Developing a Technological Garment to Aid Those with Anxiety Disorder

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Introduction

Anxiety disorder is "the most common mental illness in the U.S., affecting 40 million adults in the United States age 18 and older, or 18% of the population" according to the Anxiety and Depression Association of America (Anxiety 2017). Technological garments have begun to develop for hospital patients to take a patient's vitals wirelessly with smart fabrics, however, the patients with anxiety disorder also need a technological garment to aid their pain, and there has been little research about developing the smart garment in the fashion area.

Purpose of Study

1) To analyze what kinds of garment problems hospital health patients with anxiety disorder have based on the function and regulations of the garment from behavior health hospitals,
2) To explore what new technological advanced fabrics are available for hospital patients, and finally
3) To provide prototype of the garment.

Literature Review

When researching acupressure, H7 was a pressure point on the body that would do well to relieve anxiety. “It aids to treat emotional imbalances, nervousness, anxiety, palpitations, fear and forgetfulness” (Mukherjee n.pag.). Smart fabric has been implemented into hospital gowns to measure and monitor patients’ vitals with ease. “Cardiac patients could have a patch embedded in the smartgown over the chest that pays special attention to patterns and anomalies in heart rate” (Top S Medical, 2015).

When researching other treatments for panic attacks, essential oils were a popular choice among sufferers due to aroma therapy having an effect on the limbic system of the brain. The top essential oils for balancing emotions are "lavender, clary sage, sweet orange, bergamot, and angelica" (How To, n.pag.).

Research Questions

1. What textile will be most suitable for the garment?
2. What dress codes need to be considered when designing the garment?
3. How can technology be incorporated aid a patient during a panic attack?
4. What are the key indicators of a patient undergoing a panic attack?

Method

Quantitative methods of research took place. New technological advanced fabrics are on the market were researched to determine the textile for the garment. Several examples of dress codes from different hospitals were analyzed to create one general list of rules and regulations for the garment. The research of safe treatments for anxiety then took place. Ould need to perform. Specific symptoms of panic attacks were also researched to conclude when sensors in the garment would be triggered to perform these treatments. Smart Fabrics were analyzed to determine the garment’s technology.

Results and Data Analysis

Sensors

Sensors will constantly monitor heart rate and blood pressure. If these spike to an abnormal degree, the acupressure device will inflate and essential oil tube will contract, allowing the acupressure to take place on the pressure point and an essential oil droplet to be ejected onto the skin. They will pick up on the readings from the heart rate and blood pressure smart fabrics, and go off when these reach a certain level. The vitals of each patient will be taken and programmed into the garment before it is worn. The sensors will be custom programmed to go off for heart rate and blood pressure depending on what these read when the individual is at rest. The sensors will not go off unless there is an abnormal spike.

Essential Oil Ejection

The thin tube within the collar of the garment will have an essential oil (sweet orange) contained inside of it. There will be one microscopic pore in the tube, therefore the cohesion of the oil will allow it to stay within the tube unless pressure is applied briefly to force a droplet onto the individuals skin. The tube will contract slightly and for a brief moment (enough to eject one droplet) when a sensor is triggered.

Taking Heart Rate and Blood Pressure

A smart fabric embedded patch would be sewn over the chest to measure heart rate. The smart fabric will pick up on heart rate of the individual. On the sleeve of the garment, smart fabric will be applied in order to detect the blood pressure of the individual. If blood pressure spikes to an abnormal amount and the individual’s blood pressure increases, this occurrence will trigger sensors that will then trigger the acupressure and essential oil devices. This occurrence will also relay a signal to a nurse's station that the patient is potentially undergoing an anxiety attack.

Acupressure

The cuff will have the technology similar to that of a blood pressure cuff. The cuffs around the sleeve will inflate with air when triggered by a sensor, and the bulk of stiff fabric sewn into the cuff over H7 will be pressed towards the individual’s skin, therefore pressing the pressure point.

Implications

This study will help patients in behavior health hospitals and lead to a greater variety of technological garments developed in the future. After a prototype of this garment is created, adjustments and improvements can be made. Interviewing individuals suffering from anxiety disorder will be a key to understanding these changes that should take place and surveys can also be included in a further study about peers awareness of mental disorders and/or if peers suffer from anxiety disorder.