

Major Handheld Health Gadgets among Indian Users: Review Study 2020

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Abstract

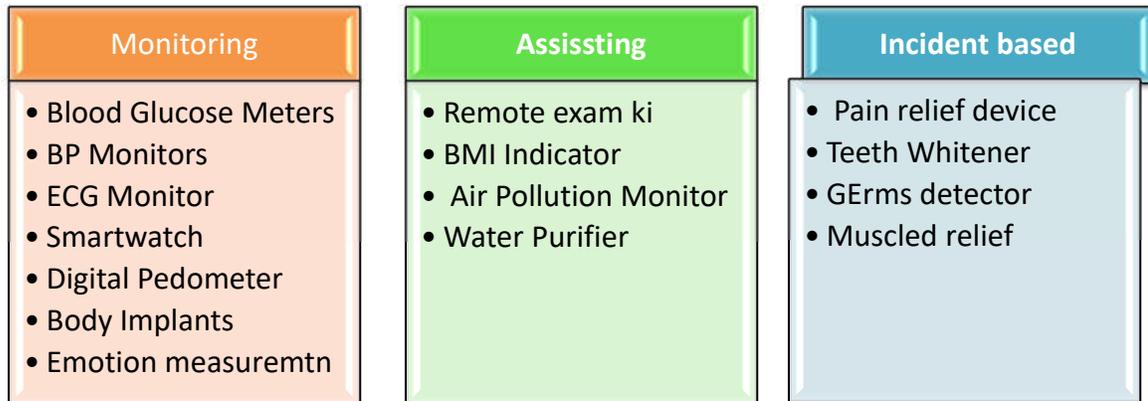
In today's world the technological intervention is attracting consumers through various applications may in healthcare, retail, industry and academics. The efficiency of user application is directly co-related with gadgets. This secondary data research paper focus on the understanding the importance of major handheld health gadgets and their application for self health management in Indian geography. This study specifically highlights the benefits of Glucometers, Blood pressure monitoring device and infrared thermometers in personal health management and concludes that the use of handheld health gadgets for establishing a proactive healthcare delivery model in India.

India is a largest democracy in the world with more than 1.3 billion people. Diversified health care services are available and generally availed by the users. The health information and its access is one of the most important factor which affects health status in any community among other factors like genetics, life style, physical and social environment etc.. Technological interventions in health care services through e- health options, mobile health solutions and health gadgets have allowed the users to manage their own health and monitor it periodically. Growth of mobile technologies in India plays an important role in improving the access to health facilities, clinical care and health awareness among the people. Technological enhancements in the delivery of health care results in more-convenient, more-effective, and less-expensive treatments for today's time, as it's difficult for users to keep in mind their stress level and day to day hassles. India is facing the problem of poor health status due to aging population, adverse behaviors and chronic diseases. As per the World Health Organization (WHO), the spread of chronic disease will increase 2.5 times with numbering 84 million in 1995 to 228 million in 2025. In developing countries like India, chronic disease will spread with a rate of 60%. Health gadgets help a person to track and monitor their own

behavior and body with timely remote medical assistance and provide a multi disciplinary care. Health gadgets either mounted over the body or can be handheld for a specific activity or for a time bounded need. Handheld gadgets allow the users to monitor chronic disease situation and to manage precaution necessary from diseases and basic hygiene. (Corneanu, M, 2018). This paper aims in exploring the acceptance and market share of Glucometers Blood pressure monitoring device and infrared thermometers in India because their market share is significant and use is evident. The market share of health gadgets in Indian is about 655 million US Dollar in 2020 (Madanian, S. et.al. 2019).

Health care is vast sector prevailing in our society and integrated with the economic system for providing various services such as curative, preventive, rehabilitative, and palliative care. This sector constitutes 10 % of gross domestic product (GDP) of most of the developed nations. The size of Indian Health care sector in 2020 is approx. US\$ 280 billion. The intervention of Information technology in Indian healthcare services is also booming with a value of US\$ 1.5 billion. For information processing world is shifting over the mobile technologies and India leads the transition for being second largest telecommunication market registering a Compound Annual Growth Rate (CAGR) of 5.2% for mobile services market revenue between 2014 to 2017.

In today's scenario user are seeking for healthcare service which are more accurate, specific and comfortable in nature. Handheld health gadget allows consumers to enjoy healthier life with manageable expenses. Handheld health gadgets users can be segmented into (i) Proactive health management group, (ii) Chronically ill patients. First segment will willingly invest time to learn the use of gadgets and ready to incur cost to acquire healthier life while the second segment are using the health gadgets only for the treatment purpose and to shift their healthcare process from being dependent to self-management (Fraser, H et.al. 2011). The market for handheld gadgets is both broad and varied. Health gadgets ranges from simple thermal scanning computers to real time and continuous glucose monitoring applications. Gadgets manufacturers are designing creative ways to fit gadgets on and with the human body in their day today routine. This market is poised to accelerate over the next few years as innovative ideas come to market and consumer interest and knowledge grows. According to a report by Deloitte, smart gadgets market in India currently holds 60 million users with a size of US\$1.9 billion (Chong, Z .2017).

Exhibit1: Categorization of handheld gadgets

Source: constructed by author on the basis of research paper by Kahukrel, J et.al. 2017

Glucometers

Glucometers provide the readings of the glucose level in person's blood. Initially the user need to prick the on the tip of the finger and need to apply the blood sample on the strip provided by the Glucometers. The glucose in the blood reacts with the chemicals coating in the strip and generates electrical current signals. These signals are passed through the gadgets and the exact level of glucose is displayed on the screen in the forms numbers.

Types of Glucometers:

- **Self-Monitoring Blood Glucose (SMBG) Meters:** These are the most basic type which display of glucose level through strips and blood sample. And generally these strips are available in the pharma shops.



- **Continuous Glucose Monitors (CGMs):** These meters are categorized under implantation health gadgets as sensors are implanted in the body of the user to

generate readings for glucose level. But the implantation is done only under regulation and medical guidance only.



- **Non invasive Glucometers:** These devices do not require blood samples but the device sense glucose level through blood rich area. This technology is still in intervention stage of medical science.



The market of Glucometers handheld health gadgets has been estimated at 0.85 US billion dollar in the year 2019 with compounded annual growth rate (CAGR) of 1.6%. Indian market stands at second position after China in Asian Pacific regional market. The probable reason is increasing diabetic population which is expected to reach 87 million in number by the year 2025. In India maximum market is covered by SMBG and CGM types of the Glucometers. SMBG had the major market share of 0.17 US billion dollars in the year 2019. The sale of a particular type of Glucometers depends largely upon type of diabetes and therefore varies from user to user. The expected growth of Glucometers in India is high with CAGR of 9% till 2025. The market of SMBG Glucometers holds a major share in India with a revenue of 0.17 billion US dollar in 2019-20 with CAGR of 9%. The major player in Indian

Glucometers market are, Roche, Dexom, Abbott and Medtronic's. The Roche Diabetes Care India, the country's market leader in SMBG with Accu-Chek with a market size of 51% in the financial year 2019-20. Dexom G6 DCM and Abbott freestyle Libre accords the market share. CBG in India has a market size of 11 %.

Glucometers in India:



Roche – Accu Chek



Dexom G6

Abbott- Freestyle Librte

Benefits of Glucometers:

- **Easy to use:** The user can prick the finger through prick stylus and pour the blood sample over the test strip. While pouring on the strip the strip must be inserted in the meter. The display shows the glucose reading.
- **Storage:** Memory button for checking past readings for a time period of 90 days. The user can track their glucose level pattern.
- **User notification:** Pre and post meal reminder for the user so that fasting and post glucose test can be done on time.
- **Crosscheck option:** Colour verification through strips with standard indicator. Through this facility the user can cross check the glucose reading by matching the strip through indicator scale over the container.
- **Test alert:** While testing the glucose level the user gets alerted by beep option to view the accurate reading. Also different sound options are provided for elder people who have difficulty in interpreting the reading. These sound level vary with low, high or average glucose level.
- **Sleek design:** the Glucometers are not robust or bulky and thus provided by the sleek design with two buttons only. Thus the user can easily carry and perform the glucose level testing on their own.
- **Alternative sites:** Through this option the blood droplet need for the test can be taken from upper arm, forearm, hand, fingertips, thigh and even calf apart from just using the fingers, even when the blood is extracted from an artery, vein, capillary or when the blood of dialysis patient with maltose.
- **Self ejection:** Through this feature the tested strip can be ejected by itself hence there is no need to touch the strip preventing and minimizing the risk of contagion.
- **Integration:** Glucometers can be integrated with the smartphone of user and can access the various networking, display and GUI option for providing glucose level and thus making it easy for user to check.

2.4 BP (Blood Pressure) monitors

A digital BP monitor uses an inflatable air-bladder cuff, a battery-powered air pump and a pressure sensor for sensing arterial wall vibrations to measure blood pressure in an artery. This is known as *oscillometric method*.

Types of BP Monitors:

- **The upper-arm model:** In this cuff that is placed on the upper arm and is connected by a tube to the monitor that rests on a surface near the arm.



- **The wrist model:** It is smaller and the entire unit wraps around the wrist. Regardless of the BP monitor type, the measurement method is the same.



The size of the BP monitor market in India was worth 558 million in the year 2018 and is expected to grow to 840 million by the year 2023 with the CAGR of 8.64%. The probable reason for increase in sale of BP monitors is high risk of hypertension among Indians and crucial role of monitoring of blood pressure by patients themselves as a part of self-management. Hypertension is a growing problem in India and causes evident challenges to health industry. According to report by Global Burden of disease, in 2016 the total death encountered due to hyper tension are 1.63 million. Report also showed that 50 % of the death is due to ischemic heart disease (54.2%), stroke (56.2%) and chronic kidney disease (54.5%).

India witnessing high risk of hypertension with percentage spread of approximately 25%. Hypertension prevalence was common even among younger age groups, with approximately one out of every 10 individuals aged 18-25 yr suffering from it. The leading market player in BP monitors in India are Omron healthcare. Entering the Indian gadget market in 2010 in last 5 years they have accorded a growth rate of 10% with revenue based market share of 45% in the year 2019. . The largest selling model of BP monitoring under Omron healthcare brand is Omron HEM -7600T.



Benefits of Digital BP Monitor:

- **Self Dependency:** The gadget allows the users to monitor their blood pressure level on regular basis without depending upon the doctor or physician. Regular basis BP monitoring can be done specially for the user under stress, indulged in smoking, having pregnancy and obesity.
- **Ease to use:** The process of blood pressure monitoring is very easy through BP monitor. As user need to wear the cuff properly and press a start button, within few minutes the recording is noted down.
- **Easy to interpret:** The recording is done simultaneously for diastolic and systolic pressure. The user from non medical background can also measure and interpret the result. As standardized measure is shown with alert symbols and signs on the LCD screen,



- Apart from recording blood pressure recording they also store the previous recording so that user can track their pattern of blood pressure.

Infrared Thermometer

Infrared thermometers allow to measure the body temperature without bringing the thermometer in contact with person. This minimizes the chances of spread of any infection. The gadgets are capable of measuring the temperatures of both person as well as non-living objects.

Types of Infrared thermometer:

- **Handheld gun:** A infrared thermometer gun is one of the most popular type of pyrometer. They are commonly used for portable applications although some models also feature an integral tripod mount.



- **Pocket Infrared Thermometers :** The pocket infrared thermometers are extremely compact. They are normally small enough to be carried in a shirt pocket.



- **Fixed Mount IR Thermometers:** A fixed mount infrared thermometer is commonly used in industrial processes where the thermometer can be mounted in a stationary position.



The Global Infrared Thermometer Market is expected to register a CAGR of 9.4% during the forecast period 2020 to 2027 and reach USD 1601.47 Million by 2027. The growth of the global infrared thermometer market can be contributed to the increase in the predominance of contagious ailments, high demand for infrared thermometer due to outbreak of COVID 19 pandemic globally, and affordability and simplicity of usage. Furthermore, a rise in the prevalence of infectious diseases, an increase in usage for neonatal, and growth in the geriatric population are also expected to fuel the market growth during the forecast period. However, a shortage of infrared thermometers in emerging situations, low reach of manufacturers, and technical difficulties are expected to restrain the growth of the global infrared thermometer. Several market players are providing infrared thermometers in India and no evident market share represented by an individual manufacturer. The prominent suppliers are Dr. Trust (USA), Omron, Dr. Morepen, Agaro.



Benefits of Infrared Thermometers:

- Measurements can be taken from a distance for hot surfaces and objects or for food service purposes where items should not be touched or contaminated. They are excellent for surface measurements
- Measurements can also be taken of moving parts.
- Infrared thermometers operate well for a variety of applications
- Memory and advanced measurement functionality is available
- They are compact, lightweight, and easy to use

Summarizing the handheld health gadgets in India it is concluded that the consumers are increasingly using the handheld devices to self-monitor and self-manage the life style disorders. The choice of devices is undergoing shift towards type and use of gadgets. The users are adopting various types of new gadgets and electronic devices for day today self health tracking and monitoring statistics of corporeal vital parameters. In current scenario, when Covid-19 pandemic has affected the people throughout the world, the markets of health care devices shall witness a huge growth among Indian users. The growth may be linked to the scarcity of healthcare personnel engaged in managing the pandemic coupled with restrictions on clinics and hospitals as a part of protocol to restrict the impact of pandemic. All such features like measuring glucose level through Glucometers, tracking blood pressure through digitized BP monitors and scanning body temperature from distance through infrared thermometer allows the users to improve their self health monitoring in their residential and working areas. Such handheld gadgets are addressing an acute need of self healthcare management which strengthen the fight against chronic disorders in India. These handheld gadgets will develop a structured process enabling the chronic disease patients and other users in India to manage their basic body dynamics in proactive manner.

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