**CHAPTER 2**

**LITERATURE SURVEY**

**Hello everyone**

**Thank you for joining**

**-by JV**

**2.1 INTRODUCTION**

A literature review surveys scholarly articles, books, conference proceedings and other resources which are relevant to a particular issue, area of research, or theory and provides context for a dissertation by identifying past research. Research tells a story and the existing literature helps us identify where we are in the story currently. It is up to those writing a dissertation to continue that story with new research and new perspectives but they must first be familiar with the story before they can move forward.

**2.2 LITERATURE SURVEY**

**Mohammed Aledhari**, et al [1], 2022, This paper provides a comprehensive literature review of various technologies and protocols used for medical Internet of Things (IoT) with a thorough examination of current enabling technologies, use cases, applications, and challenges. Despite recent advances, medical IoT is still not considered a routine practice. Due to regulation, ethical, and technological challenges of biomedical hardware, the growth of medical IoT is inhibited. Medical IoT continues to advance in terms of biomedical hardware, and monitoring \_gures like vital signs, temperature, electrical signals, oxygen levels, cancer indicators, glucose levels, and other bodily levels. In the upcoming years, medical IoT is expected replace old healthcare systems. In comparison to other survey papers on this topic, our paper provides a thorough summary of the most relevant protocols and technologies speci\_cally for medical IoT as well as the challenges. Our paper also contains several proposed frameworks and use cases of medical IoT in hospital settings as well as a comprehensive overview of previous architectures of IoT regarding the strengths andweaknesses. We hope to enable researchers of multiple disciplines, developers, and biomedical engineers to quickly become knowledgeable on how various technologies cooperate and how current frameworks can be modi\_ed for new use cases, thus inspiring more growth in medical IoT.

**F. Alshehri**, *et al* [2], 2021, Smart health care is an important aspect of connected living. Health care is one of the basic pillars of human need, and smart health care is projected to produce several billion dollars in revenue in the near future. There are several components of smart health care, including the Internet of Things (IoT), the Internet of Medical Things (IoMT), medical sensors, artificial intelligence (AI), edge computing, cloud computing, and next-generation wireless communication technology. Many papers in the literature deal with smart health care or health care in general. Here, we present a comprehensive survey of IoT- and IoMT-based edge-intelligent smart health care, mainly focusing on journal articles published between 2014 and 2020. We survey this literature by answering several research areas on IoT and IoMT, AI, edge and cloud computing, security, and medical signals fusion. We also address current research challenges and offer some future research directions.

**Panch. T**, *et al* [1], 2018, Effective management of health systems, like the provision of public health or health care, is in essence a lattice of information processing tasks. Policy makers modify health system functions of organisation and governance, financing and resource management to achieve health system outputs (health care services and public health) and system goals The provision of health care itself involves two core information processing tasks: first, screening and diagnosis, which is the classification of cases based on history, examination and investigations, and second treatment and monitoring, which involves the planning, implementation and monitoring of a multistep process to deliver a future outcome. The essential form of these processes across the domains of health system management and the provision of care involve hypothesis generation, hypothesis testing and action. Machine learning has the potential to improve hypothesis generation and hypothesis testing tasks within a health system by revealing previously hidden trends in data, and thus has the potential for substantial impact both at the individual patient and system level. Machine learning expands on existing statistical techniques, utilising methods that are not based on a priori assumptions about the distribution of the data, and can find patterns in the data that can in turn be used to formulate hypotheses and hypothesis tests. Thus, whilst machine learning models are more difficult to interpret, they can incorporate many more variables and are generalizable across a much broader array of data types, and can produce results in more complex situations. These methods have been deployed in the research context in screening and diagnosis and prediction of future events (Table 1). These deployments are in disparate areas, typically in hospital rather than community setting, and in the vast majority of cases based on data from single centers, with implications for reproducibility and generalizability. However, the rapid pace of development of machine learning continues both within health care and more broadly across all information processing tasks in society.

**Arnab N. Patowary,***et al* [2], 2016 has studied assessment of knowledge and awareness towards Health issues mellitus in Majuli, Assam of India: This study is aimed to assess the level of knowledge and awareness of Health issues mellitus among the people of river island Majuli, Assam of India which, will be of a great help to identify areas of knowledge that might require additional efforts to increase. It can be concluded that inspite of the government and other organizations have been taking different steps to enhance the awareness level of the people towards various diseases having more prevalence, its impact on the society of the study area is not up to the mark .More health education awareness programmes by all available sources such as TV, lectures, workshops are needed to address this poor knowledge in order to equip them with the right information to positively affect on the society in order to trim down the burden imposed by the disease.

**Kanchana dussa,** *et al* [3], 2015 has conducted study on assessment Health issues knowledge using Health issues questionnaire among people with type 2 Health issues mellitus. The objective was Assessment of the Health issues knowledge using Health issues knowledge questionnaire (DKQ) among Type 2 Health issues mellitus (T2DM) subjects and its correlation with glycated hemoglobin (HbA1c) levels. Participant’s age range was from 36 to 75 years; mean age was 52.22 years. 78.38% were females and 21.62% were males, 59.45% were illiterate in this study, 75.67% were using oral hypoglycemic agents only, 24.32% were using insulin + oral hypoglycemic agents, none was reported to Health issues educator and 14.86% consulted dietician. DKQ mean score was 5.14±2.205 points, which was poor. 2.7%, n=2, who were graduates had satisfactory knowledge of Health issues. DKQ score did not show significant correlation with HbA1c levels but correlated with disease duration. They have concluded that the level of Health issues knowledge in people with Health issues attending Osmania Hospital was low. Majority of people were illiterate or their level of education was less. Improving Health issues knowledge of these people with Health issues might allow achieving better Glycaemic control. For effective management of Health issues involving a clinical pharmacist with endocrinologist might achieve this objective of improving Patient knowledge of Health issues when followed longitudinally.

**Anju Gautam,** *et al* [4], 2015 has studied on Health issues related health knowledge, attitude and practice among Health issues Patients in Nepal. The objective of the study was to determine the level of Health issues related health knowledge, attitude and practice among Health issues Patient and factors associated with KAP. A total of 244 Health issues Patients were interviewed from July to November 2014 More than half (52.5 %) of all Patients were female, 18 % were illiterate, and 24.6 % were from rural residence. The Health issues related risk factors were common among Health issues Patients; 9.8 % smoker, 16 % alcohol drinking, and 17.6 % reported low or no physical activity. Median score for knowledge, attitude, and practice were 81, 40 and 14 respectively. Among all Patients, 12.3 %, 12.7 % and 16 % had highly satisfactory knowledge, attitude and practice respectively. They had concluded that our institutional based cross-sectional study revealed Health issues related poor health knowledge, improper attitude and poor practice among those who are affected by Health issues in low income country Nepal. This study highlighted the factors that we need to consider while developing health promotion activities. Further, health literacy, counseling and education program need to be develop in both clinical and community settings. Our results show the potential Health issues health literacy needs to be improved or developed for improved health promotion.

**Dr. Purvi Mehta,** *et al* [5],2014 has conducted study on Knowledge of Health issues and Self Care Practices in Chronic Health issues Patients Attending a Tertiary Care Teaching Hospital in India**.** A total of 100 Patients were included in the study. 58% were aware that Health issues can affect eyes, 54% aware about renal complications of DM and 44% knew that DM is a cardiovascular risk factor. 44 % knew that annual eye examinations were essential for early diagnosis and treatment. Only 14 % were aware of annual urine-protein check and only 30% got their lipids checked annually. 67% had regular BP checks and 28% did regular foot check. 40% know their target sugar levels. Only 5% were aware of Hba1C test. 84% Patient knew about hypoglycemia and its treatment. 47% thought that DM is curable. An educational level of middle school or higher and duration of DM longer than 5years was associated with higher score. They have concluded the study as there was largely inadequate knowledge about Health issues, its complications and importance of annual screening for complications. The importance of better Glycaemic control and regular screening for complication should thus be emphasized by comprehensive education and awareness which will no doubt help in reducing the mortality and morbidity due to DM

**M. Deepa,** *et al* [6], 2014 has conducted study onknowledge and awareness of Health issues in urban and rural India: The Indian Council of Medical Research India Health issues Study (Phase I): Indian Council of Medical Research India Health issues 4. They summarized that the present study provides a snapshot of the current situation of knowledge and awareness of Health issues in four study regions in India. The study emphasizes the need for improvement in knowledge and awareness both among the general population as well as Health issues subject’s in. order to achieve prevention and better control of Health issues and its complications.

**Shirin Jahan Mumu,** *et al* [7],2014 has conducted study on Awareness regarding risk factors of type 2 Health issues among individuals attending a tertiary-care hospital in Bangladesh: a cross-sectional study. The purpose of the study was to assess the level of awareness regarding the risk factors responsible for the development of type 2 Health issues and its determinants among individuals who attended a tertiary care hospital. They concluded that Health issues education and socio-demographic factors need to be considered to improve the awareness regarding the risk factors of type-2 Health issues. Several studies have shown that type 2 Health issues can be prevented with the modification of lifestyles and by educating people or developing awareness about the risk factors. From public health perspective, there is a critical need for innovative target oriented prevention programs for people who are at risk of Health issues as awareness programs may motivate general population and high-risk individuals to adopt a healthy lifestyle, undergo routine medical check-ups, and be an active player in the prevention of Health issues.

**Devi Kasinathan**, *et al* [8], 2013 has conducted study on Awareness on Type II Health issues and Its Complication among Sivaganga District Population in Tamilnadu, A Cross Section Survey. We conducted a cross sectional and face to face survey on adult’s age group (30-80) in Sivaganga district. The questionnaire includes general status, causes, family history, risk factors and alternative treatment practices. A total of 539 adult were interviewed, 284 were Health issuess and 255 were non Health issuess. Among Health issues, Fifty three per cent of adults had hyperglycemia. Overall including Health issues and non-Health issuess, 74.11% of them were not aware of the long term effects of Health issues and its complication. Merely 48% of them were aware of the alternative treatment practices for Health issues and among the 48% few of them know the diet plan. Conclusion of this present study, Sivaganga district adults would have a significant suggestion for future public education programme. Health care professionals may be additional proactive in disseminates health information about Health issues to the public. Over all, the result of the study indicates, it is essential that the health managers and authorities to take proper steps to increase the awareness among the population regarding causes, symptoms, alternative treatment practices and management of type II Health issues and its complication in order to build our community healthier and prosperous.

**Ashok J. Vankudre,** *et al* [9], 2013 has conducted a study to assess awareness regarding Health issues Mellitus and factors affecting it, in a tertiary care hospital in Kancheepurum District. This study was undertaken with the aim to assess awareness regarding Health issues mellitus and factors affecting the awareness levels. Awareness regarding all the aspects of Health issues mellitus needs to be increased for better control of the disease and its complications. Females and unemployed individuals need to be given special emphasis although Health issues action has been initiated, efforts are weak and fragmented. Progress is impeded by a health system that places a higher priority on communicable diseases and maternal and Patient health services and by a private health system driven by curative medicine. However, prevention is cost-effective and should be a focus.

**Maral F Thabit** [10], 2013 has conducted study on awareness regarding Health issues mellitus and its complications in type2 Health issues Patient. The objective is to evaluate the level of awareness of Health issues mellitus type 2 Patients regarding their disease and its' complications. They concluded the study as there is a Poor awareness of the included type 2 Health issues Patients concerning different aspects of the disease, especially regarding disease etiology, ideal measurements, complications, follow up and management by life style modifications, drug treatment and reliance on herbal medications.

**Sadikalmahdi Hussein Abdella,** *et**al***[**11], 2013 has conducted study on Awareness of Health issues Patients about their Illness and Associated Complications in Ethiopia. A total of 118 Health issues Patients were included in the study. Among the respondents, 70 (59.33%) were males and 30 (25.42%) respondents were in the age group of 40 -49 years. Majority 90 (76.27%) of the respondents were literate of which, 30 (25.42%) had completed grade 9-12 and 16 (13.56%) respondents completed grade 12. Majority 53 (44.92%) of respondents, did not know the type of Health issues they had. Of those who knew, 40 (33.90%) were type II and 25 (21.2%) were type I. Among respondents, 85 (72.03%) Patients had knowledge about acute complications while 80 (67.80%) Patients had knowledge about chronic complications. They concluded that most Health issues Patients have good knowledge on actions to be taken on occurrence of acute complications and reason for development of acute complications but health education should be given on a regular basis in order to update Patients with the disease.

**Abhijit ghadge,** *et al* [12], 2013 has conducted awareness towards Health issues mellitus in urban population of pune, Maharashtra, India. The objectives of this study were to 1.Toevaluate the level of knowledge of Health issues among the population in India ; 2) identify areas of knowledge deficiency requiring additional education effort; and 3) evaluate whether factors such as sex, older age, education level, own self having Health issues, and having family member with Health issues are associated with knowledge of Health issues. They has summarized that there is an urgent need for creating strong awareness about Health issues in general public by various means. The importance of regular medical check-up after the age of 30 should be highlighted. The Health issues awareness can be effectively created by awareness campaigns, workshops, street plays and wide media coverage. Private and public health care professionals should join hands in completing this task and the local governing bodies should draft a robust plan for these measures so as to make sufficient awareness about this serious and abundant metabolic disorders.

**Mafomekong Ayuk Foma,** *et al* [13], 2013 has conducted study on Awareness of Health issues mellitus among Health issues Patients in the Gambia: a strong case for health education and promotion. Of the 199 Patients who were aware of their condition, only 47% said they knew what DM is. Similarly, 53% of the study participants had no knowledge of the causes of DM and about 50% were not aware of the methods of prevention. 67% knew that DM can result to loss of sight while 46.5% knew that DM can cause poor wound healing. Few respondents knew that DM can lead to kidney failure (13.5%), skin sepsis (12.0%), heart failure (5.5%) and stroke (4.5%). Close to 50% of the respondent did not know how DM can be prevented. Level of education, duration of illness and knowledge of a family member with Health issues were important predictors of knowledge in our study .They has concluded that the majority of Patients attending the MOPD have poor knowledge on several aspects of the condition including its causes, complications, management and prevention. Hence there is an urgent need to raise the level of awareness of this silent but deadly disease condition in the Gambian population.

**C.Muninarayana,** *et al* [14], 2010, has studied on Prevalence and awareness regarding Health issues mellitus in rural Tamaka, Kolar. They concluded that this study reflects the poor knowledge and awareness about Health issues in rural India. This emphasizes the need for increasing Health issues awareness activities in the form of mass campaigns in both urban and rural areas of India.

**H l wee,** *et al* [15], 2002 has studied public awareness of Health issues mellitus in Singapore. The objective of the study was to identify areas of knowledge that might require additional educational efforts. A total of 1337 subjects were interviewed. The respondents were required to answer 45 questions from a pre-tested questionnaire divided into five main sections, namely, general knowledge, risk factors, symptoms and complications, treatment and management, monitoring and other miscellaneous questions. The “correct answer” percentages for the individual questions from each section ranges from 22 to 83% (General knowledge), 31 to 91% (Risk factors), 48 to 81% (Symptoms and complications), 35 to 87% (Treatment and management), and 58 to 93% (Monitoring of condition).They concluded that public education of Health issues had been reasonably successful in terms of passing on knowledge. However, it is not sure how strongly public education had encouraged people to adopt a different lifestyle to reduce their risk of developing Health issues. Future studies could look into this aspect. The mass media and the print media will continue to be important for dissemination of information. It is believed that the Internet will become an important source of healthcare information. The results of this study could contribute positively and meaningfully to the design of future educational programme and materials. An improved educational programme that tackles the areas of weaknesses or misconceptions can potentially increase the level of public awareness of Health issues.

**1.3 SUMMARY**

From the above literature review, it could be understood that the published information on measuring the vital signs and medicine is provided directly. The existing proposed works are taken and analysed to propose a novel future work. The existing systems proposed by different authors have several disadvantages which act as the base for the proposal. Thus, the literature review gives more importance and very recent reviews among the researchers and this indicates the high priority of research towards this area.

**REFERENCES**

1. F. Alshehri and G. Muhammad, ``A comprehensive survey of the Internet of Things (IoT) and AI-based smart healthcare,'' IEEE Access, vol. 9, pp. 3660 3678, 2021.
2. A. Thongprasert and A. Jiamsanguanwong, ``New product development processes for IoT-enabled home use medical devices: A systematic review,'' Eng. J., vol. 25, no. 2, pp. 15 48, Feb. 2021.
3. Jorge Gomez, Byron Oviedo, Emilio Zhuma: “Patient Monitoring System Based on Internet of Things,” The 7th International Conference on Ambient Systems, Networks and Technologies (ANT 2016).
4. Prosanta Gope and Tzonelih Hwang: “BSN-Care: A Secure IoT-Based Modern Healthcare System Using Body Sensor Network,” IEEE SENSORS JOURNAL, VOL. 16, NO. 5, MARCH 1, 2016.
5. Moeen Hassanalieragh , Alex Page , Tolga Soyata , Gaurav Sharma, Mehmet Aktas , Gonzalo Mateos ,Burak Kantarci , Silvana Andreescu: “Health Monitoring and Management Using Internet-of-Things (IoT) Sensing with Cloud-based Processing: Opportunities and Challenges” 2015 IEEE International Conference on Services Computing.
6. A. Benharref and M. Serhani, “Novel cloud and SOA-based framework for E-Health monitoring using wireless biosensors,” IEEE Journal of Biomed. and Health Inf., vol. 18, no. 1, pp. 46–55, Jan 2014.
7. A. Page, O. Kocabas, T. Soyata, M. Aktas, and J.-P. Couderc, “CloudBased Privacy-Preserving Remote ECG Monitoring and Surveillance,” Annals of Noninvasive Electrocardiology (ANEC), 2014. [Online]. Available: http://dx.doi.org/10.1111/anec.12204
8. World population ageing 2013, United Nations, New York, NY, USA, 2013, pp. 8–10.
9. H.Fang, X.Dan, and S.Shaowu, “On the application of the Internet of Things in the Field of Medical and Health Care,” in the Green Computing and Communications(Green Com), 2013 IEEE and Internet of Things(i Things /CPSCom), IEEE International Conference on and IEEE Cyber, Physical and Social Computing, 2013.