

# Assessing Awareness About Using wearable Devices In Healthcare

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**Abstract-** In this modern world most of the people give the first preference to earning and do not take care of their health. Many people are affected by health problem because of the pollution and fast food. There is no time to maintain their health in their fast daily routine. That's why the modern technological improved world provides the different types of wearable devices but the health related wearable devices help us to maintain our fitness and health. We can get the real time data from wearable devices, which are very useful to maintain our health up to date. A wearable device lets users to work together with devices. Wearable devices help us to live the healthy and experience lifeuse of innovative technology. It is used to tracking the information related to fitness and health. In this paper a report of the survey conducted on the awareness on health care wearable devices and its acceptance for usage by the Indians particularly from the state of Tamilnadu is reported.

**Keywords-** Fitness trackers, HealthCare awareness, Wearable devices, Sensor.

## I. INTRODUCTION

Different types of technologies can be used to ensure the ease of use in implementing wearable devices for monitoring of healthcare systems;it involves creation and utilization of wearable platforms, interoperability standards, and intelligent human device interfaces that provide just-in-time, easy to understand information. Wearable devices bring up to electronic technologies or computers that are combined into items of accessories and clothing which can be comfortably worn on the body. Wearable devices such as Smart wristbands, watches, shirts, shoes, shorts, caps, headbands, eyeglasses, jewellery, cloths, belts and necklaces jewelry, fitness trackers / bands, smart glasses and other wearable devices [1]. These wearable technology can execute most of the computing tasks as smart phones and laptop; Wearable technology tends to be more sophisticated than hand-held technology in the market today because it can provide sensory and scanning features such as biofeedback and tracking of physiological function not typically seen in mobile and laptop devices,. Wearables help users stay

motivated to remain healthy and keep connected in the home, at work and in the hospital.



Fig 1. Wearable Things

Most smart watches have applications that allow users to have a fully automated home life. These apps can control things by turning on the AC or portico lights before you get home and from any place where you are [2]. Most of the healthcare and fitness-oriented wearable devices interact with the user through biometric measurements such as blood pressure, heart rate, perspiration levels, and also the complex measurements similar to oxygen levels in the bloodstream.

## II. REVIEW OF LITERATURE

Wearable devices allow the user access to information in real time. Data-input competences are also a feature of such devices, and store in its local storage. Wearables used in hospitals can help track & analyze information about a person's health which can then be transferred to a remote medical personnel. [3] This would allow physicians to remotely check in on patients, providing an improved doctor-patient relationship [4]. Wireless based on

continuous monitoring aspect of home patients. Wireless patient monitoring system with body sensor network is an effective solution for monitoring home patients. It reduces cost as well as saves times of both doctor and patients [5]. Various wearable health monitoring techniques reviewed and also discussed the possibilities of using Internet of Things in the field of Healthcare and rehabilitation. [6]. Recent status of research and development of health-monitoring was reviewed by summarizing and comparing the attributes of the most capable current achievements of several worldwide projects and commercial products [7]. One of the most important elements essential in data collection is the sensor. Discuss about data collection use of Semiconductor technology [8]. Addressing costs and compensation problems of wearable sensors and systems, field of rehabilitation, the quality of care provided to older adults and subjects affected by chronic conditions via remote monitoring of wellness and health. [9]. Medical sensors were used to collect physiological data from patients and transmit it to Intelligent Personal digital Assistant (IPDA) and also important role of body sensor networks in medical [10]. Wearable technology developed in innovative thinking look like a micro-chips or even smart tattoos. Eventually, the determination of wearable technology is to create constant, convenient, seamless, portable, and mostly hands-free access. It comes in all shapes and sizes. The goal of this paper is to present about wearable things in healthcare systems and awareness in rural and urban areas and approaches from the result of the survey. Some ethical and social aspects of using wearable technologies are also stated.

### III. INFLUENCES OF WEARABLE TECHNOLOGY

There are many causes to use wearable computing. Comments for controlling wearable devices, use Existing Design, don't reuse. Develop it, but don't repeat. Think always on, think low power, Size of the one device does not fit to all, so give one more optional devices, Secure with everything, Make a real-world environment, Get the price exact and reasonable, should be a customer (patient, doctor and normal users) convenient. The inferences and customs of wearable technology the arenas of health and medicine, fitness, transportation, enterprise, finance, gaming, aging, disabilities, education and music. The aim of wearable technologies in each of these areas will be to smoothly incorporate functional, movable electronics and computers into individuals' day to day lives. Most of the healthcare wearable devices enhance their features based on patient or user experience and feedback.

### IV. WEARABLE DEVICES IN HOSPITAL

According to our survey and study, the estimated number of wearable devices will reach maximum users by 2020 but some people are there who do not have such awareness about those devices. Doctors, closely surgeons, have been quick to adopt wearables such as Google Glass. It is used to preload CT and X-ray images. That small wearable device is attached to a patient's body observing their vitals minute-by-minute and gathering medical-grade data for doctors' use. Usually, patients are checked on every 4 to 8 hours, which is not always ideal for the amount of care each and every patient needs. The devices warn nurses through smart phones, giving them the capability to be more efficient in prioritizing patients. Certain devices observe patients 24 hours a day. Patients with serious illness can wear them home, and it can notify the hospital of any bad signs. This is beneficial to the patient because it prevents the stress of returning to the hospital and reducing unnecessary hospital admissions saves money for everyone involved. It could allow doctors to use that record maintain the important electronic health record data. This supports medical professionals preserve the data they need while maximizing quality time with a patient. Some hospitals already use wearable devices for data collections.

### V. SENSORS WITH WEARABLE

Sensors and wearables can be integrated into various devices. Many wearable devices use several digital health sensors that are usually incorporated into sensor networks comprising other body-worn sensors and/or ambient sensors. Some monitoring systems need the collected sensor and wearables data to be uploaded to a remote site such as a hospital server for further clinical analysis. Most of the present-day applications of sensors and wearables can be classified into the following categories such as Home-based Therapy, Treatment Effectiveness Assessment, Fitness Monitoring, Primary Recognition of Disorders, and Care Monitoring. Most have sensors that collect raw data which is afforded to a database or software application for analysis. This analysis naturally activates a reaction. It might alert a surgeon to contact a patient who is experiencing abnormal symptoms or it might send a congratulatory text message when an individual achieves a fitness or diet goal.

### VI. METHODOLOGY

A survey from 300 candidates who are aware of healthcare wearable devices was conducted. Responses were collected from both male (30%) and female (70%) respondents, aged between 18 to 55 years in the rural (100 numbers), urban (100 numbers) and semi urban (100 numbers) areas of Tamilnadu in India. The survey consisted of 20

questions, using multiple option answers. Responses were random and voluntary and some were anonymous and collected using online, personal and postal.

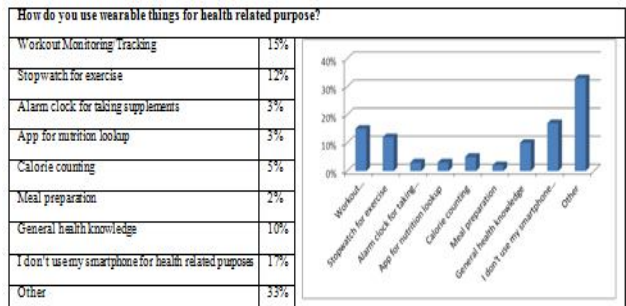
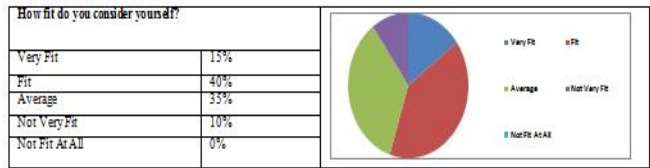
Table 1: Survey Conducted Areas

	Rural	Urban	Semi Urban
Students	60	25	35
Employed	15	50	35
Home Makers	25	25	30

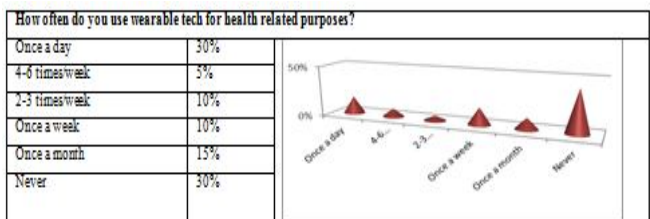
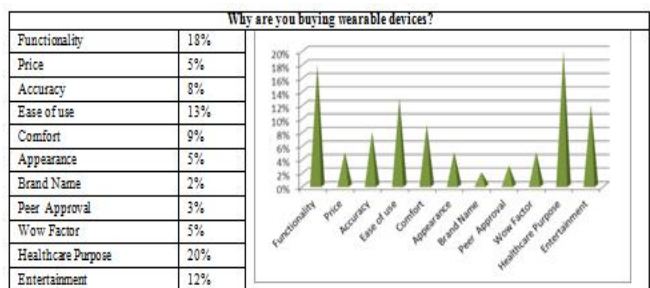
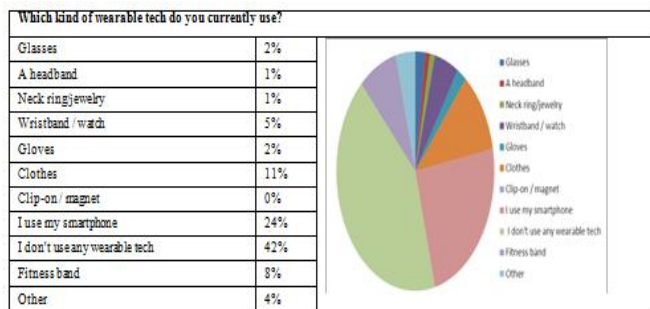
During this survey, 50% of the respondent said they are aware of wearable devices but have not started to use it, 40% said it helped them managed their health but use them now and then, and 10 % said they have understood their wearable device purpose and are using them regularly.

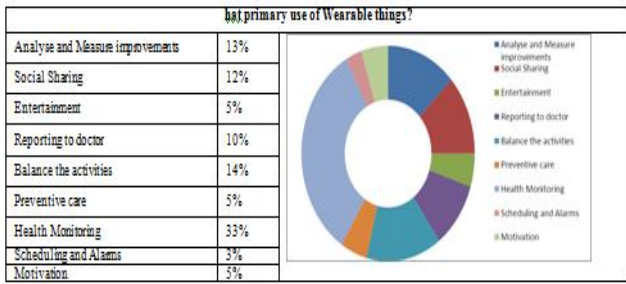
**VII. RESULTS AND DISCUSSIONS**

Peoples are connected to healthcare wearable technology using mobile phones and apps, remote monitoring tools, personal health care trackers, sensors, computers and networked devices, to help providers and patients manage chronic conditions, maintain health & wellness and improve adherence, engagements and clinical outcomes. Related health addresses a variety of health challenges, from heart failure, hypertension & diabetes, to parental care, medical adherence, cancer pain management, teen asthma and smoking cessation. Predictive models, along with the insights pick up from healthcare IoTization, will simplify the bedbound residents with self-monitoring of their health parameters. Businesses will be able to automate their processes, improve efficiencies and bring the providers closer to the patients by enabling real-time patient access, thus solving some of the biggest challenges in healthcare industry today – time and accessibility.

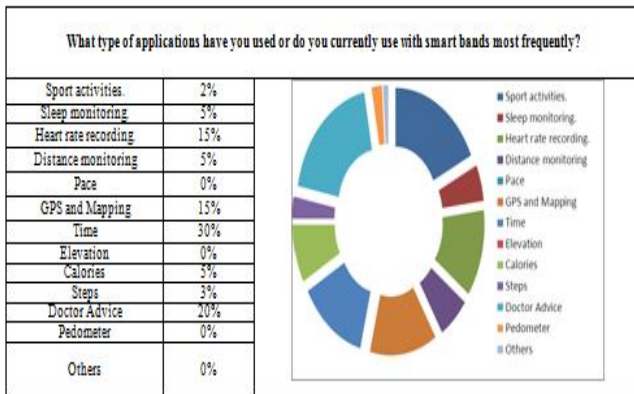


We conducted this survey in rural, urban and semi urban areas. Most of the people have smart phone, some people use healthcare apps in that device but they are not aware about healthcare devices. Further explanation about those devices made them interested to use it but they were shocked to know the cost of these device.





- Cheating
- Price tag
- Data Security and Privacy
- Loss of engagement with the world
- Justice
- Patient Security and Privacy
- Assurance
- Unoriginal of data confirmation.



**8.2. Advantages**

- Immediate access to data
- Self-monitor fitness and health data
- More discreet
- Communication with Doctor
- Reduction in healthcare costs
- More timely interventions
- Increased quality of care

**IX.CONCLUSION**

Most of the devices collect the real-time biometric data from the Healthcare devices. In spite of wearable technology only being in its infancy, some people have already adopted wearable devices within their healthcare problem based. Not to mention the public health benefits; feedback from the wearable device is able to positively modify our behavior, resulting in reduced health risks and improving the quality of life. In this technological world whatever devices appear and disappear to our day to day life, but we should control and maintain our health. There is no need to use these devices, if one can concentrate and maintain their health through knowledge by oneself. Ensuring precautionary measuring in place is the only solution to get rid of revelation to health related issues. Best precautionary option is to avoid the use of such wearable devices without consulting the Doctor. “Take care of our health, Take care of our Future”.

**X. ACKNOWLEDGMENT**

We would like to thank the publishers, and also for responder of our survey for making their Awareness Survey. I am greatly thankful to all peoples who are supporting for our survey.

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**VIII. TRIBULATIONS OF USING WEARABLE DEVICES**

Most of the health care wearable devices are declared as failure because of untrained user, may be hospital or public. One of the major concerns is security, privacy and compliance with the Health Insurance Portability and Accountability Act. Further barriers to the successful integration of Google Glass, Fitbit and other wearable technology in health care include compatibility with existing software and electronic health records, the expense of devices and infrastructure issues with networks. Health specialists can be hardy to alteration or knowledge a new device for fears that it will hold many of the problems. Areas of potential for wearable technology in health care in spite of these barriers to success, many are still hopeful for the acceptance of devices. Wearable devices continuing their success in the fitness and health sectors and moving more into health care through whole body health. Patients feel comfort, both physically and mentally, is one of the most essential features in wearable medical device. Patient if feel comfortable with a wearable solution, he or she is much more possible to use it as recommended. No one has to know the individual is undergoing a medical treatment or being monitored by healthcare professionals.

**8.1. Challenges**

Peoples face a number of challenges when integrating wearable technology. Some of these challenges include:

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5. <http://si-vision.com/>
6. <http://www.keliking.com/Wearable-Technology-id562612.html>