8.96</td>
<td>85.37</td>
<td>128.07</td>
<td>42.70</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>97.54*</td>
<td>7.81</td>
<td>85.50</td>
<td>113.47</td>
<td>27.97</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>92.43*</td>
<td>9.18</td>
<td>79.00</td>
<td>113.93</td>
<td>34.93</td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.5: Box Plot displaying the means of the sample strata for the variable of hip circumference
Table 4.5:

Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Upper Arm Circumference (cm) of all the sample strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>27.10</td>
<td>3.98</td>
<td>18.13</td>
<td>41.30</td>
<td>23.17</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>27.68*</td>
<td>3.47</td>
<td>20.00</td>
<td>34.47</td>
<td>14.47</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>26.52*</td>
<td>4.38</td>
<td>18.13</td>
<td>41.30</td>
<td>23.17</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>28.98*</td>
<td>3.19</td>
<td>22.50</td>
<td>41.30</td>
<td>18.80</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>25.22*</td>
<td>3.82</td>
<td>18.13</td>
<td>34.47</td>
<td>16.34</td>
</tr>
<tr>
<td><strong>Urban Mothers</strong></td>
<td>(n=33)</td>
<td><strong>29.22</strong></td>
<td><strong>2.72</strong></td>
<td><strong>22.50</strong></td>
<td><strong>34.23</strong></td>
<td><strong>11.73</strong></td>
</tr>
<tr>
<td><strong>Rural Mothers</strong></td>
<td>(n=33)</td>
<td><strong>28.73</strong></td>
<td><strong>3.63</strong></td>
<td><strong>22.90</strong></td>
<td><strong>41.30</strong></td>
<td><strong>18.40</strong></td>
</tr>
<tr>
<td><strong>Urban Daughters</strong></td>
<td>(n=33)</td>
<td><strong>26.13</strong></td>
<td><strong>3.49</strong></td>
<td><strong>20.00</strong></td>
<td><strong>34.47</strong></td>
<td><strong>14.47</strong></td>
</tr>
<tr>
<td><strong>Rural Daughters</strong></td>
<td>(n=33)</td>
<td><strong>24.32</strong></td>
<td><strong>3.97</strong></td>
<td><strong>18.13</strong></td>
<td><strong>33.20</strong></td>
<td><strong>15.07</strong></td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.6: Box Plot displaying the means of the sample strata for the variable of upper arm circumference
Table 4.6:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Biceps Skin Folds (mm) of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>16.05</td>
<td>6.38</td>
<td>4.00</td>
<td>31.67</td>
<td>27.67</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>16.36</td>
<td>6.15</td>
<td>5.00</td>
<td>31.67</td>
<td>26.67</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>15.74</td>
<td>6.63</td>
<td>4.00</td>
<td>28.67</td>
<td>24.67</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>17.41*</td>
<td>5.75</td>
<td>5.00</td>
<td>31.67</td>
<td>26.67</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>14.69*</td>
<td>6.72</td>
<td>4.00</td>
<td>27.00</td>
<td>23.00</td>
</tr>
<tr>
<td><strong>Urban Mothers</strong></td>
<td>(n=33)</td>
<td>17.57</td>
<td>5.90</td>
<td>5.00</td>
<td>31.67</td>
<td>26.67</td>
</tr>
<tr>
<td><strong>Rural Mothers</strong></td>
<td>(n=33)</td>
<td>17.24</td>
<td>5.68</td>
<td>6.33</td>
<td>28.67</td>
<td>22.34</td>
</tr>
<tr>
<td><strong>Urban Daughters</strong></td>
<td>(n=33)</td>
<td>15.15</td>
<td>6.25</td>
<td>5.33</td>
<td>27.00</td>
<td>21.67</td>
</tr>
<tr>
<td><strong>Rural Daughters</strong></td>
<td>(n=33)</td>
<td>14.24</td>
<td>7.23</td>
<td>4.00</td>
<td>27.00</td>
<td>23.00</td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.7: Box Plot displaying the means of the sample strata for the variable of biceps skin folds
Table 4.7:

Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Triceps Skin Folds (mm) of all the sample strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>26.79</td>
<td>5.55</td>
<td>10.00</td>
<td>44.00</td>
<td>34.00</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>27.64*</td>
<td>5.12</td>
<td>10.00</td>
<td>39.33</td>
<td>29.33</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>25.95*</td>
<td>5.87</td>
<td>14.00</td>
<td>44.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>28.64*</td>
<td>4.96</td>
<td>10.00</td>
<td>44.00</td>
<td>34.00</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>24.95*</td>
<td>5.53</td>
<td>14.00</td>
<td>36.33</td>
<td>22.33</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>28.99</td>
<td>5.04</td>
<td>10.00</td>
<td>39.33</td>
<td>29.33</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>28.29</td>
<td>4.94</td>
<td>18.67</td>
<td>44.00</td>
<td>25.33</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>26.28*</td>
<td>4.91</td>
<td>15.00</td>
<td>36.33</td>
<td>21.33</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>23.61*</td>
<td>5.86</td>
<td>14.00</td>
<td>35.67</td>
<td>21.67</td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.8: Box Plot displaying the means of the sample strata for the variable of triceps skin folds
Table 4.8:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Systolic Blood Pressure of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
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<td>75.00</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>113.78</td>
<td>10.71</td>
<td>94.00</td>
<td>138.67</td>
<td>44.67</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>115.72</td>
<td>15.43</td>
<td>86.67</td>
<td>161.67</td>
<td>75.00</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>122.98*</td>
<td>12.37</td>
<td>101.67</td>
<td>161.67</td>
<td>60.00</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>106.52*</td>
<td>8.00</td>
<td>86.67</td>
<td>123.00</td>
<td>36.33</td>
</tr>
<tr>
<td><strong>Urban Mothers</strong></td>
<td><strong>(n=33)</strong></td>
<td><strong>120.42</strong>*</td>
<td><strong>9.50</strong></td>
<td><strong>103.00</strong></td>
<td><strong>138.67</strong></td>
<td><strong>35.67</strong></td>
</tr>
<tr>
<td><strong>Rural Mothers</strong></td>
<td><strong>(n=33)</strong></td>
<td><strong>125.55</strong>*</td>
<td><strong>14.38</strong></td>
<td><strong>101.67</strong></td>
<td><strong>161.67</strong></td>
<td><strong>60.00</strong></td>
</tr>
<tr>
<td><strong>Urban Daughters</strong></td>
<td><strong>(n=33)</strong></td>
<td><strong>107.14</strong></td>
<td><strong>7.19</strong></td>
<td><strong>94.00</strong></td>
<td><strong>123.00</strong></td>
<td><strong>29.00</strong></td>
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<tr>
<td><strong>Rural Daughters</strong></td>
<td><strong>(n=33)</strong></td>
<td><strong>105.89</strong></td>
<td><strong>8.81</strong></td>
<td><strong>86.67</strong></td>
<td><strong>121.33</strong></td>
<td><strong>34.66</strong></td>
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</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.9: Box Plot displaying the means of the sample strata for the variable of systolic blood pressure
Table 4.9:

Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Diastolic Blood Pressure of all the sample strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>74.64</td>
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<td>56.67</td>
<td>104.33</td>
<td>47.66</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>73.09*</td>
<td>7.21</td>
<td>56.67</td>
<td>87.33</td>
<td>30.66</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>76.19*</td>
<td>10.40</td>
<td>60.33</td>
<td>104.33</td>
<td>44.00</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>79.26*</td>
<td>8.97</td>
<td>61.33</td>
<td>104.33</td>
<td>43.00</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>70.01*</td>
<td>6.42</td>
<td>56.67</td>
<td>86.67</td>
<td>30.00</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>76.47*</td>
<td>6.23</td>
<td>61.33</td>
<td>87.33</td>
<td>26.00</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>82.05*</td>
<td>10.43</td>
<td>62.00</td>
<td>104.33</td>
<td>42.33</td>
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<td>(n=33)</td>
<td>69.70</td>
<td>6.58</td>
<td>56.67</td>
<td>86.00</td>
<td>29.33</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>70.32</td>
<td>6.33</td>
<td>60.33</td>
<td>86.67</td>
<td>26.34</td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.10: Box Plot displaying the means of the sample strata for the variable diastolic blood pressure
**Obesity Indices.**

**Waist Circumference.** The distribution of the waist circumference for the entire sample indicates that 56.8% (75 individuals) of the study subjects are obese in the entire sample of 132 individuals. Normal weight individual account for 24.2% (32 individuals) of the entire sample and 18.9% (25 individuals) of the study individuals are overweight. Urban participants tend to be more overweight and obese than the rural participants. Among the urban subjects, more than half the subjects are obese and overweight with only 11 individuals out of the 66 falling within the normal range. The rural subjects show a slightly different pattern. Even though more than half of the rural subjects are overweight and obese, 21 individuals, almost a double of the urban subjects, fall in the normal range. The difference between the mothers and daughters in the study sample is quite significant. With the exception of 3 individuals, all of the mothers in the sample fall in the overweight and obese category. Obese mothers account for 86.4% of the entire sample of 66 individuals. In sharp contrast, 29 individuals (43.9%) of the daughters fall in the normal range. However, more half of the daughters in the sample (56.1%) fall in the overweight and obese category. Within the sample of mothers, none of the urban mothers fall in the normal category. A staggering 93.9% (31 individuals) out of the entire sample of 33 individuals fall in the obese category. The other 2 individuals fall in the overweight category. Among rural mothers, 78.8% (26 individuals) of the entire sample of 33 individuals fall in the obese category. 4 individuals (6.1%) fall in the overweight category and 3 individuals
(9.1%) fall in the normal category. Among urban daughters the distribution is quite even in all of the three categories with 10 individuals (30.3%) falling in the obese category, 12 individuals (36.4%) falling in the overweight category, and 11 individuals (33.3%) falling in the normal category. The waist circumference distribution of the rural daughters is significantly different than that of any of the sample sub-strata. More than half (54.5%) of the individuals in the sample fall in the normal category. The rest of the sample is split evenly with 7 individuals (21.2%) falling in the overweight category and 8 individuals (24.2%) falling in the obese category (Table 3.10 Figure 3.11).

**Body Mass Index.** The means for BMI indicate that there is no significant difference between the rural and urban participants of the study. However, there is a significant difference between the mothers and daughters in the study sample. The mothers have a higher BMI than the daughters in the study sample. There is no statistically significant difference between urban and rural mothers in the study sample. However, there is a significant difference between urban and rural daughters. Urban daughters have higher BMI than the rural daughters in the study sample (Table 3.11 Figure 3.12).

The distribution of BMI for the entire sample indicates that more than half (62.9%) the of the entire study sample falls in the overweight and obese category. 40 individuals (30.3%) fall in the overweight category and 43 individuals (32.6%) fall in the obese category out of the entire sample of 132 individuals. Among the urban participants only 21 out of 66 individuals fall in the underweight and normal weight categories. More than half of the sample
(68.2%) falls in the overweight and obese category with 25 individuals being overweight and 20 individuals being obese. Rural participants show a slightly different pattern. A total of 38 individuals (57.5%) out of the 66 in the study sample fall in the overweight and obese category. 12 individuals (18.2%) fall in the underweight category and 16 individuals (24.2%) fall in the normal weight category. The BMI distribution of the mothers in the study sample is significantly different than the BMI distribution of the daughters in the study sample. Out of 66 mothers, only 7 individuals (10.6%) fall in the normal weight category. None of the mothers in the study sample fall in the underweight category. A majority of the mothers are overweight and obese with 28 individuals (42.4%) being overweight and 31 individuals (47%) being obese. The BMI distribution of the daughters in the study sample displays that the highest number of individuals (25) fall in the normal weight range. 25.8% (17 individuals) of the daughters are underweight, 18.2% (12 individuals) are overweight, and 18.2% (12 individuals) are obese. Urban and rural mothers have similar BMI distributions. Among the urban mothers 14 individuals (42.4%) are obese, 17 individuals (51.5%) are overweight, and 2 individuals (6.1%) are normal weight in a sample size of 33 individuals. Out of the 33 rural mothers in the sample, 5 individuals (15.2%) are normal weight, 11 individuals (33.3%) are overweight, and 17 individuals (51.5%) are obese. Among the urban daughters, out of the 33 individuals in the sample, only 5 individuals (15.2%) are underweight, 14 individuals (42.4%) are normal weight, 8 individuals (24.2%) are overweight, and 6 individuals (18.2%) are obese. Even though the
rural daughters have the same number of individuals – 6 (18.2%) who are obese among the sample of 33, almost double the number of rural daughters i.e. 12 individuals (36.4%) are underweight in contrast to the amount of urban daughters who are underweight. 11 individuals (33.3%) are in the normal weight category and 4 individuals (12.1%) are overweight (Table 3.12 Figure 3.13).

**Waist to Hip Ratio.** The means for WHR indicate that there is no statistically significant difference between the WHR of urban and rural subjects in the sample. The WHR of the mothers in the sample is significantly different than that of the daughters. There is no statistically significant difference between the WHR of either the urban and rural mothers or the urban and rural daughters (Table 3.13 Figure 3.14).

The distribution of WHR for the entire sample indicates that 68 individuals (51.5%) out of the entire sample of 132 individuals fall in the high-risk category while 64 individuals (48.5%) fall in the normal category. The distribution of WHR among urban and rural study participants is very similar. 36 individuals (54.5%) out of 66 urban participants in the study sample fall in the high-risk category and 30 individuals (45.5%) fall in the normal category. Among the rural participants, 35 individuals (53%) out of 66 rural participants in the study sample fall in the high-risk category while 31 individuals (47%) fall in the normal category. The WHR distribution between mothers and daughters is extremely different. A staggering 77.3% (51 individuals) of the 66 mothers in the study sample fall in the high-risk category with only 15 individuals (22.7%)
falling in the normal category. In sharp contrast, 74.2% (49 individuals) of the 66 daughters in the study sample fall in the normal category with only 17 individuals (25.8%) falling in the high-risk category. The WHR distribution of urban and rural mothers is very similar. 27 individuals (81.8%) out of 33 urban mothers in the study sample fall in the high-risk category with 6 individuals (18.2%) falling in the normal category. Similarly, 78.8% (26 individuals) of the 33 rural mothers fall in the high-risk category with 21.2% (7 individuals) falling in the normal category. Among 33 urban daughters in the sample, 23 individuals (69.7%) fall in the normal category and 10 individuals (30.3%) fall in the high-risk category. 7 individuals (21.2%) out of the 33 rural daughters in the sample fall in the high-risk category with 78.8% (26 individuals) falling in the normal category (Table 3.14 Figure 3.15).
Table 4.10:

*Waist Circumference Distribution of the Entire Sample and Sample Sub-Strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Normal (&lt; 72)</th>
<th>Overweight (≥ 72)</th>
<th>Obese (≥ 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>32 (24.2%)</td>
<td>25 (18.9%)</td>
<td>75 (56.8%)</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>11 (16.7%)</td>
<td>14 (21.1%)</td>
<td>41 (62.1%)</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>21 (31.8%)</td>
<td>11 (61.7%)</td>
<td>33 (50.0%)</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>3 (4.5%)</td>
<td>6 (9.1%)</td>
<td>57 (86.4%)</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>29 (43.9%)</td>
<td>18 (27.3%)</td>
<td>19 (28.8%)</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td></td>
<td>2 (6.1%)</td>
<td>31 (93.9%)</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>3 (9.1%)</td>
<td>4 (12.1%)</td>
<td>26 (78.8%)</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>11 (33.3%)</td>
<td>12 (36.4%)</td>
<td>10 (30.3%)</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>18 (54.5%)</td>
<td>7 (21.2%)</td>
<td>8 (24.2%)</td>
</tr>
</tbody>
</table>
Figure 4.11: Bar Graph displaying the distribution for the waist circumference in the sample strata
Table 4.11:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Body Mass Index (BMI) of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>24.91</td>
<td>5.16</td>
<td>13.53</td>
<td>38.26</td>
<td>24.73</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>25.48</td>
<td>4.48</td>
<td>15.92</td>
<td>34.23</td>
<td>18.31</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>24.33</td>
<td>5.74</td>
<td>13.53</td>
<td>38.26</td>
<td>24.73</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>27.56*</td>
<td>3.99</td>
<td>18.69</td>
<td>38.26</td>
<td>19.57</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>22.25*</td>
<td>4.84</td>
<td>13.53</td>
<td>33.66</td>
<td>20.13</td>
</tr>
<tr>
<td><strong>Urban Mothers</strong></td>
<td>(n=33)</td>
<td><strong>27.75</strong></td>
<td><strong>3.46</strong></td>
<td><strong>22.82</strong></td>
<td><strong>34.23</strong></td>
<td><strong>11.41</strong></td>
</tr>
<tr>
<td><strong>Rural Mothers</strong></td>
<td>(n=33)</td>
<td><strong>27.37</strong></td>
<td><strong>4.51</strong></td>
<td><strong>18.69</strong></td>
<td><strong>38.26</strong></td>
<td><strong>19.57</strong></td>
</tr>
<tr>
<td><strong>Urban Daughters</strong></td>
<td>(n=33)</td>
<td><strong>23.21</strong>*</td>
<td><strong>4.26</strong></td>
<td><strong>15.92</strong></td>
<td><strong>33.66</strong></td>
<td><strong>17.74</strong></td>
</tr>
<tr>
<td><strong>Rural Daughters</strong></td>
<td>(n=33)</td>
<td><strong>21.30</strong>*</td>
<td><strong>5.25</strong></td>
<td><strong>13.53</strong></td>
<td><strong>32.78</strong></td>
<td><strong>19.25</strong></td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.12: Box Plot displaying the means of the sample strata for the variable of Body Mass Index
Table 4.12:

Body Mass Index (BMI) Distribution of the Entire Sample and Sample Sub-Strata

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size (n)</th>
<th>Underweight (BMI &lt;18.5)</th>
<th>Normal Weight (BMI 18.5-22.9)</th>
<th>Overweight (BMI 23-27.5)</th>
<th>Obese (BMI &gt;27.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>17 (12.9%)</td>
<td>32 (24.2%)</td>
<td>40 (30.3%)</td>
<td>43 (32.6%)</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>5 (7.6%)</td>
<td>16 (24.2%)</td>
<td>25 (37.9%)</td>
<td>20 (30.3%)</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>12 (18.2%)</td>
<td>16 (24.2%)</td>
<td>15 (22.7%)</td>
<td>23 (34.8%)</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>-</td>
<td>7 (10.6%)</td>
<td>28 (42.4%)</td>
<td>31 (47.0%)</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>17 (25.8%)</td>
<td>25 (37.9%)</td>
<td>12 (18.2%)</td>
<td>12 (18.2%)</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>-</td>
<td>2 (6.1%)</td>
<td>17 (51.5%)</td>
<td>14 (42.4%)</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>-</td>
<td>5 (15.2%)</td>
<td>11 (33.3%)</td>
<td>17 (51.5%)</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>5 (15.2%)</td>
<td>14 (42.4%)</td>
<td>8 (24.2%)</td>
<td>6 (18.2%)</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>12 (36.4%)</td>
<td>11 (33.3%)</td>
<td>4 (12.1%)</td>
<td>6 (18.2%)</td>
</tr>
</tbody>
</table>
Figure 4.13: Bar Graph displaying the distribution for the Body Mass Index in the sample strata
Table 4.13:

*Means, Standard Deviation, Minimum Value, Maximum Value, and Range with regards to Waist to Hip Ratio (WHR) of all the sample strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>0.82</td>
<td>0.08</td>
<td>0.64</td>
<td>1.01</td>
<td>0.37</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>0.83</td>
<td>0.07</td>
<td>0.70</td>
<td>1.00</td>
<td>0.30</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>0.82</td>
<td>0.09</td>
<td>0.64</td>
<td>1.01</td>
<td>0.37</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>0.86*</td>
<td>0.07</td>
<td>0.70</td>
<td>1.00</td>
<td>0.30</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>0.78*</td>
<td>0.07</td>
<td>0.64</td>
<td>1.01</td>
<td>0.37</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>0.87</td>
<td>0.07</td>
<td>0.76</td>
<td>1.00</td>
<td>0.24</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>0.86</td>
<td>0.08</td>
<td>0.70</td>
<td>1.00</td>
<td>0.30</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>0.78</td>
<td>0.05</td>
<td>0.70</td>
<td>0.93</td>
<td>0.23</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>0.78</td>
<td>0.08</td>
<td>0.64</td>
<td>1.01</td>
<td>0.37</td>
</tr>
</tbody>
</table>

* p < 0.05, t-tests adjusted for equal variances
Figure 4.14: Box Plot displaying the means of the sample strata for the variable of Waist to Hip Ratio.
Table 4.14:

*Waist to Hip Ratio (WHR) Distribution of the Entire Sample and Sample Sub-Strata*

<table>
<thead>
<tr>
<th>Sample Strata</th>
<th>Sample Size</th>
<th>Normal &lt; 80 (%)</th>
<th>High Risk &gt; 80 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Sample</td>
<td>(n=132)</td>
<td>64 (48.5%)</td>
<td>68 (51.5%)</td>
</tr>
<tr>
<td>Urban Participants</td>
<td>(n=66)</td>
<td>30 (45.5%)</td>
<td>36 (54.5%)</td>
</tr>
<tr>
<td>Rural Participants</td>
<td>(n=66)</td>
<td>31 (47.0%)</td>
<td>35 (53.0%)</td>
</tr>
<tr>
<td>Mothers</td>
<td>(n=66)</td>
<td>15 (22.7%)</td>
<td>51 (77.3%)</td>
</tr>
<tr>
<td>Daughters</td>
<td>(n=66)</td>
<td>49 (74.2%)</td>
<td>17 (25.8%)</td>
</tr>
<tr>
<td>Urban Mothers</td>
<td>(n=33)</td>
<td>6 (18.2%)</td>
<td>27 (81.8%)</td>
</tr>
<tr>
<td>Rural Mothers</td>
<td>(n=33)</td>
<td>7 (21.2%)</td>
<td>26 (78.8%)</td>
</tr>
<tr>
<td>Urban Daughters</td>
<td>(n=33)</td>
<td>23 (69.7%)</td>
<td>10 (30.3%)</td>
</tr>
<tr>
<td>Rural Daughters</td>
<td>(n=33)</td>
<td>26 (78.8%)</td>
<td>7 (21.2%)</td>
</tr>
</tbody>
</table>
Figure 4.15: Bar Graph displaying the distribution for Waist to Hip Ratio in the sample strata
**Independent Samples T-test.** An independent samples t-test was conducted to compare all anthropometric variables and obesity indices in rural and urban conditions to understand if there were environmental differences based on the environments that the subjects inhabited. Similarly, an independent samples t-test was conducted to compare all the anthropometric variables and obesity indices in mothers and daughters to understand if there were age-related differences in the body measurements of the study subjects.

**Rural versus Urban.** This research aims to determine whether there are differences between the anthropometric measurements of the urban and rural research subjects. The expectation is that the urban subjects will have higher anthropometric measures due to a sedentary lifestyle, low energy expenditure, and higher caloric intake. The null hypothesis is that there the difference between the anthropometric measurements of the urban and rural subjects will not be significant. The alternative hypothesis is that the urban subjects will have significantly higher anthropometric measures. Therefore, the two-tailed significance reported from these t-tests will be cut in half and a one-tailed significance measure will be reported.

**Weight.** An independent samples t-test was conducted to compare the weights of urban and rural study participants. There was a significant difference in the weight of the urban participants ($M = 60.80$, $SD = 9.91$) and rural participants ($M = 56.15$, $SD = 12.72$); $t(130) = 2.34$, $p = 0.011$ (Table 4.15).
**Height.** An independent samples t-test was conducted to compare the heights of urban and rural study participants. There was a significant difference in the height of the urban participants (M = 154.77, SD = 5.53) and rural participants (M = 152.21, SD = 6.59); t (130) = 2.42, p = 0.008 (Table 4.16).

**Hip Circumference.** An independent samples t-test was conducted to compare the hip circumferences of urban and rural study participants. There was a significant difference in the hip circumference of the urban participants (M = 100.98, SD = 8.47) and rural participants (M = 96.95, SD = 10.08); t (130) = 2.49, p = 0.007 (Table 4.17).

**Upper Arm Circumference.** An independent samples t-test was conducted to compare the upper arm circumference of urban and rural study participants. There was a significant difference in the upper arm circumference of the urban participants (M = 27.68, SD = 3.47) and rural participants (M = 26.52, SD = 4.38); t (130) = 1.67, p = 0.048 (Table 4.18).

**Biceps Skin Folds.** An independent samples t-test was conducted to compare the biceps skin folds of urban and rural study participants. There was no significant difference in the biceps skin folds of the urban participants (M = 16.36, SD = 6.15) and rural participants (M = 15.74, SD = 6.63); t (130) = 0.559, p = 0.289 (Table 4.19).

**Triceps Skin Folds.** An independent samples t-test was conducted to compare the triceps skin folds of urban and rural study participants. There was a significant difference in the triceps skin folds of the urban participants...
(M = 27.67, SD = 5.12) and rural participants (M = 25.95, SD = 5.87); t (130) = 1.76, p = 0.041 (Table 4.20).

**Systolic Blood Pressure.** An independent samples t-test was conducted to compare the systolic blood pressure of urban and rural study participants. There was no significant difference in the systolic blood pressure of the urban participants (M = 113.78, SD = 10.71) and rural participants (M = 115.72, SD = 15.43); t (130) = -0.839, p = 0.202 (Table 4.21).

**Diastolic Blood Pressure.** An independent samples t-test was conducted to compare the diastolic blood pressure of urban and rural study participants. There was a significant difference in the diastolic blood pressure of the urban participants (M = 73.09, SD = 7.22) and rural participants (M = 76.19, SD = 10.40); t (130) = -1.990, p = 0.025 (Table 4.22).

**Waist Circumference.** An independent samples t-test was conducted to compare the waist circumference of urban and rural study participants. There was a significant difference in the waist circumference of the urban participants (M = 83.40, SD = 10.74) and rural participants (M = 79.76, SD = 13.63); t (130) = 1.704, p = 0.046 (Table 4.23).

**Body Mass Index.** An independent samples t-test was conducted to compare the body mass index of urban and rural study participants. There was no significant difference in the body mass index of the urban participants (M = 25.48, SD = 4.48) and rural participants (M = 24.33, SD = 5.74); t (130) = 1.281, p = 0.102 (Table 4.24).
Waist to Hip Ratio. An independent samples t-test was conducted to compare the waist to hip ratio of urban and rural study participants. There was no significant difference in the waist to hip ratio of the urban participants (M = 0.81, SD = 0.07) and rural participants (M = 0.82, SD = 0.09), t (130) = 0.407, p = 0.343 (Table 4.25).

Mothers versus Daughters. This research aims to determine whether there are differences between the anthropometric measurements of the mothers and daughters that are the participants of this study. The expectation is that the mothers will have higher anthropometric measures resulting from age-related metabolic retardation. It is also expected to note a different pattern of mother-daughter variation in the rural versus urban samples. The null hypothesis is that there the difference between the anthropometric measurements of the mothers and the daughters will not be significant. The alternative hypothesis is that the mothers will have significantly higher anthropometric measures. Therefore, the two-tailed significance reported from these t-tests will be cut in half and a one-tailed significance measure will be reported.

Weight. An independent samples t-test was conducted to compare the weights of mothers and daughters. There was a significant difference in the weight of the mothers (M = 63.58, SD = 9.53) and daughters (M = 53.38, SD = 11.29); t (130) = 5.607, p = 0.000 (Table 4.26).
**Height.** An independent samples t-test was conducted to compare the heights of mothers and daughters. There was a significant difference in the height of the mothers (M = 151.86, SD = 5.86) and daughters (M = 155.02, SD = 6.18); t (130) = -2.954, p = 0.002 (Table 4.27).

**Hip Circumference.** An independent samples t-test was conducted to compare the hip circumferences of mothers and daughters. There was a significant difference in the hip circumference of the mothers (M = 102.94, SD = 8.45) and daughters (M = 94.99, SD = 8.84); t (130) = 5.284, p = 0.000 (Table 4.28).

**Upper Arm Circumference.** An independent samples t-test was conducted to compare the upper arm circumference of mothers and daughters. There was a significant difference in the upper arm circumference of the mothers (M = 28.98, SD = 3.19) and daughters (M = 25.22, SD = 3.82); t (130) = 6.124, p = 0.000 (Table 4.29).

**Biceps Skin Folds.** An independent samples t-test was conducted to compare the biceps skin folds of mothers and daughters. There was a significant difference in the biceps skin folds of the mothers (M = 17.41, SD = 5.75) and daughters (M = 14.69, SD = 6.72); t (130) = 2.492, p = 0.007 (Table 4.30).

**Triceps Skin Folds.** An independent samples t-test was conducted to compare the triceps skin folds of mothers and daughters. There was a significant difference in the triceps skin folds of the mothers (M = 28.64, SD =
Systolic Blood Pressure. An independent samples t-test was conducted to compare the systolic blood pressure of mothers and daughters. There was a significant difference in the systolic blood pressure of the mothers (M = 122.98, SD = 12.37) and daughters (M = 106.52, SD = 8.01); t (130) = 9.079, p = 0.000 (Table 4.32).

Diastolic Blood Pressure. An independent samples t-test was conducted to compare the diastolic blood pressure of mothers and daughters. There was a significant difference in the diastolic blood pressure of the mothers (M = 79.26, SD = 8.97) and daughters (M = 70.01, SD = 6.42); t (130) = 6.814, p = 0.000 (Table 4.33).

Waist Circumference. An independent samples t-test was conducted to compare the waist circumference of mothers and daughters. There was a significant difference in the waist circumference of the mothers (M=88.84, SD=8.94) and daughters (M = 74.31, SD = 10.98); t (130) = 8.333, p = 0.000 (Table 4.34).

Body Mass Index. An independent samples t-test was conducted to compare the body mass index of mothers and daughters. There was a significant difference in the body mass index of the mothers (M = 27.56, SD = 3.99) and daughters (M = 22.25, SD = 4.84); t (130) = 6.870, p = 0.000 (Table 4.35).
Waist to Hip Ratio. An independent samples t-test was conducted to compare the waist to hip ratio of mothers and daughters. There was a significant difference in the waist to hip ratio of mothers (M = 0.86, SD = 0.07) and daughters (M = 0.78, SD = 0.06); t (130) = 6.944, p = 0.000b (Table 4.36).
Table 4.15:

*Rural versus Urban Independent Samples* t-test results for the anthropometric variable of weight

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>4.556</td>
<td>0.35</td>
<td>2.344</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>2.344</td>
<td>.021</td>
<td>4.65152</td>
</tr>
</tbody>
</table>
Table 4.16:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of height*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>HEIGHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.084</td>
<td>.300</td>
<td>2.423</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>2.423</td>
<td>.017</td>
<td>2.56636</td>
</tr>
</tbody>
</table>
Table 4.17:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of hip circumference*

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>HIP CIRCUMFERENCE</td>
<td>1.374</td>
<td>.243</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.18:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of upper arm circumference*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td><strong>UPPER ARM CIRCUMFERENCE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>2.947</td>
<td>.088</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.674</td>
<td>.097</td>
</tr>
</tbody>
</table>
Table 4.19:

**Rural versus Urban Independent Samples t-test results for the anthropometric variable of biceps skin folds**

<table>
<thead>
<tr>
<th>BICEPS SKIN FOLDS</th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>2.947</td>
<td>.088</td>
<td>1.674</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.674</td>
<td>.097</td>
<td>1.15212</td>
</tr>
</tbody>
</table>
Table 4.20:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of triceps skin folds*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>TRICEPS SKIN FOLDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.246</td>
<td>.266</td>
<td>1.759</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.759</td>
<td>.081</td>
<td>1.68758</td>
</tr>
</tbody>
</table>
Table 4.21:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of systolic blood pressure*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>SYSTOLIC BLOOD PRESSURE</td>
<td>Equal variances assumed</td>
<td>.014</td>
<td>-.839</td>
</tr>
<tr>
<td>SYSTOLIC BLOOD PRESSURE</td>
<td>Equal variances not assumed</td>
<td>.839</td>
<td>-.839</td>
</tr>
</tbody>
</table>
Table 4.22:

*Rural versus Urban Independent Samples t-test results for the anthropometric variable of diastolic blood pressure*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td><strong>DIASTOLIC BLOOD PRESSURE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>8.428</td>
<td>.004</td>
<td>-1.990</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-1.990</td>
<td>.049</td>
<td>115.797</td>
</tr>
</tbody>
</table>
Table 4.23:

*Rural versus Urban Independent Samples* t-test results for the anthropometric variable of waist circumference

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>WAIST CIRCUMFERENCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>4.404</td>
<td>.038</td>
<td>1.704</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>1.704</td>
</tr>
</tbody>
</table>
Table 4.24:

*Rural versus Urban Independent Samples* $t$-test results for the obesity index of body mass index

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>BODY MASS INDEX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>6.007</td>
<td>.016</td>
<td>1.281</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.281</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.25:

*Rural versus Urban Independent Samples* t-test results for the obesity index of waist to hip ratio

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>WAIST TO HIP RATIO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>2.593</td>
<td>.110</td>
<td>.407</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>.407</td>
</tr>
</tbody>
</table>
Table 4.26:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of weight*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>1.797</td>
<td>.182</td>
<td>5.607</td>
</tr>
<tr>
<td>assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Table 4.27:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of height*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td><strong>HEIGHT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.070</td>
<td>.792</td>
<td>-2.954</td>
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<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-2.954</td>
</tr>
</tbody>
</table>
Table 4.28:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of hip circumference*

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP CIRCUMFERENCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.487</td>
<td>5.284</td>
</tr>
<tr>
<td></td>
<td>.486</td>
<td>130</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>5.284</td>
<td>.000</td>
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</tbody>
</table>
Table 4.29:

Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of upper arm circumference

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>---</td>
</tr>
<tr>
<td><strong>UPPER ARM CIRCUMFERENCE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.644</td>
<td>.058</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6.124</td>
<td>.000</td>
</tr>
</tbody>
</table>
Table 4.30:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of biceps skin folds*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>BICEPS SKIN FOLDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.657</td>
<td>.058</td>
<td>2.492</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>2.492</td>
<td>.014</td>
<td>2.71379</td>
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</table>
Table 4.31:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of triceps skin folds*

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
<td>df</td>
<td>Sig (2-tailed)</td>
<td>Mean Difference</td>
<td>Std. Error Difference</td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>TRICEPS SKIN FOLDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td>4.425</td>
<td>.037</td>
<td>4.041</td>
<td>130</td>
<td>.000</td>
<td>3.69636</td>
<td>.91474</td>
<td>1.88666</td>
</tr>
<tr>
<td>assumed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>128.500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances not</td>
<td></td>
<td>4.041</td>
<td>.000</td>
<td>3.69636</td>
<td>.91474</td>
<td>1.88666</td>
<td>5.50627</td>
<td></td>
<td></td>
</tr>
<tr>
<td>assumed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.32:

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of systolic blood pressure*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td><strong>SYSTOLIC BLOOD PRESSURE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>11.071</td>
<td>.001</td>
<td>9.079</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>9.079</td>
<td>.000</td>
<td>9.079</td>
</tr>
</tbody>
</table>
Table 4.33:

Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of diastolic blood pressure

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td>DIASTOLIC BLOOD PRESSURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>5.147</td>
<td>.025</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6.814</td>
<td>.000</td>
</tr>
</tbody>
</table>
**Table 4.34:**

*Mothers versus Daughters Independent Samples t-test results for the anthropometric variable of waist circumference*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
<tr>
<td><strong>WAIST CIRCUMFERENCE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.595</td>
<td>.060</td>
<td>8.333</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>8.333</td>
<td>.000</td>
<td>8.333</td>
</tr>
</tbody>
</table>
Table 4.35:

*Mothers versus Daughters Independent Samples t-test results for the obesity index of body mass index*

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>BODY MASS INDEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.754</td>
<td>.055</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6.870</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.36:

*Mothers versus Daughters Independent Samples t-test results for the obesity index of waist to hip ratio*

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>WAIST TO HIP RATIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
<td>2.196</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td>6.944</td>
</tr>
</tbody>
</table>
Two-Way Analysis of Variance (ANOVA). A two-way analysis of variance was conducted on the influence of two independent variables (habitation environment, generational factor) on the anthropometric measurements and obesity indices of the subjects collected during the course of this study. Habitation environment type included two levels (rural and urban) and the generational factor consisted of two levels (mothers and daughters). The following are the results of the two-way ANOVA as pertaining to each of the anthropometric measurements and obesity indices.

**Weight.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(1, 128) = 32.758, p = 0.000$, indicating a significant difference between mothers ($M = 63.58, SD = 9.53$) and daughters ($M = 53.38, SD = 11.29$) and rural and urban. The main effect for habitation environment yielded an F ratio of $F(3, 128) = 6.819, p = 0.010$, indicating that the effect for habitation environment was significant, urban ($M = 60.80, SD = 9.91$) and rural ($M = 56.15, SD = 12.72$). The interaction effect was not significant, $F(3, 128) = 0.620, p = 0.432$ (Table 4.37).

**Height.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(3, 128) = 9.174, p = 0.003$, indicating a significant difference between mothers ($M = 151.86, SD = .06$) and daughters ($M = 155.02, SD = .06$). The main effect for habitation environment yielded an F ratio of $F(3, 128) = 6.273, p = 0.014$, indicating that the effect for habitation environment was significant,
urban (M = 154.74, SD = .06) and rural (M = 152.14, SD = .06). The interaction effect was not significant, F (3, 128) = 0.042, p = 0.839 (Table 4.38).

**Hip Circumference.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of F (3,128) = 29.223, p = .000, indicating a significant difference between mothers (M = 102.94, SD = 8.45) and daughters (M = 94.99, SD = 8.84.). The main effect for habitation environment yielded an F ratio of F (3, 128) = 7.515, p = .007, indicating that the effect for habitation environment was significant, urban (M = 100.98, SD = 8.47) and rural (M = 96.95, SD = 10.08). The interaction effect was not significant, F (3, 128) = .530, p = .468 (Table 4.39).

**Upper Arm Circumference.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of F (3,128) = 38.305, p = .000, indicating a significant difference between mothers (M = 28.98, SD = 3.19) and daughters (M = 25.22, SD = 3.82.). The main effect for habitation environment yielded an F ratio of F (3, 128) = 3.610, p = .060, indicating that the effect for habitation environment was not significant. The interaction effect was not significant, F (3, 128) = 1.179, p = 0.280 (Table 4.40).

**Biceps Skin Folds.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of F (3,128) = 6.136, p = 0.015, indicating a significant difference between mothers (M = 17.41, SD = 5.75) and daughters (M = 14.69,
SD = 6.72.). The main effect for habitation environment yielded an F ratio of $F(3, 128) = 0.323, p = 0.571$, indicating that the effect for habitation environment was not significant. The interaction effect was not significant, $F(3, 128) = 2.715, p = 0.794$ (Table 4.41).

**Triceps Skin Folds.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(3,128) = 16.644, p = 0.000$, indicating a significant difference between mothers ($M = 28.64, SD = 4.96$) and daughters ($M = 24.95, SD = 5.53$). The main effect for habitation environment yielded an F ratio of $F(3, 128) = 3.473, p = 0.065$, indicating that the effect for habitation environment was not significant. The interaction effect was not significant, $F(3, 128) = 1.195, p = 0.276$ (Table 4.42).

**Systolic Blood Pressure.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(3,128) = 83.895, p = 0.000$, indicating a significant difference between mothers ($M = 122.98, SD = 12.37$) and daughters ($M = 106.52, SD = 8.01$). The main effect for habitation environment yielded an F ratio of $F(3, 128) = 1.164, p = 0.283$, indicating that the effect for habitation environment was not significant. The interaction effect was not significant, $F(3, 128) = 3.152, p = 0.078$ (Table 4.43).

**Diastolic Blood Pressure.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(3,128) = 48.923, p = 0.000$, indicating a
significant difference between mothers (M = 79.26, SD = 8.97) and daughters (M = 70.01, SD = 6.42). The main effect for habitation environment yielded an F ratio of F (3, 128) = 5.495, p = 0.021, indicating that the effect for habitation environment was significant, urban (M = 73.09, SD = 7.22) and rural (M = 76.19, SD = 10.40). The interaction effect was not significant, F (3, 128) = 3.500, p = 0.064 (Table 4.44).

**Waist Circumference.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of F (3,128) = 70.925, p = 0.000, indicating a significant difference between mothers (M = 88.84, SD = 8.94) and daughters (M = 74.31, SD = 10.98). The main effect for habitation environment yielded an F ratio of F (3, 128) = 4.452, p = 0.037, indicating that the effect for habitation environment was significant, urban (M = 83.40, SD = 10.74) and rural (M = 79.76, SD = 13.63). The interaction effect was not significant, F (3, 128) = 3.500, p = 0.064 (Table 4.45).

**Body Mass Index.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of F (3,128) = 47.631, p = 0.000, indicating a significant difference between mothers (M = 27.56, SD = 3.99) and daughters (M = 22.25, SD = 4.84). The main effect for habitation environment yielded an F ratio of F (3, 128) = 2.228, p = 0.138, indicating that the effect for habitation environment was not significant. The interaction effect was not significant, F (3, 128) = 0.982, p = 0.324 (Table 4.46).
**Waist to Hip Ratio.** All effects were statistically significant at the 0.05 level except for the interaction effect. The main effect for generational factor yielded an F ratio of $F(3, 128) = 47.592, p = 0.000$, indicating a significant difference between mothers ($M = 0.86, \text{SD} = 0.07$) and daughters ($M = 0.78, \text{SD} = 0.07$). The main effect for habitation environment yielded an F ratio of $F(3, 128) = 0.224, p = 0.637$, indicating that the effect for habitation environment was not significant, urban ($M = 0.83, \text{SD} = 0.07$) and rural ($M = 0.82, \text{SD} = 0.09$). The interaction effect was not significant, $F(3, 128) = 0.075, p = 0.785$ (Table 4.47).
Table 4.37:

*Two-Way ANOVA results for the anthropometric variable of weight*

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>4208.821</td>
<td>3</td>
<td>1402.940</td>
<td>13.399</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>451402.442</td>
<td>1</td>
<td>451402.444</td>
<td>4311.321</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>3429.853</td>
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<td>3429.853</td>
<td><strong>32.758</strong></td>
<td><strong>.000</strong></td>
</tr>
<tr>
<td>Environment</td>
<td>714.008</td>
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<td>714.008</td>
<td><strong>6.819</strong></td>
<td><strong>.010</strong></td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>64.960</td>
<td>1</td>
<td>64.960</td>
<td>.620</td>
<td>.432</td>
</tr>
<tr>
<td>Error</td>
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<td>128</td>
<td>104.702</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
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<td>132</td>
<td></td>
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<tr>
<td>Corrected Total</td>
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<td>131</td>
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</table>
Table 4.38:

Two-Way ANOVA results for the anthropometric variable of height

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>.055</td>
<td>3</td>
<td>.018</td>
<td>5.163</td>
<td>.002</td>
</tr>
<tr>
<td>Intercept</td>
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<td>1</td>
<td>310.776</td>
<td>86984.538</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>.033</td>
<td>1</td>
<td>.033</td>
<td>9.174</td>
<td>.003</td>
</tr>
<tr>
<td>Environment</td>
<td>.022</td>
<td>1</td>
<td>.022</td>
<td>6.273</td>
<td>.014</td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>.000</td>
<td>1</td>
<td>.000</td>
<td>.042</td>
<td>.839</td>
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<tr>
<td>Error</td>
<td>.457</td>
<td>128</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>311.289</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>.513</td>
<td>131</td>
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</table>
Table 4.39:

Two-Way ANOVA results for the anthropometric variable of hip circumference

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<th>Mean Square</th>
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<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>2663.760</td>
<td>3</td>
<td>887.920</td>
<td>12.422</td>
<td>.000</td>
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<tr>
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<td>1292791.671</td>
<td>1</td>
<td>1292791.671</td>
<td>18086.821</td>
<td>.000</td>
</tr>
<tr>
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<td>2088.784</td>
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<td>.000</td>
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<td>Environment</td>
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<td>1</td>
<td>537.119</td>
<td><strong>7.515</strong></td>
<td>.007</td>
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<tr>
<td>Subjects*Environment</td>
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<td>1</td>
<td>37.857</td>
<td>.530</td>
<td>.468</td>
</tr>
<tr>
<td>Error</td>
<td>9149.056</td>
<td>128</td>
<td>71.477</td>
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<tr>
<td>Total</td>
<td>1304604.486</td>
<td>132</td>
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<td>Corrected Total</td>
<td>11812.816</td>
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Table 4.40:

*Two-Way ANOVA results for the anthropometric variable of upper arm circumference*

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
<th>Dependent Variable: Upper Arm Circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
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<tr>
<td>Intercept</td>
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<td>Subjects</td>
<td>464.813</td>
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<tr>
<td>Environment</td>
<td>43.804</td>
</tr>
<tr>
<td>Subjects*Environment</td>
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</tr>
<tr>
<td>Error</td>
<td>1553.235</td>
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<tr>
<td>Total</td>
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</tr>
<tr>
<td>Corrected Total</td>
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</table>
Table 4.41:

*Two-Way ANOVA results for the anthropometric variable of biceps skin folds*

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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>258.526</td>
<td>3</td>
<td>86.175</td>
<td>2.176</td>
<td>.094</td>
</tr>
<tr>
<td>Intercept</td>
<td>33995.505</td>
<td>1</td>
<td>33995.505</td>
<td>585.241</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>243.033</td>
<td>1</td>
<td>243.033</td>
<td>6.136</td>
<td>.015</td>
</tr>
<tr>
<td>Environment</td>
<td>12.778</td>
<td>1</td>
<td>12.778</td>
<td>.323</td>
<td>.571</td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>2.715</td>
<td>1</td>
<td>2.715</td>
<td>.069</td>
<td>.794</td>
</tr>
<tr>
<td>Error</td>
<td>5070.169</td>
<td>128</td>
<td>39.611</td>
<td></td>
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<tr>
<td>Total</td>
<td>39324.201</td>
<td>132</td>
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<tr>
<td>Corrected Total</td>
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</tbody>
</table>
Table 4.42:

*Two-Way ANOVA results for the anthropometric variable of triceps skin folds*

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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>577.207</td>
<td>3</td>
<td>192.402</td>
<td>7.111</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>94760.518</td>
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<td>94760.518</td>
<td>3502.215</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>450.882</td>
<td>1</td>
<td>450.882</td>
<td><strong>16.664</strong></td>
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</tr>
<tr>
<td>Environment</td>
<td>93.981</td>
<td>1</td>
<td>93.981</td>
<td>3.473</td>
<td>.065</td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>32.343</td>
<td>1</td>
<td>32.343</td>
<td>1.195</td>
<td>.276</td>
</tr>
<tr>
<td>Error</td>
<td>3463.336</td>
<td>128</td>
<td>27.057</td>
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<td></td>
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<tr>
<td>Total</td>
<td>98801.061</td>
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<td></td>
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<tr>
<td>Corrected Total</td>
<td>4040.543</td>
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</table>
Table 4.43:

Two-Way ANOVA results for the anthropometric variable of systolic blood pressure

<table>
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<th>Mean Square</th>
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<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>9406.478</td>
<td>3</td>
<td>3135.453</td>
<td>29.404</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>1738047.106</td>
<td>1</td>
<td>1738047.106</td>
<td>16299.005</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>8946.175</td>
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<td>8946.175</td>
<td><strong>83.895</strong></td>
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<tr>
<td>Environment</td>
<td>124.141</td>
<td>1</td>
<td>124.141</td>
<td>1.164</td>
<td>.283</td>
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<tr>
<td>Subjects*Environment</td>
<td>336.162</td>
<td>1</td>
<td>336.162</td>
<td>3.152</td>
<td>.078</td>
</tr>
<tr>
<td>Error</td>
<td>13649.301</td>
<td>128</td>
<td>106.635</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>1761102.885</td>
<td>132</td>
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<td></td>
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</tr>
<tr>
<td>Corrected Total</td>
<td>23055.780</td>
<td>131</td>
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</tr>
</tbody>
</table>
Table 4.44:

*Two-Way ANOVA results for the anthropometric variable of diastolic blood pressure*

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
<th>Dependent Variable: Diastolic Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
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</tr>
<tr>
<td>Intercept</td>
<td>735320.440</td>
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<tr>
<td>Subjects</td>
<td>2825.043</td>
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<tr>
<td>Environment</td>
<td>317.316</td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>202.121</td>
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<tr>
<td>Error</td>
<td>7391.361</td>
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<tr>
<td>Total</td>
<td>746056.281</td>
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<tr>
<td>Corrected Total</td>
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</table>
Table 4.45:

*Two-Way ANOVA results for the anthropometric variable of waist circumference*

<table>
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<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>7435.303</td>
<td>3</td>
<td>2478.434</td>
<td>25.240</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
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<td>1</td>
<td>878437.125</td>
<td>8945.949</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>6964.375</td>
<td>1</td>
<td>6964.375</td>
<td>70.925</td>
<td>.000</td>
</tr>
<tr>
<td>Environment</td>
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<td>1</td>
<td>437.164</td>
<td>4.452</td>
<td>.037</td>
</tr>
<tr>
<td>Subjects*Environment</td>
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<td>1</td>
<td>33.764</td>
<td>344</td>
<td>.559</td>
</tr>
<tr>
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<td>12568.812</td>
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<tr>
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<td>20004.115</td>
<td>131</td>
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Table 4.46:

*Two-Way ANOVA results for the anthropometric variable of body mass index*

<table>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
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<td>330.508</td>
<td>16.947</td>
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</tr>
<tr>
<td>Intercept</td>
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<td>1</td>
<td>81889.633</td>
<td>4198.925</td>
<td>.000</td>
</tr>
<tr>
<td>Subjects</td>
<td>928.932</td>
<td>1</td>
<td>928.932</td>
<td><strong>47.631</strong></td>
<td><strong>.000</strong></td>
</tr>
<tr>
<td>Environment</td>
<td>43.447</td>
<td>1</td>
<td>43.447</td>
<td>2.228</td>
<td>.138</td>
</tr>
<tr>
<td>Subjects*Environment</td>
<td>19.144</td>
<td>1</td>
<td>19.144</td>
<td>.982</td>
<td>.324</td>
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<tr>
<td>Error</td>
<td>2496.323</td>
<td>128</td>
<td>19.503</td>
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<tr>
<td>Total</td>
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<tr>
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Table 4.47:

*Two-Way ANOVA results for the anthropometric variable of waist to hip ratio*

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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
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<td>.078</td>
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<td>.000</td>
</tr>
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<td>89.249</td>
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<td>.233</td>
<td><strong>47.592</strong></td>
<td><strong>.000</strong></td>
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<td>.001</td>
<td>.224</td>
<td>.637</td>
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<tr>
<td>Subjects*Environment</td>
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<td>1</td>
<td>.000</td>
<td>.075</td>
<td>.785</td>
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<tr>
<td>Error</td>
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<td>128</td>
<td>.005</td>
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</tbody>
</table>
**Paired Sample T-Test.** A paired samples t-test was conducted to compare all anthropometric variables and obesity indices between rural and urban mothers and daughters. The results displayed a significant difference between both urban mothers and daughters as well as rural mothers and daughters as seen in the independent samples t-test results.
**Rural Mothers and Daughters.** The paired samples correlations results are listed below (Table 4.48).

Table 4.48:

*Paired sample t-test results of rural mothers and daughters*

<table>
<thead>
<tr>
<th>Pair</th>
<th>Variable 1</th>
<th>Variable 2</th>
<th>N</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>Mother Weight</td>
<td>Daughter Weight</td>
<td>33</td>
<td>.492</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>Daughter Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 2</td>
<td>Mother Height</td>
<td>Daughter Height</td>
<td>33</td>
<td>.666</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Daughter Height</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 3</td>
<td>Mother Hip Circumference</td>
<td>Daughter Hip Circumference</td>
<td>33</td>
<td>.424</td>
<td>.014</td>
</tr>
<tr>
<td></td>
<td>Daughter Hip Circumference</td>
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</tr>
<tr>
<td>Pair 4</td>
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<td>Daughter Upper Arm Circumference</td>
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<td>.421</td>
<td>.015</td>
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<td></td>
<td>Daughter Upper Arm Circumference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 5</td>
<td>Mother Biceps Skin Folds</td>
<td>Daughter Biceps Skin Folds</td>
<td>33</td>
<td>.240</td>
<td>.179</td>
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<td></td>
<td>Daughter Biceps Skin Folds</td>
<td></td>
<td></td>
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<tr>
<td>Pair 6</td>
<td>Mother Triceps Skin Folds</td>
<td>Daughter Triceps Skin Folds</td>
<td>33</td>
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<td></td>
<td>Daughter Triceps Skin Folds</td>
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<td></td>
<td></td>
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<tr>
<td>Pair 7</td>
<td>Mother Systolic Blood Pressure</td>
<td>Daughter Systolic Blood Pressure</td>
<td>33</td>
<td>.130</td>
<td>.470</td>
</tr>
<tr>
<td></td>
<td>Daughter Systolic Blood Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 8</td>
<td>Mother Diastolic Blood Pressure</td>
<td>Daughter Diastolic Blood Pressure</td>
<td>33</td>
<td>.244</td>
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<td></td>
<td>Daughter Diastolic Blood Pressure</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Pair 9</td>
<td>Mother Waist Circumference</td>
<td>Daughter Waist Circumference</td>
<td>33</td>
<td>.469</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>Daughter Waist Circumference</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pair 10</td>
<td>Mother Body Mass Index</td>
<td>Daughter Body Mass Index</td>
<td>33</td>
<td>.527</td>
<td>.002</td>
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<tr>
<td></td>
<td>Daughter Body Mass Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 11</td>
<td>Mother Waist to Hip Ratio</td>
<td>Daughter Waist to Hip Ratio</td>
<td>33</td>
<td>.244</td>
<td>.171</td>
</tr>
</tbody>
</table>
**Urban Mothers and Daughters.** The paired samples correlations results are listed below (Table 4.49).

Table 4.49:

*Paired sample t-test results of urban mothers and daughters*

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mother</th>
<th>Daughter</th>
<th>N</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Mother Weight</td>
<td>Daughter Weight</td>
<td>33</td>
<td>.110</td>
<td>.543</td>
</tr>
<tr>
<td></td>
<td>Mother Height</td>
<td>Daughter Height</td>
<td></td>
<td>.487</td>
<td>.004</td>
</tr>
<tr>
<td>Pair 3</td>
<td>Mother Hip Circumference</td>
<td>Daughter Hip Circumference</td>
<td>33</td>
<td>.168</td>
<td>.351</td>
</tr>
<tr>
<td></td>
<td>Mother Upper Arm Circumference</td>
<td>Daughter Upper Arm Circumference</td>
<td>33</td>
<td>.212</td>
<td>.236</td>
</tr>
<tr>
<td>Pair 5</td>
<td>Mother Biceps Skin Folds</td>
<td>Daughter Biceps Skin Folds</td>
<td>33</td>
<td>.366</td>
<td>.036</td>
</tr>
<tr>
<td></td>
<td>Mother Triceps Skin Folds</td>
<td>Daughter Triceps Skin Folds</td>
<td>33</td>
<td>.114</td>
<td>.529</td>
</tr>
<tr>
<td>Pair 7</td>
<td>Mother Systolic Blood Pressure</td>
<td>Daughter Systolic Blood Pressure</td>
<td>33</td>
<td>.009</td>
<td>.959</td>
</tr>
<tr>
<td></td>
<td>Mother Diastolic Blood Pressure</td>
<td>Daughter Diastolic Blood Pressure</td>
<td>33</td>
<td>.169</td>
<td>.346</td>
</tr>
<tr>
<td>Pair 9</td>
<td>Mother Waist Circumference</td>
<td>Daughter Waist Circumference</td>
<td>33</td>
<td>.267</td>
<td>.133</td>
</tr>
<tr>
<td>Pair 10</td>
<td>Mother Body Mass Index</td>
<td>Daughter Body Mass Index</td>
<td>33</td>
<td>.278</td>
<td>.117</td>
</tr>
<tr>
<td>Pair 11</td>
<td>Mother Waist to Hip Ratio</td>
<td>Daughter Waist to Hip Ratio</td>
<td>33</td>
<td>.399</td>
<td>.021</td>
</tr>
</tbody>
</table>
**Fisher’s r to z Transformation Test.** A Fisher’s r to z transformation test was conducted to test the difference between the correlation coefficients of the rural and urban mother daughter pairs. Listed below are the results of the test (Table 4.50).

Table 4.50:

*Fisher’s r to z transformation test results*

<table>
<thead>
<tr>
<th>Anthropometric Variable</th>
<th>N</th>
<th>Rural Correlation</th>
<th>Urban Correlation</th>
<th>Z Score</th>
<th>P Value (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>33</td>
<td>.492</td>
<td>.110</td>
<td>1.66</td>
<td>.049</td>
</tr>
<tr>
<td>Height</td>
<td>33</td>
<td>.666</td>
<td>.487</td>
<td>1.05</td>
<td>.147</td>
</tr>
<tr>
<td>Hip Circumference</td>
<td>33</td>
<td>.424</td>
<td>.168</td>
<td>1.10</td>
<td>.136</td>
</tr>
<tr>
<td>Upper Arm Circumference</td>
<td>33</td>
<td>.421</td>
<td>.212</td>
<td>0.90</td>
<td>.184</td>
</tr>
<tr>
<td>Biceps Skin Folds</td>
<td>33</td>
<td>.240</td>
<td>.366</td>
<td>-0.05</td>
<td>.295</td>
</tr>
<tr>
<td>Triceps Skin Folds</td>
<td>33</td>
<td>.309</td>
<td>.114</td>
<td>0.79</td>
<td>.215</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>33</td>
<td>.130</td>
<td>.009</td>
<td>0.47</td>
<td>.319</td>
</tr>
<tr>
<td>Diastolic Blood Pressure</td>
<td>33</td>
<td>.244</td>
<td>.169</td>
<td>0.30</td>
<td>.382</td>
</tr>
<tr>
<td>Waist Circumference</td>
<td>33</td>
<td>.469</td>
<td>.267</td>
<td>0.91</td>
<td>.182</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>33</td>
<td>.527</td>
<td>.278</td>
<td>1.16</td>
<td>.123</td>
</tr>
<tr>
<td>Waist to Hip Ratio</td>
<td>33</td>
<td>.244</td>
<td>.399</td>
<td>-0.67</td>
<td>.251</td>
</tr>
</tbody>
</table>
The correlations display that urban daughters are more consistently different than their mothers i.e. they are converging more significantly on their mothers. Rural mother and daughter correlation is consistently higher than urban mother daughter correlation except in the case of biceps skin folds.

**Fisher’s Exact Test.** A Fisher’s exact test was run to see if there was a difference in the occurrence of diabetes between the study subjects based on their habitation environments. The null hypothesis was that there would be significant difference between urban and rural subjects of the study. The expectation was that the urban subjects would have significantly higher incidences of diabetes than their rural counterparts. The alternative hypothesis was that there would be no significant difference between the subjects based on their environment. The results of the urban versus rural Fisher’s exact test revealed a single-tailed p value of 0.359, higher than 0.05 p value. Therefore, the test indicates that there is no significant difference in the occurrence of diabetes between the urban and rural subjects (refer to Table 4.51).

Similarly, another Fisher’s exact test was run to note the difference in the occurrence of diabetes between the study subjects based on their generational status. The null hypothesis was that there would be a significant difference between the mothers and daughters in the study sample. The expectation was that the mothers in the study sample would have significantly higher incidences of diabetes as compared to the daughters. The alternative hypothesis was that there would not be a significant difference between the mothers and daughters. The results of the mothers versus daughters Fisher’s
exact test revealed a single-tailed p value of 0.031, lower than the 0.05 p value. This indicates that there is a significant difference in the occurrence of diabetes between the mothers and daughters in this study sample (refer to Table 4.52).
Table 4.51:

*Fisher’s exact test results for urban versus rural*

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (two-tailed)</th>
<th>Exact Sig. (two-tailed)</th>
<th>Exact Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.532&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>.466</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.133</td>
<td>1</td>
<td>.715</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.538</td>
<td>1</td>
<td>.463</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td></td>
<td></td>
<td></td>
<td>.718</td>
<td>.389</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.528</td>
<td>1</td>
<td>.467</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of valid cases</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.00.

<sup>b</sup> Computed only for a 2x2 table
Table 4.52:

*Fisher’s exact test results for mothers versus daughters*

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (two-tailed)</th>
<th>Exact Sig. (two-tailed)</th>
<th>Exact Sig. (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>4.790^a</td>
<td>1</td>
<td>.029</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction^b</td>
<td>3.327</td>
<td>1</td>
<td>.068</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>5.352</td>
<td>1</td>
<td>.021</td>
<td></td>
<td>.062</td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td></td>
<td></td>
<td></td>
<td>.031*</td>
<td></td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>4.754</td>
<td>1</td>
<td>.029</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of valid cases</td>
<td>132</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.00.
b. Computed only for a 2x2 table
Discussion

When I began conducting this study, I expected to see a distinct difference between the urban and rural subjects of my study. Most of the nutritional transition and globalization studies that are being carried out the world over discuss how urbanization, sedentary lifestyle, and changing diet contribute to a sharp increase in the occurrences of chronic non-communicable diseases. India is one of the countries in the world that has prolific incidences of obesity, diabetes, heart problems, and blood pressure problems. These problems sharply rose in number after the 1991 liberalization of the Indian economy. Bearing that in mind and in light of the numerous study that posit that the so-called ‘western diseases’ are a result of contact with and adoption of western cultural traits, I hypothesized that I would see a sharp difference between the rural and urban subjects of this study. I also factored in a generational effect to comprehend whether there would be any differences between the preferences of the younger and older generation. Interestingly enough, the results of my statistical analyses took me by surprise.

In this section, I discuss the results of all the statistical analyses that have been listed above in specific reference to the anthropometric measurements, blood pressure indices, and obesity indices.

**Obesity Indices.** The average size of bodies is increasing across the globe. Populations in nations such as China and India are noted as particularly vulnerable to incidences of obesity (Brewis 2012). The urban areas of middle income countries such as India and China are noted to be among those areas
of the world where the pandemic of obesity is on the rise (Brewis 2012, Prentice 2006). That there is a difference in the urban and rural occurrences of obesity in these countries is well substantiated by prior studies (Bose et al. 2008, Deepa et al. 2003, Gupta 2004, Shukla et al. 2002). As a result, separately recording the measurements of urban and rural populations is necessitated to understand this trend (Prentice 2006). Studies carried out in India within the last decade display a tendency for urban Indian children to have a propensity towards being overweight and obese (Khadilkar et al. 2009). Similarly, there have been studies that give credence to the belief that countries such as India are facing a ‘double burden’ of overnutrition and undernutrition. India contains both impoverished and affluent populations. Usually, rural populations show a trend towards being underweight owing to their lower socioeconomic position. Urban populations on the other hand have high incidences of obesity as a result of being more affluent than their rural counterparts (Prentice 2006, Subramaniam and Smith 2006). Given this background, my study aimed to determine whether I would find a significant difference in the occurrences of obesity between my urban and rural subjects.

**Weight.** Weight and height measures are used in tandem along with other measurements to comprehend the pattern of prevalence of obesity in a certain sample. In this study, I have concurrently used waist circumference, body mass index, and waist to hip ratio for that purpose. However, that said, I would like to begin discussing the obesity indices bearing in the mind the results of the weight measures that have been collected from my study.
participants. This will give a basic idea of the trend visible when purely body weight is taken into consideration. Independent samples t-test indicates that there is a significant difference between urban and rural study participants. On the whole, this gives the impression that habitation environment bears a significant effect on the weight of the participants (refer table 4.17). The test also indicates that there is a significant difference between the weights of mothers and the daughters, indicating that generational factor and age also influence the weight of the study subjects (refer table 4.26). Two-way ANOVA results show that both habitation environment and the generational factor are important determinants of the weight of the study subjects (refer table 4.37). A closer look at the results of the sample sub-strata indicate that there is a significant difference between the weights of urban and rural daughters, there is however no significant difference between urban and rural mothers (refer table 4.1). This indicates that age and generational effect has a higher effect on the body weight of the subjects in comparison to habitation environment.

The correlation coefficients of the paired sample t-tests for urban and rural mothers and daughters indicate that rural mothers and daughters are more similar in phenotype than their urban counterparts (refer tables 4.48 & 4.49). Fisher's r to z transformation test displays that the difference between the urban and rural mother-daughter correlation coefficients is statistically significant. Therefore, the measure of weight among the study participants indicates that comparisons of urban mothers to daughters are phenotypically different than rural mothers to daughters (refer table 4.50). This has great
potential significance to the interpretation of heritability. Data indicate that the literal heritability of phenotypes from mothers to daughters is changing. The pattern of the data lends me to infer that the cause for this change is the environment that these mother-daughter pairs inhabit. Thus, the environment is a major factor that is clearly affecting basic heritability, that is, the genetic transmission of phenotypes from mother to daughter. The possible reasons for the appearance of this pattern will be discussed in the next chapter which expands upon the ethnographic data collected for this dissertation. This ties into the patterns that we notice in the statistical data.

**Waist Circumference.** Waist circumference is particularly important to take into consideration with regards to this population. Metabolic disorders and cardiovascular issues related to obesity correspond more with the appearance of upper-body obesity rather than lower-body obesity (Akpinar et al. 2007). Since waist circumference gives a better measure of upper-body obesity, it has been suggested that waist circumference might be a better predictor of obesity related metabolic syndrome comorbidities (Janssen et al. 2004). Indians in particular have increased central adiposity in comparison to other ethnic groups (McKeigue and Shah 1991, Modi et al. 2009). This tendency of higher central adiposity among Indians makes them particularly susceptible to higher incidences of metabolic disorders (McKeigue and Shah 1991). Higher central adiposity has been recorded in new born babies of Asian Indians all over the world. It has been suggested that this is related to the malnourished status of the mother which results in a harsher intrauterine
environment. The fetal adaptations in such an environment give the child the ability to survive in an environment with high nutritional deficiency after birth. Maternal nutrition during pregnancy coupled with the nutritional status of the populations over long periods of time spent in a nutritionally deficient environment, can result in adaptations such as increased central adiposity. This closely connects to the thrifty genotype concept (McKeigue and Shah 1991, Modi et al. 2009, Yajnik et al. 2008). Modi et al. 2009 hypothesize that given the Indian populace’s tendency for high central adiposity, it is highly likely that Indian girls and women, who usually have a lower status in the family might be more susceptible to having metabolic disorders. Widespread vegetarianism and lower nutritional status make Indian girls and women more nutritionally deficit than their male counterparts (Modi et al 2009).

The distribution of the waist circumference for this study sample shows that more than half of the individuals in the entire sample fall in the overweight and obese category (refer table 4.10). There is a statistically significant difference between the urban and rural study participants (refer table 4.3). As expected, the urban participants of the study have higher central adiposity measures than their rural counterparts. Though there is very little difference between the urban and rural mothers in the sample, the urban and rural daughters are significantly different than each other (refer table 4.3). This is in line with the idea that urban Indian children are better nourished than their rural counterparts (Bose et al. 2008). Surprisingly, the highest difference is noted between mothers and daughters (refer table 4.3). Two-way ANOVA
analysis indicates that both the habitation environment of the subjects and the
generational factor are important in determining the waist circumference of the
study subjects (refer table 4.45). The correlation coefficients of paired sample t-
tests for waist circumference between urban mothers and daughters and rural
mothers and daughters indicate that rural mothers and daughters have a
higher correlation while urban mothers and daughters have a lower correlation
(refer table 4.48 & 4.49). This signifies that phenotypically rural daughters are
more similar to their mothers than urban daughters. As stated before, this
pattern is probably the result of cultural differences. These differences will be
discussed in the following chapters which focus on the ethnographic data
collected for this dissertation.

**Body Mass Index.** Body Mass Index (BMI) is the most widely used
obesity measure all over the world. BMI is also criticized because it cannot
indicate the difference between muscle weight and weight that results from fat
deposits. Therefore, it is being used concurrently with other obesity measures
in this study (Akpinar et al. 2007). Indian subjects have a different body build
than European and Euro American populations on whom the traditional BMI
cut-off points have been established (Deurenburg et al. 1998). Thus, in this
study the cut-off points are those recommended for the Asian Indian populace
(Dudeja et al. 2001, Misra et al. 2006, Subramanium and Smith 2006, Razak

The BMI measures indicate that there is a significant difference between
mothers and daughters from the study sample as well as between rural and
urban daughters (refer table 4.11). The BMI distribution (refer table 4.12) shows that more than a quarter of the urban population is overweight with less than 10% of the population being underweight. Both rural and urban populations have the same number of individuals who fall in the normal weight category. However, almost double the number of rural participants are underweight and less than a quarter of them fall in the overweight category. Surprisingly, almost the same amount of rural and urban populations fall in the obese category. Similar to the waist circumference, the largest and most statistically significant difference is between the mothers and daughters in the study sample. More than half of the rural mothers are obese and a little less than half of the urban mothers are obese. None of the mothers in the study sample fall in the underweight category. A mere 2 rural individuals and 5 urban individuals fall in the normal weight range indicating that most of the mothers in the sample are overweight and obese. In sharp contrast, more than a quarter of rural daughters are underweight and only 5 urban daughters are underweight. Most of the urban and rural daughters fall in the underweight and normal weight range. However, there is a clear trend that more urban daughters are overweight and obese than their rural counterparts.

The two-way ANOVA results indicate that only the generational factor is responsible for determining the BMI of the study participants. There does not seem to be any influence of the habitation environment on the BMI of the participants (refer table 4.46). The correlation coefficients of paired sample t-tests for BMI indicate a similar trend as that of the waist circumference. Rural
mothers and daughters have higher correlation than urban mothers and daughters, again indicating that the rural mothers and daughters are phenotypically more similar than their urban counterparts (refer table 4.48 & 4.49).

**Waist to Hip Ratio.** Waist to Hip Ratio has often been used to note the physical attractiveness factor of females (Singh 1993, Singh and Young 1995). However, WHR is also used concurrently with BMI and waist circumference to determine an individual's or a population's metabolic disorder risk (Dobbelstyn et al. 2001, De Koning et al. 2007, and Taylor et al. 1998). WHR measurements of middle-aged women have demonstrated that post-menopausal women had a higher WHR measure than pre-menopausal women. A high WHR ratio was also found to be associated with negative emotions such as depression, anger, tension, and a lack of social support (Wing et al. 1991). The WHR cutoff point used in this study is that recommended for Asians (World Health Organization 2008).

The WHR measures in the study sample demonstrate that there is a significant difference in the WHR measure of the mothers and daughters (refer table 4.13). The ages of the mothers in the study sample vary from 30-56 years of age (refer figure 4.16). Based on this age distribution, the mothers in the study fall in four separate categories: pre-menopausal (below age 35), peri menopausal (age 35-45), early menopause / menopausal (age 46-51), and post-menopausal (age 52-65).
Figure 4.16: Histogram displaying the age distribution of mothers in the study sample
Figure 4.17: Scatterplot depicting the relationship between age and WHR of the mothers in the study sample
A Pearson correlation was calculated examining the relationship between the age and the WHR of the mothers. A weak correlation that was not significant was found (p = 0.109), indicating that age-related menopausal status of the mothers in the sample does not significantly affect their WHR (refer table 4.53).

Table 4.53:

*Pearson Correlation Result – WHR versus Age of Mothers*

<table>
<thead>
<tr>
<th></th>
<th>AGE</th>
<th>WHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>Pearson Correlation Significance (2-tailed)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation Significance (2-tailed)</td>
<td>.218</td>
</tr>
<tr>
<td>N</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>WHR</td>
<td>Pearson Correlation Significance (2-tailed)</td>
<td>.154</td>
</tr>
<tr>
<td></td>
<td>Pearson Correlation Significance (2-tailed)</td>
<td>.218</td>
</tr>
<tr>
<td>N</td>
<td>66</td>
<td>66</td>
</tr>
</tbody>
</table>

The distribution of WHR (refer table 3.14) displays that more than half of the mothers in the study sample have a high risk WHR. In sharp contrast, more than half of the daughters from the study sample have a normal WHR (refer table 4.14). The results of the two-way ANOVA indicate that there was no effect of the habitation environment on the WHR of the study subjects. However, there was a significant effect of the generational factor (refer table 4.47). The correlation coefficients of the paired sample t tests indicate that the correlation of BMI is higher among urban mothers and daughters than rural
mothers and daughters. This is in contrast to the correlation coefficients of other obesity indices used for this study (refer table 4.48 & 4.49).

**Height.** Height is considered an important indicator of the availability of good nutrition. Developed countries have been noticing the secular trend of steady increase in height for the last 150 years or so. The average height seems to have stabilized now in most developed nations (Cole 2000, Cole 2003). Therefore, with the advent of globalization, urbanization, and a more sedentary lifestyle, it is would not be surprising to find that developing nations are now showing a similar trend in terms of height. A study of the secular trends in human physical growth has indicated that the current trend of increasing height among the children in developing countries mirrors what has already taken place in Europe (Cole 2000). That there is a definite difference in the height increase among men and women has been pointed out (Cole 2000, Cole 2003). Since this study only considers one gender, the exact difference of height increase between the two sexes will not be considered. However, since Cole (2000, 2003) avers that catch-up growth in the early ages of development has adverse consequences in adulthood, I believe that since women are child-bearers and have to go through the process of gestating, delivering, and lactating their new born infants, too much catch-up growth might adversely affect their maternal capabilities.

Maternal size, maternal nutrition during pregnancy, the post-natal environment, and the size and nutritional status of the child’s maternal grandmother, all seem to play an important role in the expression of the
secular trend of height and menarcheal age of daughters. The height of the child is determined by the post-natal growth that takes place before the age of 2. The changes in height are related to the growth that takes place in bones, especially leg bones. Breastfeeding, postnatal care, as well as availability of good nutrition, all affect growth before the age of 2. Post-natal infections also affect this growth. Infections at an early age can lead to malnutrition, resulting in stunting of growth. Lastly, the financial, educational, and economic status of the family in tandem with the environment in which they live such as rural or urban, also affect the growth of the child and therefore its height (Cole 2000, 2003). The changes in the national income and the general prosperity of the society at the time of birth is also believed to affect the growth of the child.

Liestøl (1982) studied the birth weight of female infants in relation to the national gross domestic product (GDP) of Norway between the years of 1860 and 1950. He noticed that the age of menarche fell when the GDP rose and vice-versa. Though such a result is highly correlational, it might be suggested that given the fact that the average age of the daughters in this study sample is 18.63, most of them are born after the year 1991. 1991 was the year that India liberalized its markets allowing for foreign direct investment. This resulted in an economic boom that positively affected the general lifestyle of people nationwide. The significant increase in the height of the daughters from the study sample may be surmised to be connected to this rise in the national GDP of India (Mohan 2008).
A secular trend in height may have been taking place in the Indian populace starting from the post-colonial period. The data to verify that is not available. The earliest nationwide and statewide datasets available to note the height trends in India are derived from the second National Family Health Survey (NFHS-2) that was carried out in the year 1998-1999 (International Institute for Population Studies 2000). Virani’s (2005) longitudinal study of secular trend in height among the Sri Aurobindo International Centre of Education (SAICE) students demonstrated that all Indian children, regardless of their ethnic origin, can acquire the same height if they receive the same food intake and grow up in the same socio-economic status. His study also points to the salutary effects of exercise on height. All of the SAICE children, boys and girls, have to mandatorily exercise from the age of 6-21. Virani asserts that all Indians are genetically homogeneous and capable of achieving the same height. Therefore, the differences noted among Indians from different states and communities must be related to caloric intake, exercise, and most importantly, the financial situation of the family. Interestingly, Virani’s study also makes a case for the idea that since SAICE girls are treated the same as boys, provided the same nutrition, and exercise the same amount as boys, the secular trend in their height is significantly larger as compared to the national standard (Virani 2005). Mamidi et al. (2011) studied the nationwide height data collected in the Third National Family Health Survey (NHFS-3). NHFS-3 collected height data for women between the ages of 15-49 and men between the ages of 15-54 (International Institute for Population Studies 2007). Mamidi et al. (2011: 23)
aver that, “The secular increase in height has been modest in India in spite of impressive economic growth”. The dataset does indicate that there is a definite positive trend in height for families that hail from urban areas, have a higher educational status, and financially fall in the richest category. Another interesting find is that milk drinking has a positive effect on the height of both men and women. The mean height for women from the state of Maharashtra aged 20-29 is 152.3, aged 30-39 was 151.9, and aged 40-49 was 151.3 (data derived from NHFS-3 as cited in Mamidi et al. 2011).

These studies indicate that it is safe to assume that with each successive generation, the height of Indians will show a secular trend. This positive trend can be adversely affected by insufficient nutritional availability and access to healthcare. The participants of this study belong to the highest caste, Brahmins. All of the participants (with the exception of two rural mothers) identify themselves as belonging socioeconomically to middle class. The height data collected from this population sample shows a definite secular trend for daughters in the study sample (refer table 4.27). Urban study subjects are significantly taller than the rural study subjects, though this difference can mainly be attributed to mothers since there is no statistically significant difference between the heights of urban and rural daughters (refer table 4.2). Two-way ANOVA results indicate that both habitation environment and generational factor have a significant effect on the height of the study subjects (refer table 3.38). The correlation coefficients of paired sample t-tests for height indicate that rural mothers and daughters have higher correlation than urban
mothers and daughters, again indicating that the rural mothers and daughters are phenotypically more similar than their urban counterparts (refer table 4.48 & 4.49).

These results indicate that the height of the mothers differs significantly based on the environment in which they grew up. The age range of the mothers (refer figure 4.16) show that the mean age of mothers is 45.44. The youngest mother in the study sample was born in the year 1986 and the oldest was born in the year 1960. The economic growth of India has been traced to the economic liberalization that started in the year 1991. The continuous growth in the GDP of the country is expected to have resulted in a majority of the population having easier access to food and health care. However, prior to that period, access to healthcare as well as availability of food was easier for people in urban India as compared to the people in rural India. The exposure to education is lower and gender discrimination is higher, even to the present day, in rural Konkan. Therefore, it might be safe to assume that the height differences that we note between the urban and rural mothers in the study sample may be an indication of lower food availability, higher incidences of health crises, and differential treatment received by these women at a young age. Present day rural Konkan remains difficult to traverse and health clinics are only found in semi-urban towns. Since these towns have popped up in the last 20-25 years, it can be safe to assume that access to health care was difficult for those mothers in the study sample who grew up in rural India. The
height difference between rural and urban mothers in the sample might be a strong indicator of these differences in their early years of growth.

In complete contrast, there is no statistically significant difference in the height measurements of rural and urban daughters in the study sample. Rural daughters do tend to be shorter than urban daughters (refer table 4.1). The fact that there is no significant difference in the heights of the daughters might be a reflection of the better nutritional availability in both rural and urban areas in the present day. Though clinics are far away from rural villages, the availability of transport (public or private), make it far easier to access health care today than in the past. The government of India has also carried out multiple campaigns to increase awareness of the importance of treating girl children better. In 2014, the Indian government began a Beti Bachao, Beti Padhao (Save Daughters, Educate Daughters) campaign (Pasricha 2015, Sahni 2014). All of the rural daughters in the study sample were being educated and their parents stressed on the importance of education for their children. Several of the rural daughters had left their villages and moved to cities to complete their higher education. All of this indicates that even though daughters in India (especially rural ones) still receive differential treatment, at least in the case of this sample, the negative impact of it cannot be traced to their nutritional status.

It might be safe to assume that along with the secular trend of height, the menarcheal age of the younger generation is also reducing. The age of menarche of adolescent girls has been steadily declining in developed European nations for the past 60 years. A similar trend may therefore be noted in the
developing countries of the world (Cole 2000). The mean age at menarche among young girls from the state of Maharashtra is 12 to 13 years of age (Bagga and Kulkarni 2000). The underlying mechanisms that result in the trend of earlier onset of menarche have yet to be understood completely. Several theories exist. One of the earliest theories was that of the ‘critical weight hypothesis’ put forth by Frisch and Revelle (1970). The ‘critical weight hypothesis’ suggests that though height and menarcheal age secular trends go hand in hand, they may not always be related in the manner in which they are expected to be. Rather than a certain height, weight might be the trigger for the early onset of menarche (Frisch and Revelle 1970, Frisch 1972). That there is a definite co-occurrence of increased height and decreased menarcheal weight is not contested. Often, both are attributed to an affluent lifestyle. In Europe, the menarcheal weight averages at about 13 years of age. Cole hypothesizes that any deviation from this age may be a reflection of poor environmental conditions (Cole 2000). Ellison (1982) contested Frisch and Revelle’s (1970) critical weight hypothesis maintaining that height velocity is a better indicator of menarcheal age. This suggests that the age of the onset of menarche is dependent on the rate of maturation and not the size of the body. Liestøl (1982) believes that the age of the onset of menarche may be connected to the birth weight of the girls. His study in Norway talks about the earlier onset of menarche among girls born in periods of high GDP, and low birth weight among girls born during periods when the national GDP reduced considerably. Lastly, Bogin’s (2010) study states that the onset of female menarche is most
likely based on the growth of the female pelvis. Girls with a higher bi-iliac width will attain menarche earlier than those with a low bi-iliac width. The faster growth of the pelvic bones again is connected with the nutritional status of the girls. The better the nutritional status, the faster the growth of the female pelvis, and the earlier the onset of menarche. Chronic malnutrition and disease retard this pelvic growth, thus delaying the onset of menarche.

In my study sample the youngest girl in the entire sample was 11 years old and had attained menarche less than a month before she was recruited as a study participant. Bagga and Kulkarni’s (2000) study demonstrates that the average age for menarche is 12 or 13 years of age in Maharashtra. Given that the youngest daughter in my study sample is 11 years of age having attained menarche only a few months before the age of 12, it would be safe to say that the secular trend in the reduction in the age at which menarche is attained is visible in my data set as well.

**Hypertension.** This study hypothesized that the difference between the blood pressure measures of rural and urban Deorukhe women would be statistically significant. In that vein, the study results do indicate that there is a significant difference between the diastolic as well as systolic measures of urban and rural Deorukhes. However, the higher blood pressure measures were expected to appear among urban women, since hypertension is a chronic health condition often connected closely to the phenomenon of nutrition transition and urbanization. Therefore, it is noteworthy that even though the hypothesis has been proven right, the directionality of the data is surprising. In
this study sample, the higher blood pressure measures appear among rural Deorukhe women and not urban Deorukhe women. This pattern is unexpected and does not fit in with the underlying assumption that traditional rural diet and lifestyle will control for or affect the appearance of high blood pressure measures.

The study also hypothesized that there will be a statistically significant difference in the occurrence of hypertension between the mothers and the daughters in the sample. Previous studies have demonstrated that there is a high chance of hypertension and blood pressure problems occurring among older people, especially as a result of metabolic retardation (Ahima 2009, Horwitz 1982, Pinto 2007). Women, especially after childbirth, stand a higher chance of having elevated blood pressure measures. Pregnancy is believed to have long term effects on the physiology of women, thus resulting in long term blood pressure changes (Gunderson et al. 2008). My data corroborates these assumptions. This data demonstrates that there is a significant difference between the blood pressure measures of the mothers and the daughters in the sample, indicating that age does often result in a general increase in the blood pressure measures of the study participants (Refer to figure 4.18).
Figure 4.18: Line diagram displaying the relationship between the age and blood pressure measures of the study subjects
At this instance, it is necessary to address why higher blood pressure measures occur so commonly among the rural group of participants. I believe that this is closely related to the cultural perception of the disease. Urban Deorukhes viewed hypertension as a serious chronic condition that needs to be monitored closely. In several of the urban Deorukhe households I was told that the family owned a basic blood pressure monitor, especially if one of the family members had chronic high blood pressure problems. Those participants who had chronic high blood pressure or suffered from hypertension, went to their doctors and had themselves checked on a regular basis. They also told me that they had to take their blood pressure medication as prescribed by their doctors. Many of them were very interested in informing me that hypertension and elevated blood pressure measures among urban people were primarily a result of poor diet. Two households in particular, paid a great deal of attention to blood pressure measures.

Shobhana (49 years of age) and her daughter Geetanjali (15 years of age) live in Thane city. Shobhana told me that she is very particular about the diet and health of her family. “Last year my husband was diagnosed with a heart condition and had to undergo angioplasty and heart bypass at the age of 54. He is now fully recovered.” Shobhana went on to relate to me the utter shock that both she and her husband felt upon hearing about his condition. “My husband has always eaten vegetarian food, he does not drink, and he has never smoked in his life. We couldn’t understand why this was happening to him”. When Shobhana and her husband spoke to the doctor and asked him
why this was happening, the doctor told them that it was the result of her husband’s stressful lifestyle and a bad diet. “My husband was always traveling for work and often he had to eat outside food when he was traveling. I know this is bad for his health but I never dreamed that he would develop such a serious condition”. Since that day, Shobhana decided that she would pay more attention to the health of her family. “Now that my husband is fully recovered and has mild diabetes. I have taken it upon myself to make significant changes in the way I cook food at home” she said as she went on to tell me in great detail which foods she avoids and how she has drastically reduced the amount of salt, oil, and sugar in their food. Shobhana now tries her best to practice yoga breathing exercises and she also sends her daughter to a yoga class every morning. “We visit the doctor regularly and both of us get ourselves checked to see our blood pressure measures”, she said, while telling me that she now makes time to gather her daughter and young kids in groups to explain to them the dangers of eating an unhealthy diet and not exercising regularly.

Janhavi (55 years of age) had a 100% block in her heart. In the year 2011, she had a bypass surgery. “After recovering from my bypass surgery, both me and my family are very careful about my health” Janhavi told me when I asked her about her health. “I walk 45 minutes daily, I am careful about the food that I eat, and I am constantly monitoring my weight so that it doesn’t become a problem” she said. Janhavi says that for the most part she has returned to living her normal life but she has to be very careful about picking up heavy objects, and bending too much is not allowed. When asked
about her blood pressure measures which were slightly elevated, she said that she took blood pressure medication on a daily basis. “The doctor has prescribed me one blood pressure pill and one blood thinner pill daily” she said. Janhavi goes to visit her doctor once every three months to get her blood pressure and heart condition checked. Sitting next to her, her daughter recalled, “Aai’s heart condition caught us off-guard and made us very aware of the problems that can result from being having chronic conditions. We are now very careful and we especially take care not to tire her out. We also take care of our own health and make sure to go for walks and eat a healthier diet”.

In one unexpected instance, I came across a household in Mumbai that was extremely excited to be a part of my study. The woman spoke honestly about her husband’s and her own struggles with hypertension. After telling me that both she and her husband were diagnosed with hypertension and type 2 diabetes, she said that she had implemented changes in the family’s diet and food habits. “Earlier we used to eat a lot of outside food. But ever since our diagnosis, we try our best to eat healthy and not order in from restaurants”. Looking at her daughter who was sitting right opposite her, she said, “She is still young and eats outside more often than we do, but we still try to ensure that she does not eat outside food all the time”. Her husband then went on to tell me a story about his grand-uncle who was hale and hearty all day way until the age of 93 because he lived in rural Konkan and walked many miles every day. “Living in the cities and eating outside food, that is the reason why
we have all these problems of diabetes, blood pressure, and heart attacks” he informed me.

Since this was my first visit to this family, I spent some time explain my research goals and started the visit by taking the mother and her 14-year-old daughter’s anthropometric measurements. As I collected the blood pressure measures, I noticed that the daughter’s blood pressure measure came up to 142mmHg (systolic)/ 90mmHg (diastolic). Perplexed with the measurement, I went on to check her blood pressure one more time. The measurements remained constant. Feeling a moral responsibility to say something, I informed her parents that it would be advisable to get her blood pressure checked by a doctor. Looking annoyed, they asserted that the problem must be with my blood pressure monitor since it was impossible for someone so young to have such a high blood pressure measure. I informed them that they could very well be right. At the same time, I also advised that it would be best to be on safe side and get their daughter checked for the sake of ascertaining that the problem was with my blood pressure monitor. The rest of the interview continued without a problem. Three months later when I contacted the family for a second appointment, I was informed that they were no longer available for the rest of the year. Since I never visited the family again, I could not take more anthropometric measurements and I could never ascertain if this young girl indeed suffered from hypertension. The result was that this family’s measurements had to be eliminated from the final data set that has been used for the statistical tests. However, this was the only instance during my entire
fieldwork that I came across a young girl in my study sample who had higher than normal blood pressure measures.

As opposed to urban participants’ perception of hypertension as a chronic condition that needed constant monitoring and medicating, rural Deorukhe participants’ attitude towards hypertension was very different. I will talk about three specific instances that will give a general understanding of the manner in which hypertension is perceived among rural Deorukhes. To begin with, many of the rural Deorukhe households were intrigued and confused to know that I wanted to check their blood pressure. As soon as I pulled out my blood pressure monitor, they would assume that I am a doctor and it would often result in the family telling me that they would very much appreciate my advice on how to eat properly. Often, they asked for tips on how to lose weight. Sometimes I was asked if I could give them a good diet plan and tips on how to lead a healthy life. It was quite common that every family member’s blood pressure measures had to be taken. Grandparents and older family members in particular were specifically asked to be measured. “Let us see if aaji (grandma, both maternal and paternal) / ajoba (grandpa, both maternal and paternal) needs to be taken to the doctor” was commonly said as I took the blood pressure measures.

Almost every single grandparent whose blood pressure I measured suffered from hypertension. In some cases, the blood pressure measures were extremely high ranging between 160-180mmHg (systolic) and 100-120mmHg (diastolic). In one particular instance, the family told me to convince the 75-
year-old ajoba to go get his blood pressure checked by the doctor after the measurement I took was so incredibly high that it even left me speechless for a few seconds. “He doesn’t listen to us tai, please convince him to go to the doctor” his son told me. The ajoba in turn was rather amused and said he felt fine for his age and didn’t think it was necessary to visit the doctor. In another household, a young daughter commented on her aaji’s measurement of 150mmHg (systolic) and 101mmHg (diastolic). In response, both her mother and her aaji told her that for the aaji’s age, this measurement was perfectly normal.

The idea that high blood pressure was indicative of mental and emotional distress was commonplace among rural households. In cases where the blood pressure measures of rural daughters were slightly elevated, I was often told that it was the result of their fear of the blood pressure monitor. A young girl with slightly elevated measures told me it was the result of stress since she was preparing for state wide high school examinations.

Most rural Deorukhes believed two specific things. One, that high blood pressure was an inevitable problem that accompanied old age. And two, that high stress can result in a temporary high blood pressure measures. Both of these beliefs were held by all of the rural households that I interacted with. However, I could not understand and neither could any of my interlocutors tell me at what age elevated blood pressure measurements indicated a chronic problem. More often than not, some reason or the other was given to explain
away abnormal measurements when they occurred among those women who
had not already been diagnosed with hypertension.

One rainy afternoon in July of 2014, I was taking the blood pressure
measurements of the Naina, her daughter, and her mother-in-law who was
visiting. The final blood pressure measurement that I took was of the Naina.
The blood pressure measure came to 175mmHg (systolic) and 93mmHg
diastolic. I measured the woman again to make certain that my measurement
was correct. As was the norm, I informed the woman that her blood pressure
measures were elevated and suggested that she get herself checked by a
doctor. Looking surprised and little scared, she immediately called her doctor,
in the middle of our interview, and made an appointment for the next day.

Three months later, I went to visit the woman one last time. I inquired after her
blood pressure as soon as we started talking. She informed me that the doctor
had told her that her elevated blood pressure measurements were likely the
result of stress. He checked her blood pressure, agreed that the measures were
elevated, and prescribed her a week-long dose of sleeping pills. “I went back to
the doctor a week later and he told me that my blood pressure measures had
returned to normal. So now it is not a problem” she told me.

I began to take my anthropometric measures for this visit. At this visit as
well, her blood pressure measurements were significantly high 147mmHg
(diastolic) and 90mmHg (systolic). When I informed her about this, she was
perplexed and stated that this should not have happened based on what her
doctor said. Then she started listing all of the things that might have increased
her stress and would have been the reason for her high blood pressure. She concluded by stating that she would make another appointment with the doctor and it was her hope that one more dosage of sleeping pills would return her blood pressure to normal again.

The next day I visited Anandi and her daughter. Anandi seemed tired and unusually quiet. When I enquired after her health, she told me that she had suffered through a sleepless night and that she was very mentally disturbed. Upon further enquiry, I learned that she had been up half the night helping their next-door neighbors. The neighbor, whose wife and daughter were alone here without any relatives from the village, needed help and care since the neighbor had passed away suddenly as result of a heart attack. As soon as I removed my blood pressure monitor, both Anandi and her daughters told me to make note in my book about the mental and emotional distress that she was experiencing. “This is the wrong time to be measuring my blood pressure. I am so tired and emotionally distressed that I am sure it will result in higher than normal measures” she said as I started to measure her. Anandi’s measures were 144mmHG (systolic) and 90mmHg (diastolic). As soon as I informed her about the measure she said, “Didn’t I tell you? Disregard the measurements, this is because of stress.” The next time I visited her Anandi’s blood pressure measure came to 143mmHg (systolic) and 88mmHg (diastolic). She again mentioned being stressed and disregarded my suggestion to visit a doctor.

My final ethnographic vignette, one that adds to my understanding of the manner in which rural Deorukhes think about blood pressure in general, took
place in the monsoon season when I visited the village of Taregaon. 38-year-old Vaishali and her 13-year-old daughter Gargi were both very interesting study subjects. Upon first introducing me to this family, the young participant who suggested that I recruit them told me “You won’t believe how fat they are!”. Vaishali and Gargi each weighed 88.30 kgs and 79 kgs respectively. With a BMI of 36.85 for Vaishali and 32.78 for Gargi, both of these participants are squarely placed in the obese category. Vaishali told me, when initially asked about the health of her family, that their large sizes were a result of the sturdier and heavyset build of all the family members in general. The family did not complain about any ailments. Neither Vaishali nor Gargi had any chronic health problems the first time I visited them.

My second visit was in the monsoon of 2014. When I enquired after Vaishali’s health, she told me that she had recently recovered from a serious health condition. Since monsoon season is the time of the year that results in many epidemics, especially stomach bugs and influenza, I assumed that the woman had contracted an infectious disease and had recently recovered from it. That however, was not the case. Vaishali began by telling me about her recent visit to the Intensive Care Unit (ICU) at a hospital in a nearby town. She had been feeling unwell and restless for several days before she went to the doctor to check what the problem was. She was having a difficult time breathing and assumed that she was stressed out and needed to relax. She tried to rest with the hope that she would feel better. On the day that she finally visited the doctor, she has feeling breathless and experiencing
palpitations. “I thought I was having a heart attack!” she told me recalling that day. The doctor checked her condition and immediately told her family to get her admitted at the ICU. When asked why the doctor sent her to the ICU, she said that the doctor checked her blood pressure and at that time it was 170mmHg (systolic) and 90mmHg (diastolic). When the hospital crew monitored her for several hours, they informed her family that her condition had resulted from heartburn and acid reflux. “My ECG readings were normal and so the doctor said the issue was related to heartburn”, she told me recalling her time in the ICU. When she was discharged from the hospital, the doctor told her that her condition had resulted from her obesity. He advised her to lose weight.

Vaishali had returned from the hospital a week before I had visited her. She said she was feeling much better but the doctor had impressed upon her the need to have her blood pressure monitored carefully. “He has given me BP pills to take every day” she told me. On my third and last visit, Vaishali told me she was back to feeling normal. Her body weight had remained unchanged from the last time that I visited her, but she said she had made a lot of changes in her diet and she tried to go for walks whenever possible. She complained of knee pain and said that she was now also suffering from hemorrhoid problems. “I really need to lose weight, this is all related to my weight” she insisted. When asked about her blood pressure she told me, “The doctor has given me BP pills and told me to take them every day but I only take them when I feel bad” she told me, as I measured her blood pressure which was 124mmHg (systolic) and
84mmHg (diastolic). Commenting on her blood pressure measure she said, “See? My blood pressure measure has returned to normal now. That’s why I don’t take the pills daily.”

These experiences, and many more in a similar vein have brought to light the fact that hypertension was often viewed by my rural interlocutors as a temporary condition. Urban participants often commented on the dangers of being affected by chronic health conditions. In fact, many of the urban interlocutors were constantly discussing why it was of grave importance that one closely monitors one’s food intake and one’s body weight. They stressed upon the importance of some form of exercise so that chronic health conditions such as diabetes, heart problems, and blood pressure issues could be kept at bay. Urban participants, mainly thanks to social discussions, and in a large party as a result of advice from their family physicians, thought of health problems such as hypertension to be irreversible and incurable. These, according to them, are conditions that necessitate bodies to be under constant need to be monitored and medicated. This perspective only holds true for the rural Deorukhes when these conditions affect older people, usually people past the age of 60. In cases when high blood pressure measures appeared among the rural Deorukhe women, with the exception of one participant who viewed the condition as chronic, the other women insisted that the cause of their high blood pressure measures was stress. When the stress would go away and once they had the time to take some rest and relax, they were sure that their blood pressure measures would return to normal.
The statistically significant difference in the BP measures of urban and rural Deorukhe mothers, where a surprisingly large number of rural women had high blood pressure measures is an occurrence that is in direct opposition to the assumptions that are usually made about the prevalence and presence of hypertension among urban and rural populations. It is my belief that this data set displays this surprising trend mainly because urban Deorukhes and rural Deorukhes conceptualize the problem of hypertension in two completely different ways.

**Diabetes.** Diabetes was self-reported in this study. Due to several factors diabetes was not tested for directly. Lack of funds, training, and complications in connection to collecting blood samples factored for why I could not measure the blood sugar of my study participants. Instead, participants were asked if they had been diagnosed with diabetes, specifically type 2 diabetes. This has been previously used as a way to measure the diabetes incidence in a population by Mohan et al. (2008).

Hales and Barker’s thrifty phenotype hypothesis suggests that type 2 diabetes is often the result of environmental factors (Hales and Barker 1992, 2001, Pollard 2008). While people who suffer from chronic hyperglycemia are usually referred to as diabetics, diabetes mellitus refers to a group of a metabolic disorders. In this group, type 2 diabetes is the kind of chronic hyperglycemia that appears in conjunction with the onset of adult life (Lindsay and Bennett 2002). As a disorder, type 2 diabetes is a rather complex one. Though the thrifty phenotype hypothesis conventionally makes the case that
the occurrence of this disorder is highly affected by environmental factors, there are several scholars that argue that there may also be underlying genetic predispositions. The environmental factors that affect the occurrence of diabetes are calorically dense diets and low levels of physical activity (Lindsay and Bennett 2002, Temple and Steyn 2012, Willett 1998). Low birth weight has also been associated with the onset of diabetes in adult life (Hales and Barker 1992, 2001, Lindsay and Bennett 2002).

In line with the patterns noticed in previous studies, it was hypothesized that urban Deorukhes would have a statistically significant difference in the occurrence of diabetes than their rural counterparts. Similarly, mothers were expected to have higher incidence of diabetes than their daughters. The results indicate that there is no significant difference in the occurrence of diabetes between the urban and rural interlocutors. There is however a statistically significant difference between mothers and daughters in this study sample.

Among my research interlocutors, diabetes was a well-known disorder. Indeed, many recalled having grandparents and parents who suffered from diabetes. Scholars studying the Indian thin-fat phenotype and the rising rates of diabetes often mention the existence of the disease on the Indian subcontinent long before the European colonization of India (Solomon 2016). Some told me of a family history of diabetes and the expectation of being diagnosed as a diabetic sometime in the future. Diabetes was, similar to hypertension, viewed as a disease that occurs with aging. Those interlocutors who had been diagnosed reported of having had a blood test done because they were feeling
unwell. All of the women who suffered from diabetes told me that they had to take their diabetes medication daily. They also actively tried to reduce their sugar intake. With the exception of one rural woman, Anvita, all of the diabetic participants told me that they were very careful about the food that they ate. Similarly, with the exception of Anvita, diabetic participants believed that their diabetes was a result of their advancing age and their family diabetic history. Given this context, my conversations with Anvita were surprising and interesting.

43-year-old Anvita had been diagnosed with diabetes about 4 years before I met her. For someone who had high blood pressure and diabetes, I found Anvita’s discussions about her dietary choices rather surprising. I first met Anvita when I went to visit them in their ancestral home in the village. The family lives in their village home. Anvita and her daughter Sanjana regularly visit and stay for extended periods of time in the nearby census town of Chiplun where Anvita’s two older sons work and live. The food choices vocalized by Anvita were surprising. Rural Deorukhe women usually do not like foods cooked outside of the house. They find these foods contaminating and indeed voice their concern over the growing trend of eating out. Therefore, it was unexpected when Anvita told me that she found eating outside food delicious and delightful.

“I love going to hotels, hotel food is yummy! Especially Punjabi foods. Whenever we go to Chiplun, I eat out often. Before I was diagnosed with diabetes, I used to eat out even more. These days, we don’t go to eat out as
often as we used. But I do love outside foods”. As I sat listening to her in the family’s ancestral home in the village Anvita told me “I am pretty certain that my BP and diabetes are a result of having eaten out so often! Though I have to be more careful these days, I don’t let that stop me from eating out when I am in the mood for it.” On another visit to her, this time in her son’s apartment in Chiplun, while recounting her 24-hour food recall, Anvita recounted to me the many sweets she had indulged in while attending a fair on the day before I visited as her daughter Sanjana scolded her on having eaten that many sweets. Anvita’s attitude towards her chronic medical conditions is rare in this study sample. She complained to me about the many complications that diabetes has caused in her life. “I can’t remember things very well because of my high blood sugar. About 10 years ago, my doctor recommended that I get a hysterectomy. I ignored his advice and now I can’t get the surgery done because of my diabetes. It is tiresome because I have many problems now since I am going through menopause.” However, despite these problems she told me that she “doesn’t take these things too seriously”.

Preventative care for diabetes in the way of reducing sugar intake was also not a common occurrence among my study interlocutors. In this, Shobhana and Shanti differed from the rest of the interlocutors. As a result of her husband’s heart surgery and his mild diabetes, Shobhana had drastically reduced the amount of sugar intake in their daily diet. “My mother-in-law used to cook excellent food” she told me one day, as we spoke about the dietary changes she had encountered at her in-laws’ house after her marriage. “The
amount of sugar my mother-in-law used in her cooking was quite shocking to me. I had an extremely hard time adjusting to the food she used to cook when I got married. I recall telling my own mother that instead of making *toorichi daal* (split pigeon pea lentil curry), my *sasubai* (mother-in-law) makes *toorichi kheer* (*kheer* is a sweet milk rice porridge usually served as dessert). Ever since my husband’s angioplasty, I have made sure to drastically reduce the oil, sugar, and salt in our diet."

Shanti, a homeopathy doctor with her own clinic, was also extremely vocal about the importance of eating home-cooked food which is low in oil, sugar, and salt instead of packaged foods and outside food. Her 16-year-old daughter Drishti, with a BMI of 15.92, weighed 41 kilograms. When I spoke to Shanti and Drishti about their body and health, Shanti said, “These days kids want to eat outside food all the time. This is not good for their bodies. I try my best to curb the family from eating out too often. I see the problems and health issues that people face. I see it daily in my clinic. Girls these days have so many weight issues.” Looking at Drishti she said, "Look at her, people say she is looks underweight but I think her weight is perfect for her age right now. It is best to be careful and monitor one’s body and weight early in life, it helps in later life." Speaking about CNCDs Shanti told me, “Sometimes, though rare, I see young patients who have diabetes and high blood pressure. This is why I tell Drishti to be careful about what she eats. Even though I don’t stop her from eating outside once in a while, I tell her not to do it daily.”
Conclusion

This study was intended as a biocultural investigation to understand possible contributing factors to CNCDs among people undergoing fast-paced cultural changes following shifts in economic systems of a country. India stands at an interesting place in this case. The mothers in this study sample are all women who were born and raised in a pre-liberalized India. This was an India that was not characterized by going outside to eat since the number of places available to do so were scarce. The daughters in this study sample however have grown up in a post-liberalized India. Contemporary India is characterized by the appearance of many small census towns along the transport arteries of rural Konkan. The giant metropoles of India such as Mumbai, have also spread into areas previously thought of as rural. Economic, social, and infrastructural changes have rendered post-liberalized India a changed country. Easy availability of transport, even by previously held rural standards, have changed the behavior and lifestyle of both rural and urban Indians.

Statistical tests carried out on the data collected for this research study show some expected and some unexpected results. For this study, it was hypothesized that there would be a statistically significant difference in the appearance of CNCDs among rural and urban Deorukhe women. This difference was expected based on patterns that have been revealed by previously published studies that have investigated the appearance of CNCDs
among populations that are rural and urban from countries undergoing economic shifts that are commonly referred to as “globalization”.

Test results demonstrate that rural and urban subjects do differ from each other significantly with regards to weight, height, waist circumference, hip circumference, upper arm circumference, and blood pressure. Since diabetes is self-reported for this study, the statistically insignificant difference between urban and rural subjects may not be an entirely valid representation of the prevalence of diabetes in this population. Higher incidence of obesity among urban participants is a result that matches with the study prediction. In this context, the increased risk of hypertension among rural participants rather than urban participants is entirely unexpected since hypertension and obesity often appear together. As expounded upon in the discussion section, the responses of rural interlocutors after being informed about their blood pressure measures indicated that high blood pressure was often viewed as a result of stress, lack of sleep, and emotional distress. Rural interlocutors viewed high blood pressure as a temporary problem and not a chronic one. It could also be the epigenetic responses of the Indian genome to the Indian environment differ from those typical of Euro-Americans.

Mothers and daughters differed from each other significantly for all anthropometric measurements, all body size indices, and also for diabetes. This result is as expected and hypothesized. Though mothers from both environments are fairly similar in anthropometric measurements, daughters from both environments show a sharp difference in body measurements, which
is more consistent with the expectations of this study. A high percentage of rural daughters are underweight. Paired sample t-tests between mothers and daughters have indicated that urban daughters are closer in body size to their mothers than rural daughters. Thus mother-daughter transmission of phenotype differs between the two environments. This can be attributed to the difference in their lifestyles and dietary intake, but the pattern contradicts genetic explanations because the Mother-Daughter transmission of genes does not differ (obviously) between rural and urban environments. Rural daughters often tend to walk more than their urban counterparts. Though public transport is available in both urban and rural areas, the ease of access to public transport is exponentially higher in urban India. Though Physical Activity Levels (PALs) could not be recorded using pedometers and shadowing during data collection, I made use of Godin’s questionnaire to ascertain the approximate amount of caloric expenditure. The data demonstrated that rural daughters regularly walked long distances to reach their schools and colleges. Urban daughters on the other hand made use of public transport such as rickshaws, trains, and buses, or private vehicles such as bicycles, scooters, and cars.

Many of the mothers in this study sample were overweight or obese according to the standards set for Indian and Asian populations by the World Health Organization (WHO). Urban mothers tended to be more overweight and obese than their rural counterparts. This result is interesting because even though the difference in the body sizes of urban and rural Deorukhe women is
not statistically significant, there are many differences in the physical activities undertaken by these women. Women in rural Konkan tended to be more mobile and carried out a variety of tasks that required higher amount of energy expenditure than women who lived in urban environments. Among the urban Indian women in this study sample, almost 78% worked full-time. These women often spent close to 8-10 hours outside of their houses. Their housework was completed with the help of household maids who carried out a variety of tasks such as sweeping, mopping the floors, washing the dishes, washing the clothes, and putting them up for drying. These maids are also employed to help in the kitchens and often cut, chop, and peel vegetables and keep the kitchen ready for the women of the house to come and cook. In some households, the maids prepare entire meals for the family.

As opposed to this, most rural households did not have maids who came in on a daily basis. These women often did all of the housework themselves. A typical day for rural Deorukhe women began by sweeping the entire house and the open patio outside the house. Their household work entailed washing the dishes, prepping the food, cooking the meals, and for those households that had cattle, these women had to milk the cattle twice a day and at times make round in the village to go deliver milk to those neighbors who wished to purchase the milk from them. These differences in the day-to-day activities of rural and urban Deorukhe women could well account for the differences in their body sizes and their PALs (Physical Activity Levels).
I had discussions with all of the research interlocutors about their body sizes. These discussions will not be expanded upon in this dissertation, though the topic will be touched upon briefly in the concluding chapter of this dissertation with regards to future projects that can result from this data. It is important to note that overweight and obese women in the study sample were honest and open about their opinions as to what they felt about their own body weight. Many were unhappy about their body weight and expressed a wish to lose some weight. When asked about the changes in their body size over the years, these women often said that the most important factor that affected their body weight was childbirth. “I wasn’t this big before I had my baby” was a commonly said phrase by these women when asked about their body size. Ethnographic observations demonstrated that increased weight post-partum was attributed to cultural practices surrounding pregnancy and post-natal care. The women who were overweight and obese in the study sample, though not always happy with their body weight, did not think about themselves as being prone to CNCDs.

Overall, this study reveals that urban study participants are more aware of CNCDs than their rural counterparts. Urban participants were wary of getting CNCDs starting from the ages of 30 and above. These conditions were viewed as chronic conditions that one should be careful about. Rural participants on the other hand viewed CNCDs as problems that occurred much later in one’s lifetime as a result of aging. Though some thought of these conditions as chronic, others viewed them as conditions that needed to be
medicated for only when one feels sick. For a country such as India where a large percentage of both rural and urban populations suffer from CNCDs, where the country’s Gross Domestic Product (GDP) is expected to be 4 to 10 percent higher than normal if the governmental expenditure for CNCDs is reduced, trying to help people with CNCDs, probably disproportionately urban, it is important to realize that awareness about how CNCDs are caused, how they can be avoided by undertaking preventative care, and why these health concerns should be taken seriously, needs to be addressed immediately.
CHAPTER 5

OF CHANGING PERCEPTIONS, COOKING IMPLEMENTS, AND DEORUKHE KITCHENS

Introduction

The role that cooking plays in affecting the food habits of a people is central for a study such as mine. On the one hand, the bodies of my interlocutors demonstrate certain patterns in relation to the prevalence of CNCDs. However, the ethnographic data from chapters 3 and 4 points to the fact that values and beliefs are also significantly affecting the lives of my interlocutors. In an attempt to gain a better understanding of the food habits of the Deorukhes, I ventured into their kitchens, the actual site where food is created. In doing so, I noticed that one important question arose in my mind. Is cooking losing its centrality as a total fact that incorporates belief, exchange, and kinship? This chapter demonstrates that changing perceptions about food and cooking as well as changes in the material culture of contemporary India are resulting in cooking becoming a disembedded part of life.

I began this dissertation with an ethnographic vignette of a woman cooking a special meal for her family as I interviewed and observed her. During the course of my fieldwork, I noticed that women found questions pertaining to food and cooking interesting and confusing at the same time. They assumed, at some level, that being born and brought up in India myself, I would have an inherent understanding of their cooking and eating habits. For example, if I questioned them about how they prepared a dish for the 24-hour food recall,
they would often respond by saying, “I started with the phodni, then I put in the vegetables, then salt and masalas”. Upon asking them to elaborate further on what was in the phodni, they looked at me and said, “you know, the usual.” It became clear that I would have to take a different approach to get richer ethnographic data. It was at this point that I decided to ask to enter their kitchens to watch them cook a meal.

Before entering their kitchen, conversations about food were rather perfunctory and unsatisfying for me. On the one hand, I was telling them about my research project which entails observing and measuring their bodies and activities to determine the presence of CNCDs. On the other hand, I was asking them questions about their food choices and their food preferences. Though they understood my reasons for studying these aspects together, they also often had a difficult time talking about food outside the bounds of their kitchen. This is not to say that food is never discussed by Indian women outside of their kitchens. Indeed, it is often a topic of discussion with their female friends and colleagues. Nevertheless, for some reason these women were having a tough time talking to me about their household food habits. In an attempt to find an easier way to get the discussion started, I asked these women if they could prepare any one meal so that I could observe their cooking techniques and their usage of the kitchen space. Little did I know how productive this request would be for my ethnographic observation.

Proposing to enter the kitchens of Deorukhe Brahmins opened up a plethora of dos and don’ts that I was oblivious to, up until then. In chapter 3, I
discuss the distinction that is made between raw and cooked food, as well as the regulation of the presence of strangers in the household kitchen. I soon realized that there were a multitude of differences in how kitchen spaces were conceived of by rural and urban Deorukhe women. An important factor that affected the women’s response was their perception of my lack of experience in managing a kitchen of my own. In Richards’ (1969) classic ethnography of the Bemba people of Rhodesia, she demonstrates through ethnographic vignettes that power and prestige is gained by women based on their cooking experience and expertise at running the household. Similarly, being an able householder who can run the kitchen thoroughly is expected of married Indian women.

The first time I visited my interlocutors, they could tell that I was not married. Since traditionally, girls in India live with their parents until they get married, women are not thought of as householders until they get married. Though rural girls have to learn to cook food at an early age, they are not expected to run the entire kitchen unless the older woman in the house is absent. Given that I belong to the same culture, I was conceived of as someone who knew how to cook but did not possess the know-how of running a full kitchen. My request for watching these women while they cooked was therefore met with general enthusiasm since I had not the experience with which I could judge their cooking skills or household management abilities.

This change of location from the living room to the kitchen also changed the dynamic between myself and my interlocutors. In the living room, with my data collection forms and my recorder, I was poised as someone who had more
knowledge and the ability to steer the conversation to topics that I knew more about since I was a PhD student. My position as a doctoral student who was carrying out fieldwork, was that of someone who knew more than they did about the subject at hand. All of that changed in an instant when I entered their kitchens. For rural Deorukhes, this was a time where I needed to be educated precisely in what I could and could not touch, where I was and was not allowed, and what was appropriate and inappropriate in the kitchen, lest my bumbling result in a much-feared corruption of the kitchen, which is a sacred space. For urban Deorukhes, this was a time to demonstrate what was commonly done in the kitchen on a day-to-day basis to someone who lacked experience in doing this as regularly as they did.

The second time I visited my interlocutors, they noticed that I was a newly married bride. They were also aware that I was still living with my parents during the course of my stay in India. This subtle shift in dynamic where these women were now the experienced ones who had the know-how in matters related to cooking, and household management, positioned me as their junior who was, to some extent, learning from them by observing them. This led me to learn more about the manners in which rural and urban Deorukhes conceive of their kitchens, the slow but sure change that is taking place in the food habits of rural and urban families, and the definite differences in the food preferences of young Deorukhe girls and their mothers. Since kitchens are traditionally sacred spaces that need to be safeguarded from corruption, in this chapter I will be discussing the changes that I noted in the urban and rural
Deorukhe kitchens. These changes are largely a result of the economic shifts that have taken place in India over the last two decades. As families move away from the villages and move into apartments in semi-urban towns and large urban centers such as Mumbai, their contact with non-Brahmins, and ‘outside’ food increases exponentially. Slowly but surely, there is a definite change in the food preferences and food habits.

In this chapter, I demonstrate the way Deorukhe conceptions about cooking, kitchen layouts, kitchen implements, and commensality differ from rural to urban settings as well as intergenerationally between mothers and daughters. Cooking, though considered an everyday mundane activity, has the potential to reveal symbolic and ritual concepts connected to food and living. In contemporary India, this means that ethnographic data on cooking patterns reflect the changing attitudes of people towards food, gender, power, and identity. The crux of this chapter lies in understanding not only that there are definite changes taking place in the food habits of the Deorukhe Brahmins, but that these changes are not purely dietary in nature. While dietary shifts occur, there are also definite changes occurring in the moral implications of what it means to cook and eat as a Deorukhe Brahmin.

**Rural and Urban Kitchens: Tussle between the Household *Chul* (Hearth) and the Gleaming Stainless-Steel Gas Stove**

Kitchens of semi-urban and urban Deorukhe households were set up considerably differently than those of rural Deorukhe households. The vast differences between the layout of a traditional village home and that of the
apartment complexes that proliferate in the cities and towns has already been discussed in chapter 2 of this dissertation. Tools used in completing any task are important because they demonstrate that certain bodily movements are necessary to use them effectively. As Ingold (2011: 56) states, “To describe the thing as a tool is to place it in relation to other things within a field of activity in which it can exert a certain effect.” Tools in themselves tell us stories and they tell us about the taskscape used to perform an activity. My ethnographic data indicates that the taskscape of rural Deorukhe cooking is not the same as that of urban Deorukhe cooking. And this demands further enquiry into how these taskscapes are affected by global flows of knowledge. More importantly, how are these taskscapes affecting the bodily activities of my interlocutors? To discuss this, I am going to use Sutton’s study of the tools and implements used in kitchens and what one can learn from this about transmission of knowledge and cultural embodiment (Sutton and Hernandez 2002, Sutton 2014).

Traditional rural Deorukhe kitchens typically have a chul (cooking hearth), that consists of 2 stove tops. These hearths are located on the floor and have significant religious and cosmological importance. As demonstrated in chapter 3, protecting the sanctity of the hearth is vital to rural Deorukhes and affects even their day to day conversations, as in the case of Prisha’s grandmother and the Deshpande mother-in-law who enquired after the ritual cleanliness of her daughter-in-law as she entered the kitchen to prepare naivedya for that day.
Preparations for the meal, cutting, peeling, chopping, and grating are done using the traditional cutting board called *vili*. The pots and pans that are used to cook in are usually made out of aluminum or stainless steel. If used on the *chul*, these are covered in white paste at the bottom. This paste is made out of the ash from the hearth. Utensils are treated in this manner so that the bottom does not get covered with a thick layer of soot as they come in contact with the open flame of the *chul*.

*Chuls* are u-shaped stoves made from local clay and plastered with the earth found in household yards. These *chuls* are built on the floor and require women to cook sitting close to the floor. With the exception of two rural households, every household had a gas stove in addition to the *chul*. Households in towns do not have a *chul*. In fact, unless people lived in interior rural villages, *chuls* were not to be found in their kitchens. This was explained away by my interlocutors as being logical since urban apartment construction diverged significantly from the construction of traditional rural houses. *Chuls* therefore, were only present in the kitchens of rural Deorukhe households.
Figure 5.1: A chul (hearth) in a rural kitchen
Figure 5.2: Using the vili to cut up alu (colocasia) leaves and stalks

The presence of a chul did not necessarily mean that it was used as a primary stove for cooking everyday meals. In fact, many of the young girls told me that they preferred to cook on the gas stove rather than the chul. As I watched Prisha’s grandmother preparing the meal on that day of Angarika Chaturthi (refer to Chapter 03), it sparked my interest. Sitting on the floor, she was starting to fire the chul. While I was busy helping her grandmother, Prisha walked by the kitchen and noticed my obvious excitement.

Prisha: Aaji always cooks on the chul, she prefers it to the gas stove

Gauri: Do you and Aai not cook on the chul?

Prisha: No, it is a lot less trouble to cook on the gas stove.
Prisha then went on to relay to me the multitude of rules that had to be followed when using a chul. As I traversed from one household to another, I realized that several of the young girls and also many of the women echoed Prisha’s sentiments about the hearth. I asked them to explain to me the rules that make using the chul far more complicated than using a gas stove.

**Chul: What does it symbolize?**

Traditionally, the chul, just like the shrine, is the spiritual center of the house. It is precisely the presence of the chul in the kitchen that makes the kitchen a sacred space. This is why, entry of anyone who is capable of corrupting the hearth must be monitored at all costs. Why is the chul so sacred? The chul is sacred because it is the home of the God of fire – Agni. Agni is that which purifies the raw into the cooked, thus transforming it from that which is impure to that which is pure. This is much reminiscent of Lévi-Strauss’ (1969) discussions about the socialization of food from raw to cooked so as to make it worthy of consumption. As the center of the house, the chul holds an important place in the household rituals because that is where the food that is offered to the Gods is cooked.

The chuls in rural Deorukhe households are between 2 to 3 feet in height. These are made from the local clay – that sticky red earth which is so distinct to Konkan. This clay constructed chul is then coated with a mixture of cow dung and water. Finally, the hearth is plastered again with the sticky red earth from the family’s yard. To understand the chul in a traditional sense, one must comprehend the religious symbolism behind it. The chul must be ritually
purified on a daily basis. This household hearth is a symbol of the unity of the family. When a family eats together and lives together, they often speak of ‘eating from one chul’. The discussions about the hearth symbolizing the unity of the family have been mentioned by scholars who have studied traditional joint family structure which continues to prevail in rural India. Eating from one hearth means that the family has a joint structure. In such a joint family, it is usually the eldest male, the patriarch, who controls the family income, expenditure, and institutes the rules for the household (Cohn 1987, Kolenda 1968). As Cohn (1987:310) states, “Those who take food from the chula form the commensal group…” When the number of family units increase, the chul is often used as an indicator. To say there is more than one hearth burning, therefore indicates, a separation of family units (Kolenda 1968, Balfour 1871).

Deorukhes in the village have strict rules about when to approach the hearth and how to use it. If used, the hearth should be re-plastered with wet earth at the end of the day before closing the kitchen. Food, in a small quantity, should be offered to the hearth after the cooking is completed, before the family consumes their meal. If the hearth is fired, it cannot be empty. A fired hearth should always have at least a pot of water on it, until the burnt embers have been extinguished.
These rituals pertaining to the hearth are not unique to the Deorukhes. In her book about Indian architecture, Thapar states, “The cooking hearth, known as the *chulha*, the purest space in the traditional house” (Thapar 2004: 30). The hearth is viewed by the Thakkars, a tribe living in Maharashtra, to symbolize the body of *Agni*. The ash in the hearth is seen by them as the body of the Sun God (Tribhuwan 2005). The ritual cleansing of the hearth after its use is also commonly practiced in rural Indian households (Thapar 2004, Tribhuwan 2005).

Given this background and knowledge of the special place that the *chul* holds, it is interesting to note that many Deorukhe women, both rural and
urban, prefer to use the gas stove instead. In the battle of the chul and the gas stoves, the gas stoves inevitably emerged successful. Returning back to my conversation with Prisha that morning, she divulged that her mother uses the chul only to cook on special occasions since. “There are no such rules when it comes to gas stoves” she said to me as she started preparing coffee for both of us on the gas stove.

**Differences in Urban and Rural Kitchens**

The hearth, though inconvenient to cook on, according to most rural participants, was also the key to the tastiness of rural Deorukhe food. This sentiment was also echoed by urban Deorukhes. When asked about the difference in the food cooked in the villages and those cooked in the cities, Deorukhes in the cities would often tell me that the taste of rural Deorukhe foods could never be recreated in urban spaces because there were crucial differences. While contemplating on what makes rural Deorukhe food so distinct Shobhana said, “You know, their food is simple and yet it is delicious. There are three main reasons for that. One, their food is freshly picked from the fields, unlike produce in Mumbai, which is several days old by the time it reaches the market. Two, the water of Konkan has a taste of its own. Cook anything there and it turns out delicious. Try cooking the same thing here and it tastes so bland! Third, we have no chul here. Food cooked on a chul has its own distinct flavor. One cannot recreate that flavor on our gas stoves.” Much akin to Georgia Vourneli’s frustration of trying to recreate an authentic Greek meal in a Southern Illinoisan kitchen, without her usual implements, urban
Deorukhes often comment on their inability to recreate authentic tasting traditional Deorukhe foods in their kitchens (Sutton and Hernandez 2002).

Kitchen set up in towns and cities is vastly different than the set up in rural villages. Kitchens in the villages require women to cook sitting on their haunches. The ground is used extensively. People in the villages often told me that their kitchens were simple and not as fancy as the city kitchens. Where I found mud floors smeared with cow dung in the villages, I saw tiled floors in the cities. It became very apparent that the availability of counter spaces is a later introduction to Indian kitchens, probably a result of colonial interactions. Much akin to traditional Kalymnnian kitchens which are devoid of counter spaces (Sutton 2014), rural Indian kitchens had counter spaces only to hold gas stoves. And this space was only used when the woman cooked food on the gas stove. For all over purposes, especially processing of foods, it was floor that was used.

While I saw hearths and often times even gas stoves located in the floors in rural kitchens, I found laminate covered cabinets and granite counter-tops on the cities. Rural kitchens have a closer connection to being a center of purity where kitchens in the cities serve the purpose of convenience. Commenting on the changes taking place in Indian kitchens today, Chaubey (2013: unpaginated) states, “Where the modern kitchen is best suited to meet the needs of an increasingly convenience driven household, the traditional kitchen addresses more than just functionality. It is a revered space, rarely disconnected from its local moorings. It speaks of the ideas and thoughts that
are relevant to its users, more often than not, dwelling in the realm of the sacred and the mystic as opposed to strictly scientific like most of our modern kitchens.”

*Figure 5.4:* A typical rural kitchen

The need for convenience is precisely because as urban Indian women enter the workforce, they need spaces and implements that make it faster to cook with more ease. “The women in rural Konkan don’t spend 8-10 hours outside the house like we do” Girija said to me when asked about her cooking habits. She expressed her wish to spend more time cooking, which according to her, was a benefit she did not enjoy thanks to her job commitments. “They have no time restrictions, they live a rather relaxed life” she said. But she went
on to clarify that this did not mean that life for Deorukhe women is in the villages was easier by any means. She mulled over the lack of resources for these women and the need for them to cook everything from scratch. “Now-a-days they at least have basic implements like mixers but their cooking entails far more physical labor than ours does”. She went on to explain that this was because in Mumbai one could hire maids to help out with housework, an option that was not always available to rural Deorukhe women.

**Cooking Implements: What do they mean?**

My conversations with Deorukhe women brought two main questions to mind. What exactly does convenience imply in the kitchen? And why are non-traditional kitchen implements seen as convenient? From whence came the idea that food processors, western derived cutting boards, ovens, and blenders are better implements to use for faster cooking? The answer lies in the veritable explosion of cooking channels all over India, a trend that has gained traction in the past two decades. Where once there were one or two cooking shows airing every week, there are now multiple channels that play food shows 24x7. While cooking shows in the past demonstrated how to cook Indian foods from different parts of the country, modern cooking shows go beyond that and also air shows that discuss cooking international foods, especially European, American, and Asian foods. The cookbooks that were so popular in the 1990s (Appadurai 1988), have now become displaced with cooking channels that showcase cuisines from all over the world. So entrenched in the minds of the people is the idea that gas stoves are far more convenient, that one rural
Deorukhe woman, commenting on the lack of a gas-stove in the house of another, told me, “I feel really bad for that poor woman. Imagine having to cook everything every day on the chull”.

Apart from media messages about what one should aspire to have one’s kitchen look like, shopkeepers also play a large role. Upon the completion of my fieldwork, I went to buy some Indian cooking utensils to bring with me to the United States of America. I asked the shopkeeper for a traditional iron tawa (skillet). Before I could complete phrasing my request, he had pulled out 5 non-stick Teflon coated skillets which he emphatically told me were better than the traditional kinds which the food sticks to. When I insisted that I wanted to buy the traditional kind, he sighed and told me, “Madam, I don’t have a lot of pieces in my store, they don’t sell as well as the new non-stick ones do. But I guarantee you, you can make just as good, if not better foods on this non-stick tawa”. Kitchen ware shops in Mumbai work hard to showcase the latest ware and they stock major brands which spend a considerable amount of money advertising.

In the tussle between gas stoves and traditional chul, the Indian government’s campaigns have also affected people’s perception of the chul. In 1984-95, the Indian government began the National Program on Improved Chulha (NPIC). The NPIC program was created with the intention to give funds for research and development to create a chulha that would not only effectively use wood and bio-fuel, but would also help reduce the smoke emissions that negatively affect the health of rural women. Rural Indian women often spend
hours cooking on a *chul* in kitchens that are not well-ventilated. This affects their respiratory health negatively in the long run. The Indian government also hoped that this project in turn would reduce the rate of deforestation (Hanbar and Karve 2002, Smith and Sagar 2014). The NPIC initiative is on-going in the present day. The program seems to have made slow progress since its inception, thus resulting in frustrated researchers suggesting that the Indian government focus on making LPG (Liquified Petroleum Gas) cylinders and electric stoves more available to the 700 million Indians who continue to cook their daily food on *chuls* (Smith and Sagar 2014). In December of 2009, the Indian government took up another initiative called the National Biomass Cookstove Initiative. The government announced that this program “is intended to provide cleaner, more efficient biomass-fueled stoves to rural communities” (Alder 2010: A127). The Indian government’s efforts to diminish the number of *chuls* have to do with the number of health issues caused as a result of inhaling smoke from the *chul*, and to ensure that the rates of deforestation and pollution are reduced in the future (Hanbar 2002, Smith and Sagar 2014). In the recent issue of National Geographic (August 2017), there is a whole article that cites the concerns and health issue that Guatemalan people face as they cook over open fires (Nijhuis 2017).

As I observed rural women cooking, I would often comment on their kitchen ware. Many a times this prompted them to show me the tool and demonstrate how it was used. It soon became apparent that kitchen tools and implements were a part of the family’s history. Ingold considers tools as stories,
ones that are emblematic of not just the practice of using them, but also of the past and the present (Ingold 2011). The *chul*, for example, was a living memory of the older times, set up by ancestors and maintained over the years. Quite a few women could not recall when certain kitchen implements were bought or how old they were. “This has been in our family for many generations” was commonly voiced when asked. While urban Deorukhes were used to buying packaged flours and masalas (spice mixes), rural Deorukhes took pride in continuing traditional manners of preparing flours and spice mixtures from scratch. Some of the spices were grown by families in the garden adjoining their house.
One evening as Meena *kaki* and I were returning home from an interview she started telling me about how she prepares masalas. Taking me to their cow-shed, which is now used as a store house because of the lack of cattle, she showed me the *jaate* (grinding stone) that has been in her husband’s family for generations. “I prefer to make my masalas at home. Once a year I gather all the ingredients and hire lower-caste women from the village to come and grind the masalas on the *jaate*”. While visiting another rural household I commented on a curious looking iron stand with a handle and a tip on top. I had never seen
an instrument of that sort in the kitchen. I was soon informed that this was an instrument especially made to de-husk coconuts. Almost all rural households had a mortar and pestle in their house despite owning electric mixers and grinders.

![Mortar and Pestle](image)

*Figure 5.6: Mortar and pestle in a rural kitchen*

Rural Deorukhes told me that they often preferred to use traditional cooking implements such as *vili* (cutting board), *chul*, and *jaata* (grinding stone). They specifically liked to use them since they have a historical importance and have been a part of their married families for several generations. Urban Deorukhes on the other hand commented on their inability to use such implements due to lack of time and also due to their inability to
transport these materials from the villages to the cities. More interestingly, traditional tools used in the Deorukhe kitchens were also often said to be strenuous to use. The idea that rural Deorukhe women spent hours preparing food, something that occupied a large part of their day, was seen as impossible to do by urban women. While rural kitchens were literal workshops of the Deorukhes (Sutton 2014), urban kitchens were spaces entered for a few hours before going to or after coming back from their jobs. This change in attitude towards cooking, and the delegation of cooking tasks to the household help in urban settings, is important to note. Finally, traditional kitchen implements were considered, by both urban and rural Deorukhes, to impart special qualities and taste to the food.

Differences in urban and rural kitchens also account for distinct patterns of physical exertion. Both the chul and often gas-stoves were located on the floor in rural kitchens. Most rural kitchens have counter-tops, and some had the gas stoves located on these counters. Rural women, more often than not, make use of the kitchen floor for cooking, chopping, peeling, grating, and preparing meals. A low stool that sits 2 to 3 feet from the ground is often used to cook at the chul. This pattern of movement is categorized as physically more demanding by urban interlocutors and some rural women as well. And so, cooking on her chul, Prabha complained, “My knees hurt because I have to constantly do so much getting up and sitting down (uthne-basne). Sometimes I wish I had a gas stove so it would be easier on my back and knees”. Urban
Deorukhes often commented on the physically exerting lives of rural Deorukhe women.

In general, in the tussle between the gas stove and the *chul*, the general consensus was that the gas stove emerged victorious. Almost all of the participants were of the opinion that the gas stove was more convenient than the *chul*. And yet there were those who thought otherwise. Sachi, her husband, and their daughter live in Mumbai. Sachi’s husband travels to their ancestral village where they own land every weekend. They run an agro-tourism project and a bed and breakfast at their ancestral home. “Food cooked over the *chul* is so much healthier and has far more flavor. I learnt how to cook on a *chul* and I enjoy it immensely” she told me when I asked her if she knew how to cook food on a *chul*.

Vaishali was brought up in Mumbai Metropolitan Area (MMR). She moved to Taregaon after her marriage. Vaishali says she prefers to use a *chul* to a gas stove. Cooking at their household *chul* while I was talking to them one rainy morning, she and her sister-in-law, both of whom were brought up in the MMR tell that cooking at a *chul* is far more preferable. “Who wants to stand for hours cooking at a gas stove on the counter top when you can utilize the floor, sit on a stool comfortably and cook at the *chul*? When I first moved here after marriage, it was a bit difficult to understand how to use the *chul*. But my *sasubai* (mother-in-law) taught us to use the *chul*. Now I find it more convenient to cook using the *chul* rather than the gas stove”. Agreeing with Vaishali her sister-in-law said, “Now we are so used to cooking over the *chul*
that it is inconvenient to cook over the counter-top using a gas stove when we visit our maiden family’s house. It hurts our backs to cook like that, standing up all the time and leaning over the counter top.” Intrigued by their responses I asked Vaishali as she was cooking, how they can control the flame at the hearth? “Many women tell me they prefer the gas stove since it is easier to control the flame” I said to her. Scoffing at my statement Vaishali pulled out a log of wood from the chul and said, “There, lower flame. It isn’t difficult at all to control the flame at a chul”. In the general sense, most Deorukhe women agreed that cooking on a gas stove was more convenient, and yet here was Vaishali, telling me that cooking on a chul was just as easy as cooking on a gas stove. In fact, she asserted that as she had not only adopted, but also adapted traditional cooking techniques, that these techniques were better. Similar to Sutton’s Katerina who insists on opening a can with a knife while owning a can opener, Vaishali insists that cooking over the chul is just as good, if not better, for the body. As Sutton (2014: 63-64) states, “In this case, however, it is also clearly not an unconscious habit, as typically described by Bourdieu, but one that in this case has generated a discourse of old and young, traditional and modern, in the kitchen as approaches toward life.” Perhaps, coming from the MMR, having cooked on the gas stoves growing up, and now living in a village, Vaishali has a perspective where she values her embodied skill of cooking on a chul more than most rural Deorukhe women do. Or perhaps, this approach makes her more relatable and endearing to the women in the village who might view her as someone perched higher than them in social standing because she
moved to a village from an urban region. Whatever the case, the preference that Vaishali and her sister-in-law showed for the *chul* was surprising as well as interesting.

While Vaishali and her sister-in-law were cooking on the *chul*, their mother-in-law was making breakfast on the gas stove. “You do use the gas stove on occasion?” I asked them. “Yes, right now we are preparing lunch and my daughter needs to eat breakfast. Since the *chul* is occupied right now, my *sasubai* is using the gas stove. If we need to make something quick like *chai* (tea) we usually use the gas stove. But on a daily basis we cook our meals on the *chul*.” Vaishali went on to tell me that not only did the food taste better when cooked on the *chul*, but also using the *chul* to cook daily food made more economic sense. “We are a family of 10 people. Using the gas stove proves to be too expensive in the long run. The *chul* needs wood. We don’t need to buy wood, it is found in our yard. So generally, it just makes more sense to use the *chul*”.

The one question that arose in my mind as I traversed from rural to urban households, and back, was, if people in the villages prefer the gas stoves, why do they not stop using the *chuls*? In my experience, two factors affect this. One, as opposed to gas stoves which are bought from the store and place wherever necessary, the *chuls* are built into the houses. Hearths are not portable and therefore remain a part of the kitchen until the space is renovated. Secondly, access to LPG cylinders is difficult in interior rural villages. LPG tanks have to be bought every few months from the suppliers.
This means that on days when one runs out of gas, and a replacement cylinder is not readily available, the *chul* is always available. The fuel needed for the *chul* comes from one’s own land. Though the *chul* lacks the convenience of a gas stove, which can be turned on and off at will, it makes up for it by being a structure that can be fueled without any extra cost whatsoever. This is in line with why so many rural people the world over prefer to cook food over wood stoves, rather than using special stoves. Addressing the situation for the Pérez family in Guatemala, Nijhuis states, “The problem isn’t that the family lacks a functioning stove. In fact, the aluminum-sided kitchen—part of a compound that shelters 45 extended family members—contains three. But the two-burner gas stove is out of fuel, and the Pérez family can’t afford to fill it.” (Nijhuis 2017 unpaginated). The only rural household I encountered which did not have a *chul* was that of a family who had split from being a joint family to a nuclear household. When I asked the woman about the absence of a *chul*, she told me “I would have built one for this kitchen but I see no need for it since we use the dung of our cattle to create our own *gobar* gas (a renewable biogas made primarily from the dung of livestock, especially cattle and compost) which fuels our gas stove. Since we don’t have to buy gas cylinders from the suppliers, it is quite affordable”.

In terms of kitchen layouts and kitchen implements, it is clear that there is a slow but steady shift in the attitude of rural Deorukhes. Gas stoves are being preferred over *chuls* for daily cooking, western cutting boards are being preferred by the younger generation over traditional *vilis*, granite counter tops,
and laminate covered cabinets are becoming more common. After one long day, Meena *kaki* looked at me and said, “Someday soon we are going to renovate my kitchen.” Surprised at her sudden exclamation I asked her why she felt the need to change her kitchen? We had just returned from visiting one of the town households. I asked her what specifically she wanted to change about her kitchen. “Specifically, the floors. I want tiled floors, I am tired of having mud floors. They are hard to maintain and no one wants to do the work of constantly keeping them up by smearing them with cattle dung. Also, I need more counter space and it wouldn’t hurt to have nice laminated cabinets” she told me. Is this change restricted to the material culture, or does it fundamentally affect conceptions about food and cosmological meanings connected to kitchens and cooking implements? I believe the shift is slow but definite. Gas stoves don’t demand ritual cleansing but that does not mean rural and women from towns still venture into the kitchen to cook while they are on their menstrual period. On the other hand, in urban contexts sacred spaces that are deemed unapproachable during the menstrual period have shrunk down to the family’s shrine. Here kitchens are not only accessible but are completely used by women even during their monthly menstrual period.

**Changing Perceptions about Cooking**

How does cooking affect the transmission of the knowledge of cooking? In chapter 3, I mentioned the drastic differences in the cooking abilities of rural and urban Deorukhe daughters based on whether the families practiced menstrual seclusion. In this chapter, I would like to discuss this further in the
context of kitchen tools, kitchen set up, and the families’ varying attitudes. Before we begin, it is absolutely important to recognize that Indian kitchens are gendered spaces where women are expected to cook and be the gastronomic providers of the household (Appadurai 1981, Appadurai 1988, Jassal 2012, Solomon 2016, Srinivas 2013). Given this background, young Indian girls, rural and urban, are verbally told that they are expected to run the household kitchen and provide for their family when they get older and when they get married. I noticed significant differences in preferences of the younger generation in terms of what they would like to cook and which cooking implements they find more appealing. Rural Deorukhe daughters are proficient when it comes to cooking traditional foods as result of being trained to cook these foods from a young age. Despite that, they vocalize their interest in learning to cook non-traditional foods, especially Punjabi and Chinese food. Their families allow them to experiment and cook these dishes on for special occasions.

Rural Deorukhe women were very much clear that their daughters had to learn to cook as they were growing up. If a mother-in-law and/or a sister-in-law who could manage the house in the absence of the woman was not available in the household, the expectation for girls to be trained at an early age to be good cooks was even higher. In regard to this attitude, urban families diverged from their urban counterparts. Though urban girls were often told that they need to eventually learn how to cook and be good householders, the pressure to be able cooks starting from their teenage years was absent.
Discussing her own cooking abilities, Sachi told me, “I don’t bother Saroj to learn cooking at this age. She can cook if she feels like it but I don’t think it is something that she needs to learn right now.” According to Sachi, this is the age when Saroj should focus on getting good grades and choosing a career. “She will have plenty of time to learn how to cook in her later life.” Sachi recounted that her own mother never forced her to learn cooking either. She learnt proper cooking after she got married. “My mother always said, you have your whole life to do that. Right now, pay attention to your education. I am in agreement with her sentiments. I think Saroj will pick up cooking when the time comes, just like I did.”

An overwhelming majority of young Deorukhe girls reflect on cooking as a chore that they do not enjoy. Most of them express their disinterest in preparing traditional Deorukhe food every time they cook. In her book about the Mexicano community in Southern Colorado, Counihan (2009) talks about the importance of cooking in the lives of those women. More importantly, she demonstrates that cooking is simultaneously oppressive as well as empowering for these women. Many of her interlocutors complained about cooking being a burden in their lives. “Women have usually valued cooking, whether they shouldered it themselves, but it represented challenges to their agency. It stood for all the domestic chores that were defined as their responsibility, whether they wanted them or not. It has presented burdens that they have to discharge and the potential oppression of gender expectations that they could skirt but never totally escape.” (Counihan 2009: 114-115)
21-year-old Maithili told me that she usually helps her mother in the kitchen. She can also cook traditional foods in the absence of her mother. “But if you ask me what I like to cook, it’s all the ‘fun’ foods. I make pizzas, pastas, mushroom bhaajis, and Chinese foods. I just look up the recipes online and prepare them. I even teach Aai how to make these dishes. Everyone at home enjoys eating the foods that I make. And I love baking cakes as well.” Nodding at her daughter’s response, Swara tells me that thanks to the internet the new generation can just look up recipes to make. “I don’t want to squelch her interest in cooking by forcing her to cook only traditional foods. I like to encourage her so that she can experiment in the kitchen and enjoy cooking.” Maithili was not the only young Deorukhe girl who had verbalized the wish to cook ‘fun’ foods.

Young girls preferred gas stoves to chuls, both in the cities and the villages. When I asked Sakshi, who has grown up in Mumbai and occasionally travels to the village to visit her paternal aunt, uncle, and cousins, if she knew how to cook food on the chul, her retort was, “I wouldn’t even know how to light a chul, let alone cook on one! I would much prefer gas stoves, they are easier to use.” Young girls, mainly urban young girls view cooking as an art that cannot be mastered without the right implements. Much of this opinion comes from their exposure to Indian food channels and magazines that discuss cooking in technical gastronomic terms.

While visiting a semi-urban household once, I observed Sandhya and her 17-year-old daughter Shambhavi cooking dadpe pohe (a snack dish made out
of flattened rice, grated coconut, chilies, onions, and lemons). I commented that the last time I had visited Shambhavi had prepared the bhel (snack food made out of puffed rice, roasted or fried lentils, raw onion, lentil noodles, roasted peanuts, and chutneys made out of chilies, cilantro, dates, and jaggery) that was offered while I was visiting them. “It is all dependent on her mood. Whenever it strikes her fancy, she will prepare whatever she feels like making. If she is not in the mood, she will not cook” Sandhya said as she chuckled at the memory. This time as well Shambhavi was helping Sandhya in the kitchen. Noticing her using the cutting board to cut onions I asked her if she had ever used the vili. “I have tried using the vili in the past but I don’t like using it. I prefer cutting boards. Vilis don’t allow for fine control over what you are cutting. I have heard that cutting boards and good knives are better to use” she said as I observed her carefully cutting the onions on their granite countertop.
Laughing at her daughter’s statement, Sandhya said, “You don’t need fancy chef knives to be able to mince onions, all you need is practice. A *vili* is just as good a cutting tool.” Since Sandhya realized they were in need of more minced onions, she pulled out a *vili* and started cutting onions a few minutes later. “*Vilis* allow for just as much fine control, if you ask me. I prefer *vilis* to cutting boards. But since she wanted to use a cutting board, I bought one for her so she can use it when she cooks.” In this case, it is obvious that cooking tools that are preferred by the younger and older generation have as much to do with what they represent as the convenience of using the said tools.
Similar to Sutton’s Kalymnian subjects, some who prefer modern tools and others who prefer the traditional ones, my interlocutors also display a preference, one that changes from the mothers to the daughters. What does this preference of certain cooking tools demonstrate? Sutton (2014: 73-74) states, “...an approach that follows the tools and their users can reveal aspects of this enriched world that one might otherwise miss, from the importance of preparation methods that orient the body toward the surrounding social environment to the significance of tool and kitchen design choices...” These choices are indicative of how people wish to strategize their identities in a globalizing world. Beyond their apparent use, tools are also emblematic of, as Sutton (2014: 73-74) puts it, “...ideas about the traditional, the modern, and
the role of prospective memory in orienting people temporally in relation to their cooking practices.”

In October of 2014 I visited the boisterous 13-year-old Sakshi and her mother Suma in Mumbai. I asked Sakshi if she liked to cook since that day she was helping her mom prepare dosas (rice pancakes). She told me that she can cook dosas, maggi (instant noodles by Nestle brand), and chai. “I need to be in the mood to cook, it is all about my mood!” Sakshi said. Suma told me that Sakshi likes to try cooking different foods from recipes that she gets from her friends. I asked Sakshi about which friends she gets her recipes from. She told me about one friend in specific who, according to her, makes amazing food. “My friend Nisha loves to cook, and she wants to become a chef. She keeps talking to us about food. She knows the right terminology.” Sakshi’s friend Nisha got selected to cook on the Junior MasterChef Swaad Ke Ustaad show (an Indian version of the British show MasterChef which airs on the channel Star Plus). “She doesn’t cook normal Maharashtrian cook, she cooks foreign foods. She loves cooking desserts and so do I. I try her cake and mousse recipes.”

When I asked Sakshi if any of her friends know how to make normal everyday food which their moms make at home, she giggled and said, “Nobody is interested in learning how to make everyday food!”

In urban India, as youth get exposed to the multitude of cooking shows and cooking contests, everyday home cooking emerges as a boring backdrop against which global cuisine stands out sharply. Sakshi was not the first young girl I had met who had told me that she was no interested in learning everyday
cooking. For most urban Indians youth, having the opportunity to cook and eat a variety of foods is indicative of the fact that India is now a part of the modern world. Young informants from Caplan’s (2009: 286) study often mentioned that the most important aspect of the introduction of new foods into the Indian market was the fact that, “they could eat, if they chose to, like the rest of the world”. The glamor of eating non-traditional foods looms heavy on the youth of India. Thrift (2010) makes the argument that the historically glamorous personas in society were the aristocracy. In a similar manner, one can argue that historically Hindus aspiring to achieve a high caste status as Brahmins may have attempted to change their diet to attain a higher social status.

Nevertheless, in modern India, glamor and allure are highly influenced by India’s colonial past as much as by India’s economically liberalized present. In this economically liberalized India, tiled floors take precedence over mud floors, gas stoves, ovens, and microwaves are preferred over the traditional chuls, and for the youth, cooking and kitchens becomes spaces where their identities need to be created by literally creating and consuming ‘modern’ and non-traditional foods.

**Cooking and Commensality**

Commensality is the practice of eating together. Sobal and Nelson (2003) broadly describe the term as consuming foods with people. When groups eat together, this also often indicates the social relationships of the individuals involved (Sobal and Nelson 2003). Often enough, commensal groups can be inclusive or exclusive, demonstrating social hierarchies and social dynamics.
(Fischler 2011). Therefore, when discussing cooking, it is pertinent to discuss how changing cooking patterns might affect commensality.

One wintry evening I went to visit Sheela and her daughter Sana in the village of Vanegaon. There was another household (Aruna and her daughter Sarita) I was going to visit in that village, the very next day. Sarita was soon to be married to a young priest residing in the MMR. When I reached Sheela’s house for my visit, her mother-in-law told me that she was in Sarita’s house. “You can go look for her there if you want” she told me. I proceeded to the house which was separated from Sheela’s house by only two houses. I entered Sarita’s house to see a sight I was not prepared for. Every Brahmin married woman in that village was sitting there. They all sat in a circle laughing, chatting, and rolling out *papads* (A thin disc shaped flat bread made from seasoned lentil flours. These are dried after being rolled out, and served fried or roasted as an accompaniment for a meal or as a snack by themselves).

When I entered the house Aruna welcomed me. Amazed at the sight I enquired as to what was happening. “We have started preparations for Sarita’s wedding. The ladies from the village have to help.” I was surprised to see rows after rows of drying *papads* spread out on the floor. “You are making *papads* for the wedding?” I asked. “Yes, *papads*, *ladoos*, and *chivda*, to feed the wedding guests when they come for the celebrations.” (*Ladoos* are ball-shaped sweets made out of flours, sugar, with other flavorings added to them. *Chivda* is a savory snack made out of flattened rice or puffed rice, roasted lentils, peanuts, chilies, and curry leaves).
The ladies got done and started to disperse as we were speaking to each other, each taking with them the *latna* (rolling pin) and *polpat* (round board with a stand, on which the *papads* were being rolled) that they had brought with them. I was offered a piece of *papad lati* (a piece of the unrolled seasoned *papad* flour), an indulgent delight that household members snack on as women sit rolling out the *papads* together.

*Figure 5.9*: Brahmin women from the village gathered to make *papads* in Sarita’s house
Figure 5.10: Sarita and Sheela laying out freshly rolled out papads to dry.

Sheela picked up her latna and polpat, apologized for making me wait and we left Sarita’s house to walk back to Sheela’s house. As we got situated in Sheela’s kitchen with a cup of freshly made hot chai, she told me that she was suffering from some health problems. Her blood tests as prescribed by the doctor showed that her white blood cell count had lowered. “I feel tired and sluggish these days.” She went on to tell me that she had lost some weight since we last met, a claim that my weighing scale confirmed when I took her measurements for that visit. The doctor had prescribed Sheela rest, but she told me that she could not rest. “I have little time to rest these days. Sarita’s wedding is around the corner and all the ladies in the village must help out for the wedding. She is a dear girl and we are neighbors, it is our duty to help out
at such a time.” Sheela went on to tell me that there would be no time to relax until the wedding had taken place the next month.

A feature of commensality is that it involves duties that must be fulfilled if one is part of the commensal group. “It can involve a sense of sharing food habitually, with an assumption of some degree of dependence of one or several of the commensal parties upon one another, or some degree of reciprocal commitment/involvement” (Fishcler 2011: 533). In this context, Sheela felt compelled to help prepare for Sarita’s wedding. This was not only her duty but also an honor because only the married Brahmin women of that village were allowed to help for the preparations. The inclusiveness demonstrated that Sheela was a part of the high caste group of that village. This is a group which not only eats together, but also cooks together and members of which help each other out in times of duress. The exclusiveness was indicative of the very clear caste hierarchy as well as the obligations of a married woman to her community. As the daughter-in-law of her married household, Sheela was expected to fulfil this duty because it affects the family’s reputation, and also because she would expect the same from her neighbors when her own daughter would get married in the future.

These community ties that are ever present in rural villages, are distinctly absent in towns and cities. The claims of my urban interlocutors ring true when they claim that they do not have the support system that their rural counterparts do. In the urban setting, there are familial networks and close ties
with neighbors, but these do not extend to this degree and are nothing similar to the close-knit relations enjoyed by the village communities.

A few weeks later I was trying to schedule appointments for my last visit to the households in Targoan. When I called my interlocutors, I was told specifically that none of them would be free to meet with me before December 1st. I was informed that there was a wedding taking place in the village. “Tai, you better come after December 1st. No one is free before that day. Aisha’s (one of the daughters of the household I was going to visit) paternal cousin is getting married and we are all busy preparing for the wedding” Prisha relayed to me over the phone. Accordingly, I took an appointment to visit them on December 2nd.

There was in imperceptible lull on that day in Taregoan. Almost every household I visited was relaxing and recuperating from the wedding celebration. Prisha excitedly told me about the fun they had at the wedding as her mother Sheila vocalized a sense of relief at the completion of the wedding rites and rituals without any obstacles. At the next household, I was greeted with a cup of hot chai. Vaishali went on to inform me that she and her sister-in-law had catered the entire wedding. They were relieved that the food was well received and that the rituals and celebrations had come to an end without problems. I finally proceeded to Aisha’s house.

Aisha and her mother Arpita welcomed me. Arpita told me she might have to take a nap as soon as we were done with our interview because she was very tired. As I entered the yard, I found that the wedding pandal had not
yet been taken down. Giant pots and pans glinted in the afternoon sun as they sat drying on a mat in the courtyard. “I hear it was your cousin’s wedding” I said to Aisha. “Yes, it was my dada’s wedding” she replied. She went on to explain that her older male paternal cousin had gotten married which meant a new vahini (sister-in-law) had entered the family now. When I had first met Arpita, she had told me that three years after her marriage their joint family had split into two separate households. Her in-laws lived with her older brother-in-law and his wife along with their children. One of these children was the one who got married. Discussing the household dynamics, she said, “We split the original house by putting a wall in between. We occupy the same land and live under the same roof but there are two kitchens and two households now where there was one before.” On that wintry afternoon, I noticed that Arpita was sniffling throughout the interview. Upon enquiring after her health, she said, “I am extremely tired. I have been so busy helping out for the wedding. After all, it is a household wedding (gharche lagna), I have duties to fulfil as a sister-in-law, a daughter-in-law, and as the groom’s aunt.” After talking to me for a small time Arpita got drowsy and finally fell asleep as I continued my conversation with Aisha.

In the contemporary world which is believed focus more on individualism, Mennell et al. (1992:116) raise concern about a decline in commensality as a direct result of “increasing tendencies towards individualization”. In his historical analysis of how the culture of dining out began in the metropolis of Mumbai as a result of colonial influences, Conlon
(1995:92) brings to light the fact that members of different castes eating at one place was very much against the traditional values of Hindu orthodoxy. “Hindu ideological concerns for commensality and purity thus contributed to anxiety regarding the provenance and purity of food consumption – matters that are not subjects of inherent certainty in places of public dining”. This fear of contamination continues to be imminent in the minds of my rural Deorukhe interlocutors. The best way to combat this threat, accordingly to them, is to ensure that all the foods they consume are made by people within their commensal group. Food preparations by family members and members of the village community greatly diminishes this threat. But how does this affect people living in the cities?

People in Mumbai definitely do not eat all by themselves. Commensality continues albeit in very different settings. That winter Madhulika’s daughter Manvi was also getting married. They lived in Mumbai and wedding preparations were in full swing for that family as well. When I visited Madhulika after her daughter’s wedding, I was curious to hear about to hear about the wedding preparations. Probing Madhulika, I asked her how they prepared food for the wedding. Madhulika was born and brought up in an interior village before moving to Mumbai after her wedding. She retains close ties with her maiden family and most her relatives still live in her family’s ancestral village. Her sister, who is married, also lives in a nearby village. In response to my question she said, “My mother and sister traveled from the village and stayed with us for a month to prepare for the wedding. Together we
made *chivda, ladoos*, and other snacks for the wedding guests.” She then went on to reflect on how lucky she was that she had family members who could take the time to come help her since in Mumbai it is impossible to find help. “If my sister and mother had not come to help me, there was no way I could have made everything by myself. I would have had to buy some of the foods from outside like people here in Mumbai do. But I am happy that I did not have to do that” she told me. It was clear that Madhulika’s case was indeed a unique one. I decided to ask other urban Deorukhe women what they would have done in this situation, and it became quickly apparent that in cases such as these, caterers were hired, and home-made or store-bought snack foods were bought to serve to the guests.

Again, does that mean that commensality is fast declining? I would say no. But cooking done by a group of women belonging to the same caste group, who are neighbors, for an event of large proportions such as weddings, is definitely not possible in cosmopolitan spaces such as Mumbai. People in Mumbai still eat together. Children eat *dabbas* (packed meal from home) with their friends at school. Young people share *dabbas* with their college friends and often go out to eat when socializing with each other. Working people share their *dabbas* with their colleagues as well. Working urban Deorukhe women told me that they had eaten food made by colleagues in their lunch group who were not Brahmins. While most urban Deorukhes still retain their vegetarian food habits, they are open to eating foods prepared by their meat eating non-
Brahmins friends and colleagues, an idea that would be unthinkable for their rural counterparts.

In the urban settings family meals continue to be shared and ritually appropriate foods continue to be cooked for festivals at home. Yet, cooking for one’s communal and commensal group has become far less common. I would argue that in contemporary urban India, commensality has moved away from being primarily connected to caste based ritual contexts into social contexts closely related to professional groups, peer groups, and neighbors. In the buildings of Mumbai, food does get shared with one’s neighbors. On special occasions portions of meals are sent to the neighboring households and people belonging to different religious groups send each other sweets on their festive days. This change, while seemingly smooth, also creates a fundamental shift from which group one is allowed to eat with, based on Hindu orthodox values, to which group one has to eat with based on one’s physical location and professional placement. Commensal eating is still hierarchal no doubt, even in urban professional settings. Bosses eat separate of their subordinates and food still is closely tied to power and higher status, but no longer to the traditional caste status.

**Conclusion**

Through this chapter I aimed to demonstrate the shifts that are taking place in concepts of purity and contamination as Deorukhe Brahmins venture out of the villages into the cities. Mumbai, a large metropolis full of immigrants from different parts of the country, rarely allows for the ability to have actual
physical demarcations between caste or religious groups. Rural villages on the other hand have very clear geospatial demarcations. The same applies to rural and urban cooking spaces. Rural kitchens continue to be sacred spaces which have to be safeguarded from contamination. The layout of the kitchen, the ritual importance of the *chul*, the implements used by rural women for cooking, and the community ties that expect women to spend time and energy cooking and providing for each other’s families and neighbors, are very much connected to the high caste status of the Brahmins in rural villages. This starts shifting when Deorukhes migrate out of the rural villages. Though towns still retain the rural caste based physical separations to some degree (refer to Chapter 2), their kitchens are laid out in the “modern” manner by the virtue of occupying apartments. In the cities, apartment kitchens are no longer construed of as spaces where only Brahmins can venture. Where lower caste maids are hired by every family, to wash dishes and even to cook entire meals, the sacredness of the space is no longer a factor. In terms of commensality, this ethnographic data demonstrates that there is a definite shift in not just cooking perceptions but also contexts in which women are expected to cook and spend time and energy by sharing their labor to cook for people belonging to one commensal group.
CHAPTER 6

“BUT MOTHER, I WANT TO EAT OUTSIDE FOOD!”: UNDERSTANDING ECONOMIC LIBERALIZATION, FOOD, AND EMOTIONS IN INDIA

Introduction

I ended the earlier chapter with a discussion about commensality. Caste boundaries affect commensality in many Indian communities. In his article about caste and commensality, Staples (2016) begins with an ethnographic vignette about his research assistant Das who belongs to the Brahmin caste. Das told Staples about his relationship, about forty years ago living in Mumbai, with a lower-caste prostitute. Staples tells us about Das' admission that despite staying over at the prostitute's house, he did not ever take food cooked by her. Therefore, though it might be thought of as acceptable (at some level) to have sexual relations with members of lower caste groups, it is still unthinkable to share food with them. Staples' vignette about Das' opinion on who he would or would not accept food from, to avoid contamination, is surprisingly similar to the attitude voiced by the rural interlocutors in my study group.

This chapter focuses on the day to day food habits of my interlocutors, the Deorukhe Brahmins, to comprehend why they make the choices that they do when it comes to cooking and consuming certain traditional or non-traditional foods. Though there is variability between families, and between environments, the pattern that emerges indicates a difference in food preference between the mothers and their daughters. In such an India, where
Deorukhe mothers find themselves competing with non-traditional food items which are alluring and exciting for their children, mothers respond by incorporating new and non-traditional foods into their cooking repertoires. I introduce the ‘inside’ and ‘outside’ food categories in this chapter along with a new category called ‘home-made’ foods, which demonstrates that mothers are showing their love and care in a way that reduces their guilt when not cooking and providing for their families. The key argument that I present in this chapter is that Deorukhe mothers are manipulating the inside-outside food categories in an attempt to positively affect the food intake of their families.

**Caste and Commensality**

The situation in independent India is quite complicated when it comes to caste boundaries. The Indian government heavily penalizes caste discrimination. Reservations and extra opportunities are offered to people belonging to the lowest caste group, in an attempt to right the many years of caste segregation. Lower caste people are aware of these opportunities; indeed, the Indian government spends a great deal of time ensuring that people are aware of the penalties they will face if they are noted to be discriminating based on caste (Staples 2016).

In chapter 2, I mention the tensions that are being experienced by the Deorukhes as a result of their changing dynamics with people of the lower caste groups. This was a constant backdrop for all of my interactions with rural Deorukhes. The concept of contamination when it comes to eating together, occupies the thought of many a rural Deorukhe. This is not a new concept as it
has been discussed in previous studies about Indian food (Appadurai 1981, Appadurai 1988, Khare 1992). This is not to say that they do not eat with members belonging to another caste. Indeed, if that was truly the case, they would have never allowed me into their kitchens or invited me to have meals with them. The notion of whether the Deorukhes did indeed allow people of lower castes to eat with them at times could not be answered by me since I was always allowed to eat with them. At the same time, it was clarified that eating with members of lower caste groups was not a common occurrence. Given my experience, I would say that the commensality rules seem to be relaxed based on the person in question. As Staples (2016: 75) states, “…the ways in which caste and food continue to be intertwined in social contexts [is] increasingly shaped also by class, environmental concerns and liberalization of trade”. It is my belief that my social capital as an NRI (Non-Resident Indian) who was researching the Deorukhes, resulted in a slight relaxation of the commensality rules. Had I been accompanied by someone else who was of a lower caste status, things might not have been the same. The context of where two people of differing castes eat food together also affects the interaction. In most cases, I was the guest in their house, eating their food, from their plates.

In a similar vein, it is evident that as a result of being able to migrate to cities, lower caste families are making the same amount of money, or even have higher incomes than upper caste families in the village. The result is that lower caste families are no longer dependent purely on the income they make from being employed by higher caste families in the villages. They are now able to
pick and choose the work they want to do. Additionally, they can demand wages that they see fit and refuse to work the job in cases where their demands are not met. This is a relatively new occurrence in rural India. Though people have been moving into the cities since the colonial period, the pace of migration to the cities as it is seen today has increased drastically in the post-liberalization period (Thorat 2011). On several occasions, families of my interlocutors expressed their disappointment at the “laziness” of the members of lower castes. In one instance, one lady’s husband pronounced that land in Konkan was sitting unused because of the “laziness of the lower caste people”.

In the context of these economic and social changes, it is noteworthy that the Brahmins continue to use their food habits to assert a higher position on the social ladder. Might the importance of purity be related to these changing social and economic dynamics? This sentiment is echoed by Staples (2016).

I went to visit Savitri and her daughter Ananya at their home in Nigade in December of 2014. It was lovely wintry day. I had reached their house that morning using a private rickshaw. The rickshaw driver was hired for the entire day and was to wait for me until I was done with my appointment. As such, we had both packed ourselves dabbas (packed meals) for lunch. It was decided that once we were done with the appointment, we would eat our lunch and head back home. The rickshaw driver - Chandu Dada as he was called, belonged to a lower caste group. He sat outside my interlocutors’ house as he waited for me. As Chandu Dada often drove me to my informants’ houses, we had conversations about Brahmins. On many occasions Chandu Dada
insinuated that Brahmins’ pride in their pure status was nauseating. “We (his community) might eat meat but we work hard, and we don’t complain about every small little thing”, he once said to me as he drove me to another village for an appointment.

As our interview proceeded Savitri invited me to have lunch with their family. I hesitated and told them that Chandu Dada and I had our *dabbas* (lunch boxes) with us and intended to eat outside before leaving for home. “Why don’t you bring your *dabbas* inside and eat with us?” Savitri asked me. I looked her and very carefully said, “But Chandu Dada?” “Please have him join us. Really it is not a problem!” she said to me. I went outside to let Chandu Dada know that we were both invited for lunch. He gave me a worried look. Just then Savitri came out of the house and formally invited him inside the house to join the family for lunch. Looking very surprised he smiled at me, grabbed his *dabba* from the rickshaw, and came inside. Though Savitri and her family did not try out the food from our *dabbas*, they offered us their food throughout lunch. Chandu Dada refused to touch any of the food containers, clearly asking for anything that he needed, waiting patiently for the hostess to serve him instead of serving himself.

Savitri, her daughter Ananya, her husband, myself, and Chandu Dada sat on the floor in their kitchen eating our meal. As conversation and lunch continued, Chandu Dada asked the hostess to pass him some rice. Her husband passed the container to Chandu Dada and went back to eating. As Chandu Dada pondered on the quandary of whether he should touch the rice
container Savitri said to him, “Please feel at home and help yourself to rice.” With a look of relief Chandu Dada grabbed the thapi (traditional rice serving spatula) and served himself rice.

While this exchange may seem innocuous, this was definitely not a common occurrence in rural Deorukhe households. Chandu Dada’s trepidation at touching any utensils was connected to known caste boundaries where lower caste people do not share the same space, utensils, or cooked food with the upper caste members in the villages. In an interior village in rural Konkan, this behavior from the hosts was most unexpected and very confusing indeed! After lunch was over, Chandu Dada went out to the rickshaw to take a nap and we continued our interview.

As our appointment came to an end, I thanked Savitri for letting me visit the family so close to Ananya’s wedding date. To that she replied, “We are an educated family and we have a lot of respect for what you are doing. Savitri and my son are both post-graduates and I have a niece who is doing her PhD in Biochemistry right now. We know how difficult it is to do what you are doing. We took out the time, so we could help you in your studies.” Our conversation continued to Deorukhe Brahmin community and suddenly Savitri said to me, “I am not Deorukhe by birth, I belong to a different Brahmin community. I am Deorukhe by marriage. But if you don’t mind me saying so, I have to tell you that I am utterly tired of hearing about the Deorukhe pride in their purity ever since I got married. We don’t mingle with so and so people, we don’t allow for corruption in our houses. All of this is nonsensical and I don’t subscribe to it.
You have to move on with time and this high caste-low caste purity business is tiresome and far behind the times that we are in right now. My son and even Ananya has lived in the city. We know that you have to learn to get along with people from different communities and to respect them equally. It is time Deorukhes left behind their focus on purity and caught up with the times.”

Hearing Savitri’s outburst, it suddenly made sense why Chandu Dada was allowed inside their threshold and into the kitchen of this household. According to Savitri, it was a mark of being educated and progressive to cross caste related food boundaries. In any other household, Chandu Dada was never invited to take a meal. This includes those households who knew him personally before they met him when he arrived along with me. It has to be mentioned however that this family were still pure vegetarians and took pride in continuing their traditional food habits. The boundary they chose to cross to display their progressive thinking was that of commensality. In the context of the village, this was a very big step. But what about the urban migrants? When I began this study, I intended to find out if urban Deorukhes eat non-vegetarian foods. The results on that front astonished me just as much as the rural focus on purity.

Meat eating is viewed by the upper caste Brahmins as polluting and defiling the status of a high caste Brahmin. Many of the Deorukhes in the city were adamant to not eat meat, despite the relaxation of commensality rules where they shared food with their non-Brahmin friends and colleagues. This is related to the Ayurvedic ideology that is at the base of the Indian foodscape.
The Ayurvedic ideology of food asserts that, “Food mutually nourishes and cures the body and soul of a Hindu” (Khare 1992: 208). Ayurveda believes that a person’s body has three important humors, that of wind (vâta), bile (pitta), and phlegm (kapha) (Khare 1992). The right kind of food when eaten will result in a good body and a good mood. Ayurveda claims that to attain a spiritually higher position, one needs to consume foods that are right for both their age and their social position. According to Ayurvedic ideology then, the spiritual, nutritional, and medical aspects of food are intertwined (Khare 1995).

However, for those Deorukhes that did eat meat, meat eating was connected to what Staples (2016) calls “inversions of meanings”. Discussing the meat eating habits of lower caste Christian converts in Andhra Pradesh, he tells us about their perspective that eating meat was a modern and progressive practice, which allowed them to snub their higher caste Brahmin counterparts. Similarly, meat eating Deorukhes in the cities attached meanings of modernity to consuming meat. This was obvious, I met Shobhana who told me about her daughter Geetanjali.

“We don’t eat meat or fish” she said, referring to herself and her husband. “But Geetanjali eats everything. When she was a child, we had non-vegetarian eating neighbors. Since both myself and my husband worked long hours, our neighbors would watch Geetanjali. My husband told them to make Geetanjali habituated to eating meat and fish.” On being asked why her husband would make such a request of the neighbors, Shobhana told me, “The world is changing today. There are few accommodations for Brahmins such as
ourselves who refuse to eat non-vegetarian food or eat at establishments that serve both vegetarian and non-vegetarian foods.” Shobhana went on to relate that her husband was continuously traveling as a result of his job and during his travels he faced great hardships because their work group would often go to eateries where he could not eat. His frustration at his inability to find the right kind of establishment to eat food at, resulted in his decision to ensure that he daughter can eat anywhere.

“He told our neighbors, you make her comfortable with eating non-vegetarian foods. My daughter should be able to travel the world and never have to go hungry because she can't eat meat.” In this narrative, according to Shobhana’s husband, the ability of his daughter to eat anywhere allows her to be able to travel outside of the confines of Brahmin purity, thus allowing her to be worldly, modern, and progressive. A literal inversion of the meaning of purity where Brahmin purity is strategically placed as being oppositional to the ability to be able to live in contemporary India and consequently the world itself.

**Food as an Indicator of being “Modern”**

A discussion of the Ayurvedic ideals of traditional Hindu food patterns demonstrate the virtue of eating right. Traditionally, Brahmins are expected to consume a strictly vegetarian diet that is linked culturally with their higher status in the caste order. Thus, taking into consideration Highmore’s (2010) discussion on taste, the Brahmin palate is supposed to be indicative of a high taste. The Brahmin diet has been used historically to portray social distinction
and caste hierarchy. If so, why are present day Brahmin urban dwellers of Mumbai aspiring to consume a non-traditional diet? The answer to this is found in understanding how late capitalism functions.

While historically Hindus might have aspired to achieve as high a caste status as the Brahmins by trying to eat like the Brahmins. In modern India, glamour and allure are highly influenced by India’s colonial past as much as by India’s economically liberalized present. Being Indian has much to do with how Indians perceive themselves. As Chakrabarty’s (2000: 40) exploration of the Indian subject shows, the Indian populace is believed to be divided into two groups, “a modernizing elite and a yet-to-be modernized peasantry.” India and the manner in which Indian people conceive of themselves are always in the relation to “a hyperreal ‘Europe,’ a Europe constructed by the tales that both imperialism and nationalism have told the colonized” (Chakrabarty 2000:40). The present day Indian populace is in a constant state of mimesis, trying to achieve modernity by being historically bound to the notion that being too Indian in itself takes away from that colonial notion of modernity. Unfortunately, as Chakrabarty (2000: 40) puts it, “This transition narrative will always remain ‘grievously incomplete’.”

As Indian markets were also flooded with fast food chains such as MacDonald’s, Pizza Huts and Dominos post 1991, these fast food chains were effectively marketed as being signifiers of a better lifestyle and of a better taste. As the glamour and allure of these foods increased, so did the absence of knowledge about how these foods were produced, what ingredients they
contained, and their nutritional content. Caplan’s (2009) observations on the changing foodscapes of urban India throws light on the manner in which urban Indians view the introduction of new foods into Indian markets. Caplan (2009) notes that while the youth of India do not question the origin of the foods that they are consuming, they view foreign products as being better than Indian ones. For most urban Indians, having the opportunity to eat a variety of foods is indicative of the fact that India is now a part of the modern world. Young informants from Caplan’s study often mentioned that the most important aspect of the introduction of new foods into the Indian market was the fact that, “they could eat, if they chose to, like the rest of the world.” (Caplan 2009: 286). Interestingly, along with the enthusiasm of the urban youth to try new foods, Caplan also notices that there are inter-generational tensions as older people are reluctant to experiment with new foods. These tensions often lead to the women in multi-generational households having to prepare different dishes to satisfy differences in food tastes among the family members (Caplan 2009).

In the case of Shobhana and Geetanjali, this modernity is displayed by consuming those foods that break the traditional mores of a Brahmin diet. Geetanjali was not the only child to have been encouraged to eat non-vegetarian foods. In two other households, the same pattern was noted. In one household, the babysitter, who belonged to a non-vegetarian eating family, was told to introduce the daughter to meat and fish. In another household, an uncle who had married into the family and who belonged to a lower caste, was asked to introduce the children to non-vegetarian foods. And while these
families said eating non-vegetarian foods made their children worldly, they also confessed that in most cases they didn’t explicitly tell other family members about their children’s food habits for the fear of being judged.

One evening, as I sat with Sadhana and her daughter Shamita in their apartment, Shamita relayed to me a list of all the non-vegetarian foods that she enjoyed eating. After hearing the list, I asked Sadhana, “And your extended family knows that Shamita and her sister eat non-vegetarian foods?”. Sadhana said, “No. We eat what they eat our family members eat when we get together. If they ask us point blank of course we will not lie. But why go telling other Deorukhes about my daughters’ non-vegetarian food habits? We did what we thought was right for them, others don’t need to know about it.” Therefore, despite the inversion of meanings, Deorukhes are still careful of not boasting about eating non-vegetarian foods. In fact, they would rather not talk to their families about it at all unless the need arose.

**Hoteling: The Allure of ‘Outside’ Foods and Mothers’ Concern**

One of the most striking developments in contemporary urban India is the practice of taking family meals outside the home. An example is a quote from the article by Ansari and Srivastava (2012). They spoke to a couple from Mumbai. Supriya Nare’s (age 39) husband Uday stated that his wife cooked an elaborate non-vegetarian meal for Sunday afternoons. Then Nare went on to state, “But I don’t think it’s fair to expect her to cook again on Sunday evening after a hectic week. So, to give her some time off from the kitchen and to spend quality time with our son, we eat out” (Ansari and Srivastava 2012).
The question that comes to mind is, what exactly does eating out signify? According to Keane and Willets (1994), “Images of advertising and the media play on our nostalgic fantasies about how things ought to be. Central to these images is the food itself.” According to Keane and Willets (1994), advertising identifies many types of everyday foods as “healthy”, thus redefining what healthy means on a daily basis, and confusing people. Solomon’s (2016) ethnography about health and food in Mumbai demonstrates that in contemporary India, dieticians and nutritionists, along with food companies, are changing definitions about which foods are best for consumption. These “functional foods” are becoming popular in Indian households. Functional foods are foods created by food companies to render everyday staples healthier. Functional foods promise “extra benefits” because they are enriched with vitamins and minerals. They espouse to function by aiding in the prevention of metabolic disorders. Fast gaining popularity in India, functional foods claim to assure buyers that they will alleviate their health problems. In such a manner, everyday staples such as wheat, rice, flour, and milk become functional foods (Solomon 2016).

Given this context, rural and urban Deorukhe mothers alike were concerned and worried about where their family members and children ate and how it affected their health. In an attempt to safeguard their families, Indian mothers negotiate the inside-outside and the foreign-local foods through the act of cooking. Mothers usually find it worrisome to eat food outside of the house for fear of crossing caste based food boundaries. And yet, youngsters
continue to endeavor to eat out. The increase in the availability of disposable income coupled with the sudden influx of fast food chain restaurants, and upscale Indian restaurants, has resulted in what my participants refer to as the phenomenon called ‘hoteling’. Hoteling refers to the newly evolved practice of dining out as a family.

Most Indian cultural groups, including the Deorukhes, are patriarchal in nature, resulting in strict gender roles (Jassal 2012). Apart from certain cultural groups in Northeast and Southwest India who practice matriarchy and matrilineal descent patterns, all other cultural groups are patriarchal and patrilineal (Desai 1994). The duties that are expected of women across caste and class are very similar. In the lives of Indian women, marriage and motherhood are important landmarks. Women’s lives and bodies are monitored by either their fathers or brothers before marriage, or their husbands and mothers-in-law after marriage. A married woman has to fulfil the expected responsibilities (Puri 1999). “Marriage heralds sweeping changes in a woman’s life including changes in her residence, her kin affiliation, the rights and responsibilities of being a wife – including participating in sexual activity, bearing some or all household responsibilities, and maintaining kin relations within the conjugal family, among other” (Puri 1999: 137).

My own experiences in the field demonstrated that women’s bodies are highly monitored, especially in rural contexts. When I first went to visit rural households, I had to appease the husbands or the mothers-in-law by explaining my project first to them. It was only after their assent that most
rural women agreed to talk to me and be a part of my study. I also realized halfway through my fieldwork that if the husbands or the mothers-in-law did not like me, I was not going to get to meet the women and their daughters again. In the patriarchal context, mothers-in-law are responsible for keeping their daughters-in-law in line. The husband’s and mother-in-law’s control over the minds and bodies of rural Deorukhe women was apparent in many of the experiences that I had. In two rural households, the mothers-in-law took a dislike to me, thus forbidding their daughters-in-law from giving me another appointment. In one case, I called a woman who seemed interested in meeting me outside of her house. She said she would come to see me in my hotel room along with her daughter, instead of me coming over to visit them. As she was talking to me, her mother-in-law picked up the other phone on the line, and yelled at her to stop talking to me. As soon as that happened she said to me, “Sorry, she has heard us speaking and now she will not allow me to leave the house. I can’t see you anymore.” And with that statement she promptly ended our phone call.

In the Deshpande household (mentioned in Chapter 3), I was speaking with Sana while her mother Sheela was helping her mother-in-law to prepare naivedya for the day. While discussing bodies, the conversation turned to her choice in clothing. She told me the rules of clothing in the household. “I am allowed to wear long pants and t-shirts along with salwar-kameez (a three-piece suit that is traditionally worn by women in the state of Punjab. Also referred to as a Punjabi dress). Aai and kaki (referring to her paternal uncle’s
wife) of course are only allowed to wear *sarees* (a traditional garment worn by women in India that consists of a drape which ranges from 5 to 9 yards. This is worn over a petticoat and a bodice which is usually referred to as blouse. Though traditionally Marathi sarees were nine yards in length, in the present day most Marathi women wear 5-yard sarees that are draped around their lower body and part of which is put on the left shoulder) and Punjabi dresses. “Is it because *baba* and *ajoba* don’t like them wearing western clothes?”, I enquired. Sana replied, “No, *aaji* is the one who does not like it”. In this context, the mother-in-law was making rules about what her daughters-in-law were allowed or not allowed to wear. This control of women’s bodies and movements is not unique to the Indian context. Even in a matrilocal society such as the Kalymnian one, women’s movements and social interactions are carefully monitored by men, especially husbands (Sutton 1998).

Food is highly symbolic and is closely related to power relations. While women might be treated repressively in matters of their own bodies and movements, they hold a high status inside the household kitchens. This is an empowering space for women, especially rural ones. Thus, the importance of understanding the gender role of women in Indian cultural gastronomic relations cannot be understated (Appadurai 1981, Vallianatos 2006). In India, women are the keepers of gastronomic secrets. Women dominate the kitchen in a household and they are responsible for ensuring that every member of the household is cared for and fed in the manner that is appropriate for the place he/she holds in the family (Appadurai 1988).
The fear and worry felt by Deorukhe mothers was apparent in the way they discussed or complained about their family members’ food habits. In one instance Shobhana, a working mother, told me that she had planned to give up her established career after her daughter Geetanjali was born. “I could not concentrate on my work. The only thing I could think about was that my child was being cared for by someone else when she needs me. It severely affected my mental well-being.” She went on to relate that her father-in-law discouraged her from giving up her job. Instead he offered to come watch his grand-daughter while Shobhana was at work. “I used to work long hours and I still do. My husband is always traveling for his work. I felt incredibly guilty, but my father-in-law reminded me that I would be making an income which will provide my daughter with a better life in the future. He was an incredible support. We also had very good neighbors who watched Shobhana whenever they could. She used to eat at their house most evenings. Despite this, I was so disturbed that I had to go for therapy just to get over my guilt.”

Women in rural households live in a different atmosphere than their urban counterparts. Rural households usually consist of joint families where the women are constantly monitored and evaluated by their in-laws, especially mothers-in-law, with regard to how well they take care of the household (Jassal 2012). In contrast, women from nuclear families in urban environments are allowed several liberties that their rural counterparts are not afforded. Women in urban environments also often work outside the home. Most of the urban working mothers who formed a part of my study spent a great deal of time,
close to 10 hours per day, outside the house, oftentimes traveling to suburbs of
Mumbai for their jobs.

The result is a change in their role in the household where they go from
being only householders to both householders and bread-earners (Ruel and
Garrett 2004). This changing role of women from the traditional wife and
mother to that of a wife, mother, and a bread-earner has affected the cooking
patterns noticed in urban Deorukhe households. Take Madhavi for instance.
Madhavi runs a babysitting service from home. When I spoke to her about how
she balances her cooking responsibilities with her very busy schedule, she told
me, “It is unfair. I won’t even sugar-coat it. These men (she nodded her head in
the direction of her husband who was in another room), they go to work and
come home and act as if they are done working for the day. But is that even a
possibility for us women? We have to learn to manage both duties now”

On a balmy afternoon, I went to visit Suma and her daughter Sakshi in
Mumbai. At age 41, Suma is the mother of one and the head music teacher at
a prestigious school in the area where she lives. On that summery Sunday
afternoon, I stood talking to Suma in her urban kitchen. Suma’s kitchen was
decorated much like the rest of her 5th floor 2-bedroom apartment. It was
stylish and full of bright colors. The kitchen backsplash had bright orange and
white tiles. The orange and white cabinets and drawers matched the
backsplash. There was a microwave fitted above the countertop. Suma stood by
the sparkling chrome four gas stove that sat on her polished granite counter
top. She was cooking Schezwan Rice and Masala Dosa for lunch that day.
“Do the food trends that have emerged since you were younger affect the manner in which you cook at home?” I asked her as I felt my stomach grumbling at the delicious smells that were wafting from the stove. “Of course, it does! When I was younger, what my mother cooked at home was all that we knew and all that we ate.” Suma mentioned that the phenomenon of ‘hoteling’ never existed back then. But even what few memories she had of eating out with her family were those of visiting eateries that offered meals of the regional cuisine or "the typical South Indian Udipi hotel food". “Is there a change in food trends that you have noticed over the years?” I asked.
Suma rolled her eyes and said, “Such a vast difference! Junk food has overpowered everything today. Pizza, pasta, Chinese food, Burgers, Mexican food. That’s all kids want to eat these days.” Suma’s husband walked in and heard our conversation. He looked at us and imitated their 14-year-old daughter Sakshi, “It’s awesome! That’s’ what she says about these foods.” He chuckled and walked out of the kitchen. Smiling, I looked back at Suma and asked her, “So how do Sakshi’s likes and dislikes affect the food that is made at home?” Laughing she said, “Actually the only reason I cook outside foods at home at least once a week is because Sakshi wants to eat something else. I don’t think it’s practical, or even possible to go out and eat every week. Neither
is it very healthy. So, I have learnt to make many different dishes such as wada-sambhar, masala dosa, and Chinese food at home.”

There are several intergenerational differences noted with regards to how global food flows impact food consumption in developing countries. Cultural studies have noted that youths in India form subcultural identities resulting in globally-inflected patterns of consumptions (Lukose 2005). These consumption patterns often contrast with those of the older generation. Such intergenerational differences are also highly related to exposure to media and the idea of what is alluring and glamorous (Thrift 2010).

Caplan (2009) considers the changes resultant in Indian food patterns in post-liberalization India. She notes that new orders of food are emerging. Eating out as a family has given rise to a strict dichotomy of ‘inside’ and ‘outside’ foods in urban India. Suma’s feelings about ‘outside’ food are indicative of what I have heard from most the mothers that I have interviewed for my study. The interest and the drive to eat out is strong among the youngsters. Going to eat at restaurants has become a norm among the urban middle class in India. Though the frequency might vary from one family to the other, the demand to eat out always comes from the children in the household. Consuming meals as a family at restaurants for important occasions such as birthdays and anniversaries are a constant among urban middle-class families of Mumbai. This still does not satisfy the cravings of their children. And so, mothers, just as Suma was doing on that Sunday, navigate this demand by creating ‘outside’ foods at home instead.
As Suma continued cooking the food, Sakshi and I walked to her room to discuss her views on food. “Do you like eating outside?” I asked Sakshi. Her response was a resounding “YES!” “What do you like eating outside?” I asked her. “It can be anything! Punjabi, Continental, whatever. Anything that is pure vegetarian. I love trying new and weird foods.” Sakshi elaborated, “I like junk food. I mean I like healthy food that tastes good. The elders don't like cheesy foods or Chinese food, they just like simple foods. They have always eaten simple Indian food. Our generation likes multi-cuisine and international foods. This is because of the changes that have taken place. Today's world is more globalized and thanks to the shows on TV we learn how to cook all types of foods, Indian and international.”

Sakshi’s comments reveal the manner in which the young people of India today view themselves. I believe that consuming Indian modernity has much to do with the social imaginary: The wish to be near the western, to taste it, to consume it, and to be a part of the global foodscape. Food in India is no longer just about creating communal bonds, it is also about creating global bonds, making oneself a global citizen while also being an Indian. For how can one be a part of this globalizing world if one does not partake in it? How is one to be socially informed, possess panache, and display their sophistication? Food is this communication through embodiment and experience. Through food, the Indian youngsters communicate that they are worldly, that they are global, and that they are modern.
Srinivas’s (2007) ethnography among urban Bangloreans leads her to introduce the idea of “gastro-tourism” that is becoming popular among urban Indian elites. She claims that eating outside has become a signifier of being knowledgeable about the multitude of cuisines that are being introduced into the Indian market. Thus Srinivas (2007: 92) states, “… narratives equally engage the desire to consume, and the need for the middle classes to signal their difference through knowledge of the cultural background and history of the food.” Consuming different foods is thus a path to gaining a higher position in the new Indian social order where, “gustatory activity becomes a moral quest for a new self” (Srinivas 2007: 86).

“Home-made Foods”: Are they “Inside” or “Outside” Foods?

While eating out becomes a more common phenomenon, it along brings along with it an interesting dichotomy. Caplan (2009) talks about the ‘inside’ and ‘outside’ foods. Foods which are eaten out of the house are usually referred to as ‘outside’ foods and those that are cooked at home are referred to as ‘inside’ foods. Both Khare (1995, 2012) and Caplan (2009) mention that while India foodscapes are being affected by globalizing effects, it is unwise to say that the cultural and religious boundaries will be crossed. In that, I agree with them. Indians would not dream of using culturally inappropriate foods for religious occasions. That is, even if western chocolates might be used as gifts for festivals such as Diwali, they would not use chocolates as an offering to the Gods.
However, I do believe that the ‘inside’ ‘outside’ food dichotomy, though a valid one, is a rather simplistic one. In urban India where women have started to join the workforce, they face the pressure of spending anywhere between 6-10 hours a day outside their homes. At the same time, they are expected to be good wives and mothers who will ensure that their families get nutritious meals. In such a circumstance, a third type of food category has started to gain prominence. I would like to call it the ‘home-made’ food category.

This is the kind of food that is neither viewed as ‘inside’ food or ‘outside’ food. Instead, it is referred to as ‘home-made’. ‘Home-made’ foods are those foods that are prepared at eateries that are literally named as ‘home-made food’ eateries. Marathi households rent a small store. In this store, everyday household Maharashtrian food is prepared and sold at very reasonable prices. These are spaces where women become small-time entrepreneurs and cook in bulk foods that they would typically cook at home for their own families. I argue that if the Indian foodscape is strictly relegated to ‘inside’ and ‘outside’ food categorizations, ‘home-made’ foods is a category that does not fall clearly on either side of the binary division.

Srinivas’ (2007, 2012) studies focus on the introduction of new foods into Indian markets. Interested in observing how global foods result in constructions of identity, Srinivas looks at the inclusion of packaged foods by urban Indian women as a part of their daily household diet. Along the same lines, she also considers the changes in the tastes and eating practices of urban Bangloreans resulting from changes in the gastronomic landscape. With
regard to the use of packaged foods, Srinivas (2012) notes how urban Indian women, in an attempt to retain their status of feminine domesticity are often making use of pre-packaged Indian meals so as to feed their families what is considered to be a caste appropriate diet. Working women, especially mothers, in urban India often note that they lack the time to cook traditional Indian dishes that require elaborate preparations and multiple cooking techniques. As a result, to save time, but also to adhere to traditional meal patterns, urban Banglorean women are relying more and more on packaged foods.

I have myself heard from my interlocutors the pressure to be a good wife and mother that is felt by urban mothers. Though Indian women have joined the workforce, it is viewed as their duty to run the household since that is the role of the women. A majority of these women hire household help, maids who come daily to either help prepare the raw foods by peeling and chopping the vegetables intended for the meal that day, or maids who prepare the entire meal as per the instructions left for them by the woman of the house. However, in circumstances where women cannot prepare meals at home for their families, their anxiety about being a bad mother or a bad wife is alleviated by purchasing foods cooked at these ‘home-made’ eateries.

Such eateries have existed in Mumbai since the colonial times. Migrant workers would move to the city without their families (Colon 1995). These eateries were mostly frequented by migrant men who did not know how to cook. The situation has changed today. Though migrant workers continue to frequent such ‘home-made’ food eateries, these eateries are also being
increasingly frequented by families where the woman of the house has been unable to prepare the meal. The rising prominence of this category, I believe, demonstrates the increasing anxiety of culture loss and the wish to retain cultural knowledge as felt by the locals of the city of Mumbai.

50-year-old Sejal, along with her husband, and her 26-year-old daughter Anagha run a 'home-made' eatery. Sejal got into the business of preparing food because she believes it requires very little investment and has a good profit margin. She tells me about the time that her husband got laid off his job requiring her to figure out a way to support the entire family. With encouragement from her husband, she started her first store 10 years ago. Today her business has taken off and it has become a family business. After completing her undergraduate education, her daughter Anagha did a diploma in catering and started helping out with the family business. In a 10 x 10 shop on the side of the road, the whole family begins their day by preparing the foods that they are going to sell that day. The shop is set up like a household kitchen with a long table that serves as a counter in the front of the store where they take order from customers.

I stood at 8:00 am on a Sunday morning watching the family prepare for the day. “What time do customers start coming in?” I asked her. “On weekdays, they start coming in around 8:30 to either eat breakfast, or to get something packed as lunch to eat at work. I close the shop between 2:00 to 4:00 pm so that we can go home and take some rest. Around 5:00 pm a lot of people come in to get evening snacks and I have a several customers who come in every
evening to eat dinner. I set up some tables and chairs outside the store so they can eat the food here and go home.”

*Figure 6.2: Sejal’s husband grating carrots outside the shop*
Figure 6.3: Sejal and Anagha cooking in the shop

Assuming that Sejal must enjoy cooking I asked her about it. To this she replied, “Oh, I have never enjoyed cooking. I used to do it because I had to, otherwise what will people at home eat? But ever since I have started the store I have become an expert cook. Now I am trying to learn traditional Deorukhe recipes so that I can prepare traditional foods and sell them, especially during the festival season.” Anagha told me the store provides daily food, but they also take catering orders for anywhere between 10 to 300 people. “We make foods for family get togethers, parties, and often for weddings since traditional foods are required to be eaten during weddings.”

What then do the ‘outside’ foods stand for? Does outside signify the literal physicality of the food having been cooked outside of the house, or does it signify that it was cooked by an outsider? For if outside food was truly meant as food that has been cooked outside the house, would food cooked by
neighbors or relatives not fulfil that role as well? In that sense, why are certain eateries called “home-made food” eateries when the food cooked in them is not made at someone’s home but at a shop by outsiders? I believe, the category ‘outside’ does not refer only to the idea that the food being consumed was cooked by an outsider or outside the kitchen of a house, but it encompasses in itself the idea that the food does not belong to the same regional cuisine and therefore is not cooked in the manner in which the food that is consumed at home is cooked.

Figure 6.4: Anagha peeling boiled potatoes on the shop floor

As a site to study foodscapes, India is definitely a complicated one. That being said, considering the anxiety that is felt by women and indeed Indians in general about the loss of their cultural identity in increasingly cosmopolitan and globalizing urban spaces, similar cuisines remain a major component of their identity. In a cosmopolitan space such as Mumbai, though regional food boundaries are crossed by consuming non-regional foods prepared inside or
outside the house, caste and region-specific food boundaries remain strong and active. While the desire of urban youth to consume non-traditional foods outside the house is their attempt to strategically place themselves as global citizens, the increasing popularity of “home-made” eateries among the parents of these youth is, in my opinion, their attempt to continue to assert regional and caste based identities in an ever-shifting global foodscape of urban India. These regional and caste based boundaries are indices of one’s belonging to a particular region while also indicating their status within the older Indian hierarchical caste structure. The struggle lies in incorporating a cosmopolitan identity while retaining old cultural identities. In such a space, foods are not only viewed just as ‘inside’ and ‘outside’ foods but also as ‘our’ and ‘their’ foods. And ‘home made’ foods, despite having all the characteristics of being ‘outside’ foods also fall in the category of ‘our’ foods, thus creating a new category unto themselves.

**Conclusion: Changing Food Habits - A Patchy Picture**

Despite the fact that I carried out my ethnographic fieldwork in 66 Deorukhe households, the picture as to how Deorukhes eat, both rural and urban remained irregular and was highly influenced by the educational level, economic status, and socio-political status of the family. Are Deorukhe food habits changing? Definitely! Are they changing at the same pace with regards to all households? Absolutely not. That said, the concern of mothers and their fear for their family members continue to affect the gastronomic decisions that they make at the household level. Regardless of whether the family members
are eating vegetarian foods or outside foods, the fact remains that mothers would much rather have those foods cooked inside their kitchens than relegate their families to eat out. As the pressure mounts, Indian mothers incorporate non-traditional foods to cook at the household level.

Take for instance, Sushanti, a 56-year-old primary school teacher who lives in the town of Chiplun. Sushanti tells me that she dislikes eating out and especially distrusts the foods served by outside food eateries. As we sit discussing her family food habits in her 1-bedroom apartment, right opposite which is a thriving restaurant, Sushanti tells me her reasons for never wanting to eat out. “I do not like eating outside food because I don’t think it is prepared in a hygienic manner. I also mainly worry about contamination. What if the food they are feeding us is contaminated because they have handled non-vegetarian foods? I know that there are vegetarian hotels, but I don’t like going there either. You never know for sure...”

What is important to note here is that Sushanti’s definition of hygiene is not the same as western notions of hygiene. As early as the 1960s, Mary Douglas discusses how western perceptions of pathogens affect western peoples’ notions of what is deemed clean and dirty. And while I do not contest the idea that Indians also think about hygiene in terms of pathogens, in Sushanti’s case there is an additional meaning to the word ‘contamination’. In her case, the repertoire of risk is broader than just germ theory, it also includes accidentally ingesting those foods that are taboo for Brahmins to consume.
Sushanti’s 23-year-old daughter Treya who is sitting right next to her mother tells me her attitude about eating outside food. Having lived in Pune (a large city) to complete her master’s in psychology, Treya tells me she loves eating out, especially eating pizzas. “I like eating out but now that I have returned home from Pune, I don’t eat out as frequently as I used to. I love eating pizzas though and I miss eating them here. Back in Pune, me and my friends would order a pizza once every week. I like trying new foods that taste different. We should stop thinking about hygiene or worrying about what kind of a place we are eating at outside. I lived in Pune for two years and I had to eat out on a day to day basis. Who has the time to worry about hygiene? It is important to just find some food and to put it in our systems so that we can do our work. I honestly don’t care about things like that when I eat out.” On the surface of it, it might sound as though eating traditions don’t matter to Treya. But in reality, she makes very specific decisions to eat vegetarian foods albeit non-traditional ones.

These different viewpoints have much to do with shifting gender identities of the women in India. As more and more Indian women get educated, the focus shifts from being solely a good householder to also becoming successful in one’s career. At this point it is also important to consider the notions of the self and nation that affect the manner in which most Indians perceive themselves. Present day Indians, especially the Indian youth, are highly influenced by India’s colonial past as much as by India’s economically liberalized present. In addition, media exposure also creates
images of an imagined ‘West’, which consists of Europe and the United States of America.

In this context, my interactions with the younger generation indicate that the youth of India are strategically placing themselves as global consumers. By disregarding certain traditional food restrictions, which keep them from becoming global, these youngsters prefer to eat outside and demonstrate their global identity by consuming new and different foods. Being wary about eating different foods is seen as something that holds you back from becoming this cosmopolitan, global entity.

In October of 2014 I went to visit Girija and Sriya for the second time that year in their 2-bedroom apartment in the city of Thane. Theirs was a joint family of 6. 44-year-old Girija had, since her marriage, lived with her in-laws in this apartment. Her 17-year-old daughter Sriya, was discussing with me the differences that she had noticed in the manner in which the elders perceive outside food as opposed to the manner in which she and her twin brother view it. “Elders in the house think twice before they eat outside. The kids of my generation don’t do that. We eat outside food whenever we feel like it. I don’t see the point in curbing your cravings. Besides, the elders just did not grow up eating these kinds of foods, so their tastes have not developed. They prefer home-cooked foods. I make sure to eat at good places like McDonald’s or Dominoes since street food is not very hygienic. But other than that, I eat whatever I want, whenever I want it.”
Sriya’s opinions are indicative of the way young Indians, especially ones living in large metropolis such as Mumbai, view themselves. Wanting to eat outside food therefore has as much to do with what this means for who they are, as it has to do with their more evolved ‘tastes’ thanks to exposure to such foods from a young age. In response to Sriya’s comments Girija tells me. “Kids these days. All they want to do is eat outside food and fast food. That is why I make Chinese food, paav bhaaji, cakes, and Punjabi dishes at home almost every Saturday and Sunday. My mother-in-law and I even allow my husband to cook non-vegetarian food at home once a month. We don’t want them eating food outside and getting sick.”

Surprised to hear that non-vegetarian food was cooked at home I asked Girija if she eats non-vegetarian food herself. Looking at me and making a face she said. “No, never. My entire family before marriage was vegetarian.” Her mother-in-law intervened and said, “We women don’t eat or even cook the non-vegetarian foods. But when he was younger, our non-vegetarian neighbors introduced non-vegetarian foods to my son. My husband also started eating it. Every time they felt like eating non-vegetarian food, they would go out and eat it. That worried me. Who knows how old the meat is and how they are cooking it? So, I asked my neighbors to teach my husband and son how to cook it so they can cook it at home and eat it themselves. I know it is not very traditional, but at least it is made at home and we can be sure it is clean and won’t make them sick.”
Since Ayurvedic concepts about food and bodies continue to exist alongside biomedical ideas about nutrition in modern day India, I believe that by calling McDonald’s hygienic and home cooked Chinese food healthy, Indians attempt to legitimize the consumption of non-traditional foods by forcing them to fit into the traditional Ayurvedic notions of healthy and clean foods. That culinary landscapes the world over are ever shifting, is amply clear. It is my hope to give a better understanding of the way the Indian culinary landscape is evolving. Culinary identities in India continue to be implicitly tied to notions of the self, the nation, and religion. Add to that the influx of western foods and food products, and the result is not a simple erasure of local cuisine or culture. The result is that women, who continue to be the gastronomic gatekeepers, reconfigure these in-flows of newer foods and the demands of their families, to create and fashion a new culinary identity. One that is in line with the spiritual and religious aspects of Ayurveda, while at the same time open enough to assimilate seemingly new and non-traditional foods.

The aim of this chapter is to provide an ethnographically detailed picture of the nature of global circulation of food products and the manner in which it is affecting the food habits of contemporary Deorukhes people. The hope is to add to the current understanding of how global flows are not passively received by people. The world is an ever-shifting landscape of interconnected webs that continue to affect one another. While nutritional studies continue to discuss the problem of increasing appearances of chronic non-communicable diseases among the people of India, it is important to understand how Indians are
receiving, consuming, and perceiving the foods that are deemed to cause these nutritional problems. I went into the field expecting to see mothers who were losing control over affecting the food intake of their children while feeling anxious about their well-being. What I saw was a complicated picture that not only showed what I expected to find, but also told me that mothers were by no means letting go of the control they have over their children’s food intake.

My study shows that global processes can best be understood if we look at them in practice by observing people’s actions. By incorporating new foods in their home cooking, these Indian mothers are literally cooking globalization. Through the practice of cooking which Marathi people call ‘swayampak karne,’ which literally means ‘self-preparation of syrup,’ these mothers control the onslaught of new foods and food products that are flooding the Indian markets.

Colonial, postcolonial, global, and local are all continuous processes which overlap and affect each other in ways that change depending on various factors. Be that as it may, humans never stop using their agency to change and affect their day to day lives. In India, food is an affective medium and closely related to dynamics within the household. And affect is power. Through love mothers enact this power in the gendered field of home cooking. The site of India then is a site of a power struggle where globalized foods start threatening material power. In this power struggle, the commodities that circulate within India have to compete with the affect laden concepts of food in India. In the case of my study, these women are affecting the course of global food flows by making use of their culturally situated agency. By creating new culinary
traditions, these mothers are giving shape to a new culinary landscape for the Deorukhe Brahmins.
CHAPTER 7
PARTING THOUGHTS AND FUTURE DIRECTIONS

This dissertation has expanded upon the anthropometric data and part of the ethnographic data collected during the fieldwork that I undertook in the thirteen months that I spent in India. However, there is a lot more that can be said using the other data that I gathered during my fieldwork. In this chapter, I touch upon the possible analyses that I can undertake in the future and also the future projects that can come out of this work.

Towards the end of my fieldwork I began to realize that I needed to finish meeting with my interlocutors before the month of January 2015. That meant traveling through rural Konkan during the months of October and November. I had booked my return ticket to America for February 2015. As the time got close, I started getting impatient. I contacted Meena kaki who kept putting me off for one reason or another, stating that she was busy. I made it known that I had to do fieldwork in October and November so that I could finish my last round of visits in Mumbai in the months of December and January. Meena kaki would not commit time, she had another project and she would not be available. It was at this time that I mentioned to her that if she was busy, I would do the final visits myself along with my mother. After a week of no response when I finally established contact with Meena kaki she asked me to do the final visits on my own citing that her husband was furious at my audacity to continue fieldwork without his wife. “We are the ones who gave you the contacts of all these people, my husband is angry that you would even
think of going to visit them without us. We wish you luck but I will not come with you this time” she told me over the phone. Heartbroken, yet aware of my impending deadline, I started the round of making calls and taking appointments with the rural Deorukhe households.

As I entered the first rural household, painfully aware of Meena kaki’s absence and worried that they might ask me to leave because I came without her, I tested the waters to see their response. To my sheer surprise, every household treated me the same as before. Some even mentioned that they were happy to see that I have arrived with time to spare this time. While I had a lot of data from urban households, comparatively the amount I had gathered from my first two visits to the rural households was far less. I realized soon what was happening. For one, the absence of Meena kaki was relieving to many of these rural women. She was an educated woman who spoke English, held a job as a social worker, had grown up in the city of Pune and moved to the village after marriage, and thus occupied a higher social standing in the Deorukhe community. She would often question my interlocutors when they gave replies about the foods that they ate. She would also often question me during the visits about the tangential nature of my conversations, constantly reminding me that we needed to leave and that I had to stick to questions on my sheet. It seemed as though Meena kaki’s behavior had not only affected my ability to freely converse with my rural interlocutors but it had also affected their ability to freely interact with me. While I was sad to see Meena kaki go, I had the most fruitful field visit during those winter months in rural Konkan.
During those winter months in rural Konkan, I realized that I did not know when again I would visit Mumbai or Konkan. My interlocutors started asking questions about when I would return to India and if I would remember them at all. I assured them that I would always remember them and that I will always be grateful to them for letting me into their houses and their lives. I had carefully avoided telling my interlocutors that my husband was a white American man. At some level, I was afraid that they would not see me as relatable enough and at another level I was worried they might view me as far too polluting to let into their homes. After all, they were already clear about the fact that they were making an exception by letting a non-Brahmin woman into their kitchens. While some knew about Joe (my husband), most did not.

During the festival of Diwali, I made custom postcards with Joe and my photo on it to send out to friends and family via the Indian phone texting app, Whatsapp. At this time, I did the same for all of my research interlocutors.

My final visits to households in rural Konkan were extremely gratifying and memorable. The tension in the air had reduced considerably since I was finally realizing that I was getting towards the end of my fieldwork. The absence of Meena kaki meant that I could spend a whole day, sometimes more than one day, with my interlocutors, just observing their day to day lives and talking to them about their lives in general. When I spent time with them, they offered me snacks, tea, and sometimes a whole meal. As I said my goodbyes, the conversation inevitably turned to my life. They would approach the topic of my life in America. What was it that I ate on a daily basis? Did my husband like
Indian food? How much time had he spent in India? What did he look like and how was his family? What did his family eat? How did I intend to cook and set up my kitchen after going back to America? These questions and the curiosity of seeing my white American family was so great that I created a gallery of photos on my tablet, which I was using to take notes, so that I could show them my married family.

The shock and wonder at the appearance of my sisters-in-law and my mother-in-law was what caught my attention the most. Both of my sisters-in-law have children, one has four and the other two. In every household, rural or urban, the surprise was not only at the clothes that they were wearing or but also at their figures. “She has four children and she looks like that?! I don’t believe you, how can she have four children and be so skinny?” an about to be married 36 kg Sarita asked me. One lady’s sister-in-law pronounced, “Your mother-in-law does not look like a mother-in-law at all!” When asked why she said, “She wears jeans, t-shirt, make-up, and looks so young.” Such utterances were common when shown the photographs. I began to realize that bodies, according to my interlocutors, were reflective of the stage of life one is in. And the question that came to mind was, “How was it that a mother ought to look?”

My interviews about body size preference (data that I have collected but not expanded upon in this dissertation) demonstrated that Deorukhe mothers, rural in particular, had specific expectation about what a mother’s body ought to look like. Young girls were given impetus to dress up and take care of their figures. In fact, it was considered important that they enjoy their youth and go
out and about showing their beauty. But what about mothers? In an attempt to start discussions, I began asking mothers and daughters to give me their comments about each other's appearance. Most mothers were happy about their daughters' clothing choices and body sizes. Even those daughters who were underweight and were hopeful of putting on weight were told that they would eventually put on weight later in life. The question of weight gain and when it began for mothers became pertinent to ask as I noticed the pattern of my data. Mothers in my sample are mostly overweight and obese. The largest difference I was noticing was in terms of the weight of the mothers and the daughters. Why did this difference occur? Certainly, there was the factor of metabolic retardation with increasing age, but the difference was significant. And so, I began to ask the mothers about their own bodies.

The mothers in my sample often mentioned that they were the body size of their daughters when they were young. Looking at her underweight daughter Shanti said to me, “I looked the same as her when I was younger. At this age, this weight is normal. Look at me now, she will put on weight later in life.” As I inquired in household after household, it became apparent that Deorukhe mothers' bodies underwent a great deal of change when they had babies. Almost every woman in the sample, with the exception of a few, told me that their bodies had undergone a drastic change after they had children. The mothers said their dietary intake had increased upon the insistence of their mothers-in-law and their own mothers as well. “When you are pregnant you eat not only for your own self but also for your baby. When you are eating for two
people, it is necessary to eat more. That's what they say and that's what you have to do.” Sheela said to me as we sat speaking about the changes in her body. Suddenly she asked me, “How old are you?” Upon telling her she said, “Wait, you are three years older than me? You don’t even look it!” I said nothing, not knowing how to respond. A minute later she uttered, “You have not had a child yet though. When you do, you will know the toll it takes on the body.”

It became apparent that Deorukhe women saw a mother's body as one that is physically, mentally, and emotionally first available for the child. Many told me of the 6 months after birth that they spent with their maiden family. According to Indian custom women usually spend 6 months after their child's birth with their mothers. Their mothers take care of them and teach them ways of taking care of the child. The amount of time they now spend at the maiden family differs for urban women, especially ones who are working and don’t usually get more than 2 or 3 months of maternity leave. Rural women however, still spend 6 months at their mother's place. Asking about my slim sisters-in-law Vaishali said, “How are they so skinny?” I replied that they exercise and take care of what they eat, which is what I knew to be true. “Their mother and mother-in-law allow them to eat how much or how little they want in the first 6 months?” she asked. “Actually, my mother-in-law spent a week or two with them but otherwise they live by themselves and take care of the house and the children” I replied. “What? You mean they have to work while they are breast-feeding and all of the that in the early months?” she asked aghast at hearing it.
When I replied with an affirmative she said, “I feel bad. Women need rest during that time. For us, we are told to just relax, eat, and focus on taking care of the baby.”

Could this care have something to do with India’s high infant mortality rates I wondered? A woman who has delivered a child is referred to as a balantin. A balantin goes through balantpan (childbirth). Interestingly the word balantpan is also translated by Marathi dictionaries as confinement. Certainly, based on Vaishali’s description, this is a period of a woman’s life where she is expected to rest and be confined to her quarters for the most part, taking care of the child, eating the food she is told to eat, and being served by her family to ensure the well-being of her child and her body. The thrifty-phenotype hypothesis traces a relationship between the appearance of the metabolic syndrome, specifically diabetes mellitus, with low maternal nutrition and fetal growth (Hales and Barker 1992, Hales and Barker 2001). Yajnik’s studies have also demonstrated that the Indian thin-fat phenotype is affected to a great degree by maternal nutrition intake and intrauterine environment during gestation (Yajnik et al. 2004, Yajnik et al. 2008).

The rate of infant mortality has been historically rather high in India. In the 1920s, there were 240 infant deaths per thousand births. In the 1930s, this rate reduced to 130 deaths per thousand births (Jain 1985: 407). The highest death rates have been recorded among children who are under the age of 1 and then in children under the age of 5 (Jain 1985). The rate of infant and child mortality is now in decline and between 1991 (when the Indian economy
liberalized) the rate has gone down from 115 deaths per thousand live births to 59 per thousand births in the year 2010 (NIMS, ICMR, and Unicef 2012). Given this information, it is not surprising that Indians are very much focused on maternal nutrition and care of the newly born infant. Since breastfeeding is intimately connected to a mother's love in Indian culture, these new-born infants are dependent on breast milk, not only for their nutritional health but also for their emotional and mental well-being. This necessitates that the mother eats well and be healthy herself. However, the physical activity levels of the Indian population, both rural and urban, are now on a decline, as has been previously mentioned in this dissertation. I believe that further analyzing my body size preference ethnographic data along with the non-parametric tests that I have run on the body size card data I collected, might result in a clearer picture that might get to the heart of maternal obesity that I have noticed in my research interlocutors. Additionally, since socioeconomic position and educational level are often cited as affecting infant and child mortality rates, (NIMS, ICMR, and Unicef 2012, Singh et al. 2011) it is important to carry out such a study among different caste and class groups. More importantly, how does this fear of losing the infant in its early life affect the bodies of women? Are women today being overfed as in the past but not losing the weight they gain during and after pregnancy because they no longer have lives that are as mobile as the ones their ancestors lived? This is a question that deserves to be answered because cultural behavior in regard to childbirth might now be
resulting in high obesity rates among contemporary Indian women, thus resulting in higher incidences of CNCDs in general.

Finally, as a result of financial and temporal constraints, I was unable to carry out the study over a longer period of time. In the one year that I met my interlocutors, several new directions became apparent. In contemporary India which is urbanizing at an exponential rate and where people are leaving villages to go to cities in search of a better life and a better education, what is to happen to agriculture in India? This national occupation is undergoing significant changes not only due to global economic changes but also as a result of deforestation which results in fields ravaged by those sacred but pesky makads (monkeys). As class begins to disentangle from caste in new and interesting ways, how is this shift to affect Indian society in particular? More importantly, is the pattern that I noticed among Deorukhe women common among all Indians in general? I suspect not. In such a case, my hope is to be able to carry out a study that incorporates not only Deorukhe men from rural and urban Konkan, but also people belonging to other caste groups, so as to gain a clearer understanding of the broader picture.

On the last day of my rural Konkan fieldwork, my mother and I decided to take a walk in the village of Abloli where we were living for that last leg of my rural fieldwork. As I walked down the picturesque main street of Aboli on that foggy morning, it dawned upon me that I might not return back to rural Konkan for at least the next 3 to 4 years.
I felt a deep sense of sadness settle over me. Abloli was already beginning to show signs of developing faster than the rest of the villages because of its central location. It was an important stop where State Transport buses arrived and left and private bus companies now had offices in Abloli as well, a very rare occurrence in interior rural Konkan. It was in Abloli that I had noticed an entire field of produce that was taken care of by a village co-operative consisting of women. I had watched Abloli show signs of becoming a census town. How would Konkan look years later when I would visit it again? Would all of the villages have become census towns when I would come back? How many of my rural interlocutors’ young children will have left the village for
higher education and jobs in cities? What would happen to their bodies and their lives? All of these questions still remain to be answered. As I landed in the United States of America, I struggled for months to compile and analyze my data. But in all of the months that has taken me to write this dissertation, I have never forgotten that my interlocutors are people first and not just data points, that their lives matter, and it is my hope that my research displays them as such and helps alleviate their problems.
CHAPTER 8

CONCLUSION

In discussions about nature and culture, the body occupies an important place. The body being a go between of external (environment) and internal (spiritual) influences, it stands to reason that the previous chapters have trended from external effects (anthropometrics) to internal (thought) processes. The mediator between these spheres is the food that sustains the body. We consume food not merely for survival, but also as take enjoyment in the activity. Eating is an activity which, in almost all cultures, is steeped in social, emotional, religious, and political circumstances. Speaking about food, body, and the self, Lupton (1996: 1) states, “Food and eating are central to our subjectivity, or sense of self, and our experience of embodiment, or the ways that we live in and through our bodies, which itself is inextricably linked with subjectivity”.

Food in India, just like in any other culture, is heavily laden with social and emotional meanings. Both Khare (1992, 1995) and Appadurai (1981, 1988) have demonstrated how food in India is encoded with power. Gastro-politics in India has a social, religious, and an economic dimension to it (Appadurai 1981). The current resurgence of Hindu nationalism is implicitly tied to food. In present day India where eating beef might result in the loss of one’s life, it bears to ask how important food choices are for one’s identity: social, political, and medical. The importance of eating vegetarian foods and being able to discern them from non-vegetarian foods looms so strong in the Indian psyche.
that it crosses any boundaries of their concern over adulteration. Solomon (2016) brings forth this notion of *milawat* (adulteration) which consumes the mind of the Indian people. Everyone acknowledges that outside food, especially packaged foods are adulterated and should be consumed in moderation. But more important is the label that shows if the food is vegetarian or non-vegetarian.

Marked by a red circle if non-vegetarian, and green if vegetarian, this clear marking makes packaged foods less dangerous to eat than the loose or bulk foods sold at the local *kirana* shops. One cannot trace who has touched these foods, but at least packaged foods make a clear claim to being vegetarian. This is related to the Hindu law of *karma*. Karma, “the law of deed and its retribution” (Prabhu 2000:9) states that good deeds bring good karma and bad deeds bring bad karma. Those who have done good deeds in their past lives will be born as Brahmins and Ksatriyas, two of the highest caste groups. Eating vegetarian food, as prescribed for members of the high Brahmin caste, is therefore a way of protecting one’s body and soul from accumulating bad *karma*.

At the base of the Indian foodscape is the ideology of Ayurveda. The Ayurvedic ideology of food asserts that, “Food mutually nourishes and cures the body and soul of a Hindu” (Khare 1992: 208). The right kind of food when eaten will result in a good body and a good mind. Ayurveda claims that to attain a spiritually higher position, one needs to consume foods that are right for both their age and their social position. According to the Ayurvedic ideology
then, the spiritual, nutritional and medical aspects of food are intertwined (Khare 1995).

Besides the Ayurvedic perspective, food also has semiotic functions in India. Appadurai claims that there exist two diametrically opposed semiotic functions to food in India. Namely that “it can serve to indicate and construct social relations characterized by equality, intimacy, or solidarity; or, it can serve to sustain relations characterized by rank, distance, or segmentation” (Appadurai 1981: 496). Staples’ ethnographic vignette of Das (mentioned at the start of chapter 6), who acquiesced to having sexual relations with a lower caste woman while at the same time refusing to eat food prepared by her, is indicative of the concerns about purity that occupy the mind of upper caste Brahmins in India (Staples 2016).

Given this literary background my research demonstrates that while rural Deorukhes continue to struggle with the social and economic changes that are affecting caste relations, they refuse to break bread with members belonging to lower caste groups (except in very particular circumstances), because that is one aspect of their identity as Brahmins that they value above all. Moreover, this research also demonstrates that it is unwise to extend the behaviors and attitudes of rural Deorukhes as being emblematic of the attitude of all Deorukhe Brahmins in general. As evinced by this data, there are discrepancies in the eating habits and commensal rules that are followed by Deorukhe households based on the environment that they occupy. Additionally, younger generations, in this case, specifically Deorukhe
daughters, are highly aware of the symbolic value of eating certain foods and they actively choose to do so to index that they belong in contemporary post-liberalized India.

While younger generations put their trust in packaged foods, and “hygienic” foods from places such as McDonald’s, the older generation prefer to put their trust in knowing hands. Rumors about packaged foods and fast foods circulate among parents, thus affecting the choices that they make for their families. For instance, news about rice made out of plastic or the presence of beef and pork in Nestle’s Maggi noodles making rounds via Whatsapp (a web based instant messaging application used by Indians on their smartphones) resulted in several Deorukhe mothers stating that they have now told their children that these foods will not be allowed inside the house. This is akin to Ohnuki-Tierney’s (1997) story about the catburger saga in Japan’s McDonald’s. These patterns, noted in my own data, are in line with studies that have noted that youth from India form subcultural identities resulting in globally-inflected patterns of consumption (Lukose 2005).

In such a milieu, it is the home-made foods that become trusted sources of food for the Deorukhe mothers. One of the major contribution of my research is in demonstrating that there is more than a simple binary division of food as ‘inside’ and ‘outside’ foods in the Indian foodscape, as mentioned by Caplan (2009). With changing roles of women, increasing demands on their time, as well as the expectation that they fulfil their roles as the gastronomic decision makers and able householders, urban women use the category of ‘home-made’
foods to alleviate this pressure. These ‘home-made’ foods blur the strict dichotomy of ‘inside’ and ‘outside’ foods, thus complicating the previously understood picture of the Indian foodscape.

In his 2016 book Solomon discusses the export of fish that were caught by the community in which he worked. Those fish that did not make the cut for exportation were relegated to local circulation. This knowledge is commonplace in India. While I was doing fieldwork in 2014, the news came out that Indian mangoes had been banned from exported into the EU that year (The Hindu 2014). While mango exporters all over the country suffered losses, many Indians were happy to get to eat export quality alphonso mangoes. In the ensuing summer, alphonso mangoes flooded the market at rates cheaper than those seen in the last 5-6 years. As I made my way from household to household that summer, I heard the availability of too many mangoes as a common reason for the changes in my interlocutors’ body measurements when I took anthropometric measurements.

This revealed an important aspect that continued to re-emerge throughout the course of my fieldwork. That try as they might, the body was susceptible to the vagaries of the market and the economy. Seasonal changes in eating patterns also affected bodies to a significant degree according to my interlocutors. And so, as the year wore on, there was always a reason for one’s increased weight gain. Either it was the ample sweets eaten for Ganesh Chaturthi, the pharal (snacks) that was ubiquitous during Diwali, or the til gul (sweets made out of jaggery and sesame) eaten for Sankranti. Their bodies
constantly fought the onslaught of rich and delicious foods. The only measure of prevention was to eat a set amount of food. And it was here that dieticians became important. This concern was particularly felt by young urban Deorukhe girls.

Throughout the course of my fieldwork, I noticed that bodies were discussed, critiqued, and analyzed publicly by my interlocutors. Some self-reflected about their own bodies when asked if they were happy with their current body weight while others discussed what they did to keep their bodies fit. In this process, even my body was discussed and commented upon. Why not? After all, I was going into their homes, measuring their bodies, and asking them their thoughts about their own body size and weight.

I went to the field hoping to be able to bridge the gap in the current literature between how people eat food, why they choose to eat the way they do, and how it affects their bodies. In the process of approaching the current surge of CNCDs in India, I set out to demonstrate that the body is a cultural entity.

Cultural values, expectations, and demands affect one's body. Certainly, several scholars have pointed out the need to view bodies as cultural (Csordas 1990, Farquhar and Lock 2007, Ingold 1990, Martin 1992). “…The body is not an object to be studied in relation to culture, but is to be considered as the subject of culture, or in other words as the existential ground of culture” (Csordas 1990: 5). Nowhere is this synthesis clearer than in Ayurveda, which believes that your food makes your body.
How do all of these concepts and ideas appear in the lives of my interlocutors? My interlocutors firmly believed in the idea that a good diet makes a good body. This ties into the latest trend of going to a nutritionist, which has become a favored way of dealing with the problems that affect urban bodies. As ideas travel from cities to villages and from the television sets into rural households, certain ideas about foods start to emerge as patterns. Young girls in rural Konkan unequivocally avoided rice. Many told me that rice made people fat, an idea not at all novel to me since I have myself grown up in India having been told to avoid eating rice for the fear of putting on weight. Yet, living in rural Konkan, talking to these young girls who abhorred eating rice, the experience was surreal. Konkan is one of the major rice producing regions of India. The traditional morning breakfast of the Deorukhes was *mau bhaat* (soft rice) with *toop* (clarified butter) and *metkut* (a mixture of lentil powders). That these young girls were refusing to eat the rice that was literally growing in their family plot right outside the door, demonstrated the power of media.

At the same time, a new gluten-free diet was becoming popular in Mumbai. This new fear of gluten made rice the savior. But not white rice polished from the mills, but brown rice, which was nutritious thanks to the fibers and good nutrition it held. When asked about their food choices many urban Deorukhes told me that since bad oil could affect the appearance of CNCDs, they had moved to using Rice Bran oil, which was said to be the most nutritious and affordable in the market at the time. Solomon (2016) calls such foods functional foods, which are fast gaining popularity in India.
The constant onslaught of foods and other factors that were outside of one’s ability to control is what made bodies diseased. According to my interlocutors, mental stress, lack of sleep, a busy schedule, tension connected to work and exams, all of it contributed to making one’s body diseased and susceptible to problems. In this globalized world, bodies become porous, absorbing the problems and issues the surround us. Solomon (2016) talks about the tenshun that people in Mumbai talk about. This tenshun affects their bodies and increases their susceptibility to the CNCDs according to some of his informants. More than a few of my participants vocalized their belief that mental stress and tension affected their body. In some cases, it resulted in increased weight while in other cases it affected blood pressure.

These diseased bodies could only be taken care of by watching one’s diet. The ‘food-drug’ boundary that Solomon (2016) discusses is rather tricky. Of course, my interlocutors agreed that lifestyle was also an important determinant but food was paramount. This was the battleground that householders – women had to fight in. In their minds, the continuous onslaught of unhealthy foods could only be fought by literally changing household diets to entice children into eat foods inside the house. Be it scolding, enticement, or guilt, mothers had to find new and inventive ways to regulate the diet and health of their family members. In this context, their last resort was the dieticians and nutritionists.

I am unable to count the number of urban women and girls who brought up the name of Rutuja Diwekar. Diwekar’s famous book “Don’t lose your mind
lose your weight” had become a guide for people to refer to when they look for answers on how to lose weight. Kareena Kapoor, a famous Bollywood actress, has written the foreword for Diwekar’s book and ascribed her new ‘size zero’ figure to Diwekar’s fantastic diet plan. In the foreword Kapoor writes, “In Ladakh, I also ate momos and thupka (on the last day of the shoot I was even allowed a pizza)” (Diwekar 2011: 2).

In her book Diwekar speaks constantly about having a healthy balance between eating right and exercising. “Don’t lose your mind, by complicating something as simple as feeding yourself (although these words appear in smaller font on the cover, they are really the bigger message). Losing weight, as you will realise by the end of the book (I hope), is incidental. A by-product of following a common-sense approach to eating – eating right” (Diwekar 2011: 5-6). Young Deorukhe girls in Mumbai who felt the need to lose weight often realized that going to a dietician helped them reign in their food intake and substantiate why they refused to eat out so often with their friends. Dieticians have become allies of Deorukhe mothers in this scenario as they inform children about the dangers of eating out and recommend that they eat foods cooked at home to safeguard their health and lose weight.

My study among the Deorukhes demonstrates the challenges that contemporary Indians, especially young women and daughters, are facing when it comes to diet, health, and identity. In this India which is full of imported foods and ideas about nutritional specifications with regard to these foods, the two epistemes of biomedicine and Ayurveda interact significantly. In such a
situation, biomedical discussions about CNCDs are getting entangled with Ayurvedic and caste based prescriptions about what food is meant to be eaten.

While Ayurvedic ideologies are viewed by some in western societies to contrast mainstream “Western” views of foods, among the Deorukhes food can be construed of as both in terms of Ayurvedic humors as well as biomedical categories of carbohydrate, protein, and fiber. My interlocutors view their bodies as indicative of their progressiveness in thought. At the same time, they remember their caste based food prescriptions and proscriptions. As they struggle with the onslaught of outside foods, mothers shift and change their repertoire of meals in an attempt to safeguard the social and medical values of the bodies of their family members.

This study has shown that the experience of embodiment is a social product. Contemporary India is a product of its long agricultural history, centuries of influx of foreign foods and traditions that have shaped beliefs and values, the impact of European colonization, and finally the contemporary processes of “urbanization”, “globalization”, and “modernization”. While the earlier historical processes have definitely left an imprint on Indian phenotypes, my interlocutors bodies are significantly impacted by the current global processes. The processes of “globalization” and “modernization” have affected these subjects’ diets and their attendant body phenotypes, as well as their attitudes towards foods and body phenotypes. In this process, my data demonstrates a surprising trend in the urban context. The predictability of daughters’ phenotypes from their mothers’ are quite different in urban
environments as compared to their rural counterparts. This again ties in to the cultural environment and demonstrates that genetic background can result in very different phenotypes (and hence, notions of “heritability”) according to that environment.

In conclusion, after doing this research I have understood that not only is the Indian foodscape far more complicated than thought before in the literature, but also that as global changes continue to affect the material and culinary culture of India, the Deorukhes find new ways to make sense of these changes as well as navigate them conform to their existent worldview. In this process, what is affected is not only their morality and culinary landscape, but also their bodies. In this globally affected contemporary Indian ethnoscape, my research reveals the anxieties felt about retaining Deorukhe identity while some Deorukhes have started indexing a cosmopolitan identity. More importantly, the literal collision of the Ayurvedic episteme with the biomedical episteme that surrounds discussions of CNCDs, is resulting in culturally situated approaches towards treatments of diseased bodies. More importantly, the surprising finding of a change in the literal genetic transmission of phenotypes between urban and rural daughters indicates that it is of utmost importance to understand how food and lifestyle are intricately tied to the resultant bodies of the Deorukhe mothers and daughters that I studied. The broad implications of this study are that it aims to aid in understanding the appearance of metabolic syndrome and the gendered mechanisms that affect its appearance. The hope is that it adds a nuanced perspective and will
ultimately aid in making decisions about policy implementations to combat the ever-increasing mortality rates resulting from CNCDs.
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APPENDICES
To: Gauri Pitale

From: Jane L. Swanson, Ph.D., CIP
Chair, Human Subjects Committee

Date: January 9, 2014

Subject: The Effects of Globalization on the Health and Nutritional Status of Urban and Rural Deorukhe Brahmins of Maharashtra, India: A Comparative Analysis

Protocol Number: 13460

The revisions to the referenced study have been reviewed and approved by the SIUC Human Subjects Committee.

This approval expires on 12/1/2015, one (1) year from the review date. Regulations make no provision for any grace period extending beyond the above expiration date. Investigators must plan ahead if they anticipate the need to continue their research past this period. The application should be submitted 30 days prior to expiration with sufficient protocol summary and status report details, including number of accrued subjects and whether any withdrew due to complaint or injury. If you should continue your research without an approved extension, you would be in non-compliance of federal regulations. You would risk having your research halted and the loss of any data collected while HSC approval has lapsed. Extensions will not be required to continue work on an approved project when all the data has been collected, there will be no more interaction or intervention with human subjects and subject identifiers have been removed (e.g. during the data analysis or report writing stages).

Also note that any future modifications to your protocol must be submitted to the Committee for review and approval prior to their implementation.

Your Form A approval is enclosed. Best wishes for a successful study.

This institution has an Assurance on file with the USDHHS Office of Human Research Protection. The Assurance number is 00005334.

JS:kr

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