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Module : Population Health and Digital Health

Promotion(LCHS7007)

Assignment: Task 1-blog(1)(2), Task 2-Poster design

Reference Style: Harvard

Task 1: Blogs:

Blog 1: Impact of existing digital technology used for digital health promotion intervention:(M-HEALTH APP)

Addressing public health problems and reason for its concern:

Public health is the scientific way of protecting and improving the health of people and their entire communities (Devani *et al.* 2022). However, cardiovascular diseases are one of the public health problems, which can be considered the leading cause of death within a global environment.

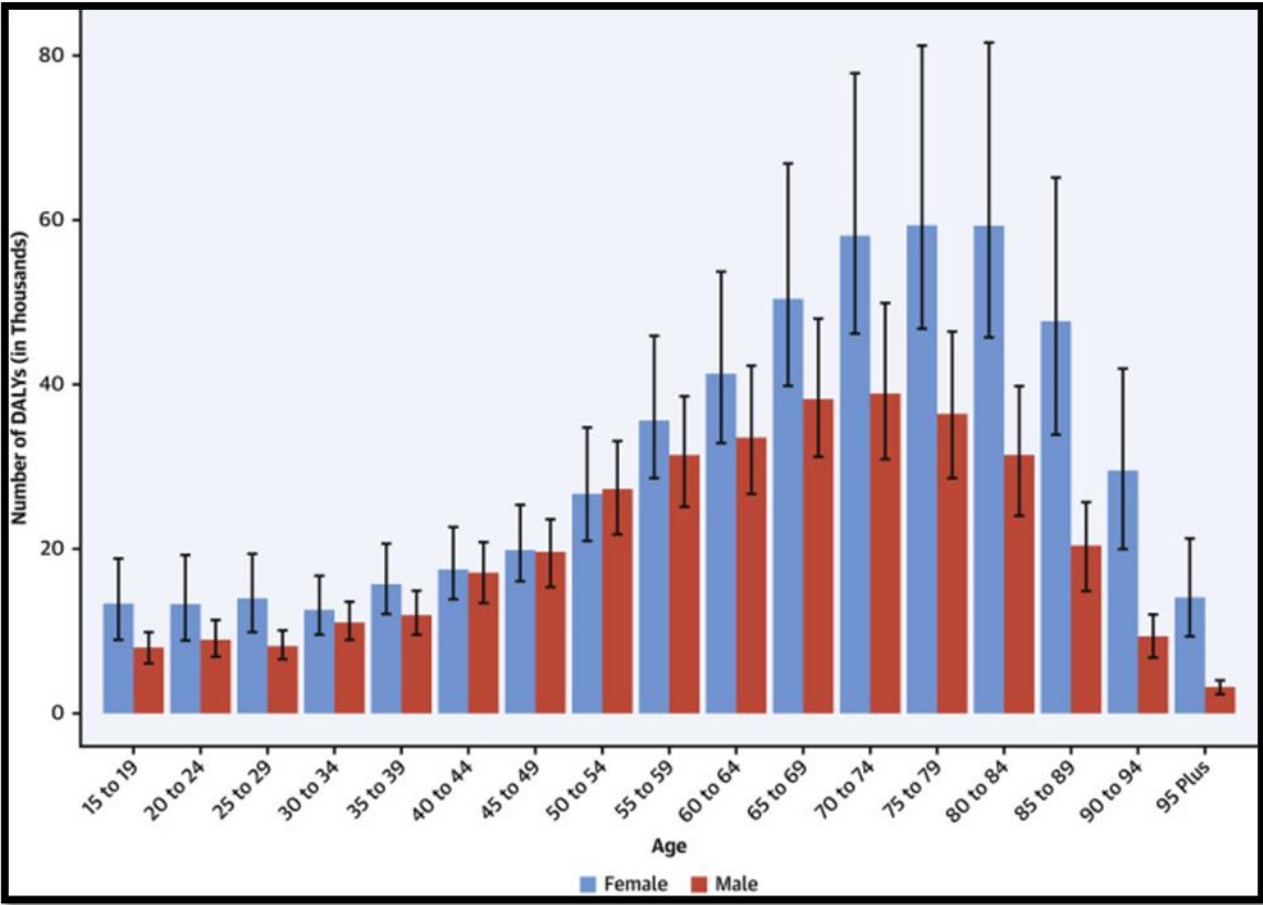


Figure 1: Global Burden of cardiovascular diseases(Source: Rasul *et al.* 2023)

This public health issue is a concern within the public health status of the global environment because it is estimated that approximately 17.9 million people live with this public health issue each year (Rasul *et al.* 2023). This public health issue has several ranges of cardiovascular diseases like cerebrovascular diseases, coronary heart disease, rheumatic heart disease and various disorders associated with heart and blood vessels.

The use of chosen digital technology in health promotion and addressing the public health problem:

The name of the chosen existing digital technology which is used in health promotion and this public health issue is **M-health apps**. According to Garg (2022), the most common objective of using m-health apps is to execute the use of mobile devices to educate the public about the preventive healthcare services which protect them from any public health issue.

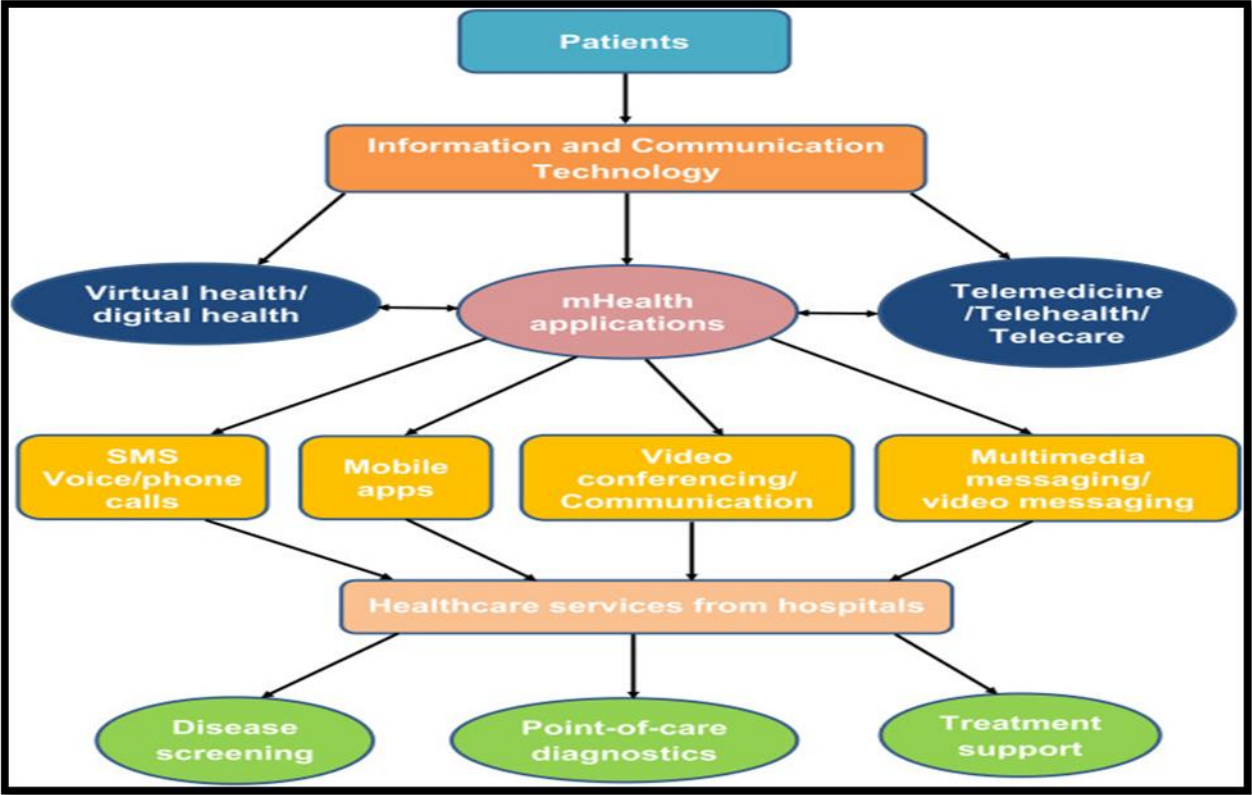


Figure 2: M-Health application for disease screening and treatment support

(Source: Calegari and Fettermann, 2022)

Similarly, M-health apps are used by the public on their mobile devices, where they need to install the app and subscribe to the app to have a self-management process for cardiovascular diseases (Xu *et al.* 2023). This is used by people to get information about the stage of the disease they are at and the process of how they can ensure self-management and do proper analyses to detect CVD and prevent the severity of this disease.

The process of how the selected digital technology is promoting health:

According to Calegari and Fettermann (2022), M-health apps gather and monitor required clinical information and community data of patients compiled in real-time by health care providers. In this manner, apps are utilized by healthcare providers to generate information about public health issues (Ronteltap *et al.* 2022). For example, it is also used by healthcare providers to promote health against cardiovascular diseases by ensuring disease surveillance, treatment support, tracking the outbreak of CVD and the management of the chosen chronic diseases as public health issues.

The impact of chosen digital technology in health promotion:

The main advantage of m-health apps in health promotion is that they are possibly cost-effective, patient-centered tools which help patients to be aware of cardiovascular diseases. According to Kamath *et al.* (2023), the advantage is also that it helps people in disease tracking, increase adherence to protocols for health and promote healthy lifestyle among people having cardiovascular diseases. In this regard, digital technology impacts the health promotion of this public health issue among patients and healthcare providers (Franquez *et al.* 2023). The disadvantage of using M-health apps in promoting health is the concern of data privacy, inaccurate information and lack of approval and regularity which impact detrimentally in promoting healthy lifestyle among patients with CVD.

Addressing the shortfalls:

In response to the issue of data privacy concerns and inaccurate information, expected in using m-health apps, encrypting data at rest and in transit is a very important strategy along with initiating regular risk assessment strategies in a clinical environment.

Blog 2:

Impact of digital technology designed for digital health promotion intervention:

Addressing the public health problem and reason for its concern:

Like CVD, obesity is also considered to be a public health problem which has been seen worsening progressively over the 50 years around the globe (Leclercq *et al.* 2022). This is a matter of concern because it is a complex disease and it has multifactorial etiology, which needs evidenced-based treatment strategies and may require lifelong treatment for those affected by it.

Describing the digital technology which has been designed:

The digital technology which is introduced and designed named **geospatial technology** can be used in the health sector, especially in promoting health by identifying health trends and tracking the spread of diseases (Xiong *et al.* 2023). This is designed in a way which helps in visualizing nearby hospitals, and healthcare data and has the specialty of remote sensing and GIS which is further reliable in addressing public health issues.

Use of this digital technology in health promotion and addressing public health problems:

According to Mbunge *et al.* (2022), geospatial technology will be an important tool in the modern healthcare sector to address public health issues like obesity and initiate health promotion strategies. In this case, location-based technology is implemented to be used in hospitals which further ensures patient care and safety and regulatory compliance. Through this healthcare providers can ensure health promotion within the staff by addressing the public health issue like obesity with the use of GIS.

Impact of this digital technology on health promotion:

Geospatial technology will have a positive impact on public health, especially in promoting health among people suffering from public health issues like obesity.



Figure 3: Digital helath technologies that help in doing health promotion

(Source: Ijaz *et al.* 2022)

With the help of geospatial technology, healthcare providers can ensure accuracy and detailed information about the origin of the diseases to the public and the process of how to receive healthcare facilities (Heizmann *et al.* 2023). In this way, it makes the public aware of healthcare facilities being available in their localities and thus promotes healthy lifestyle among obese people. However, there are challenges for data integration because of a lack of standardization in designing and using geospatial technology.

Addressing the shortfalls:

According to Ijaz *et al.* (2022), data integration challenges such as shortfalls can be solved by taking professional assistance and using data management solutions in healthcare to ensure better utilization of this technology and generate a positive impact on health promotion and addressing public health issues.

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Application health promotion principles and values as well as behavioral change theories to design an intervention that promotes health of a population group and addresses digital health inequality.

Background:

Scale of public health problem

The scale of CVD as a public health issue nearly doubled in the last year which is doubled from 271 million cases to 523 million cases. According to Diener *et al.* (2022), CVD is also the leading cause of death globally, which is a rising concern for global public health. It is also estimated that this public health issue leads to approximately 19.9 million lives each year.

Example of digital and non-digital technology intervention:

Telemedicine technology as digital technology intervention is taken to address cardiovascular diseases as a public health issue globally. The non-digital interventions are health education and promotion, community, mobilization, and lifestyle counselling which have been implemented concerning the scale of CVD as a public health issue globally.

Chosen digital health intervention

M-health app use is another intervention as digital technology intervention is the most effective strategy for ensuring health promotion concerning CVD as a public health issue.



(Source: Diener *et al.* (2022))

Health promotion values and principles:

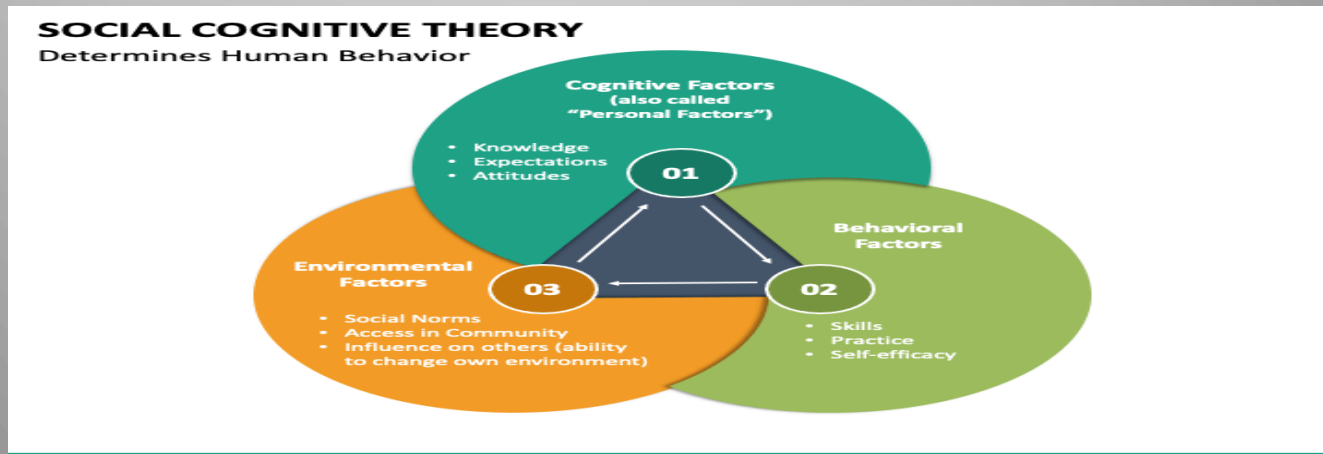
- According to Pedersen and Schlichter (2023), the main principles of health promotion are building public health policy, creating a supportive environment, strengthening community actions to address public health issues, developing personal skills among healthcare providers, and re-orienting health services. On the other hand, the values of health promotion include community participation, empowerment, partnership and ensuring equity among participants.
- According to Diener *et al.* (2022), M-health application in the healthcare environment is thus aligned with the principles of health promotion like the creation of supportive environments and strengthening community actions. This is because, with the use of the M-health application, healthcare providers have seen to reach the community people living in remote places to provide adequate health facilities. This further made them create a supportive environment for them and strengthen community actions for those community people who used to be deprived of basic health facilities.
- The use of an M-health application for self-management of CVD is also an example which is aligned with the values of health promotion like community participation, empowerment, and partnership. According to Lavender *et al.* (2023), this is because the use of the M-health application ensures the inclusion of community people within the provision of health services, where they show their active participation in getting knowledge about the significance of the M-health application and its effectiveness in providing remote health service more efficiently in response to public health issues like CVD.
- As commented by Rathi *et al.* (2022), with the help of M-health application intervention, people advocacy for health. In addition, this digital technology intervention also enables people to receive knowledge, information, and skills to deal with public health issues. Health promotion values also include mediation between different interests in society. In this regard, the M-health application also enables healthcare providers to offer a supportive health environment to the people with the use of this digital technology to deliver adequate health facilities.



(Source: Rasul *et al.* 2023)

Behavior change theory:

- According to social cognitive theory, people are driven by both internal and external forces. This theory further explains that the process of human functioning is further explained through the interaction of behavior, environment and personal factors. According to Pavlidou *et al.* (2023), the social cognitive theory of behavior change consists of behavior, personal and environmental factors that influence people to change in terms of increasing self-efficacy, ensuring positive outcome expectations, ensuring self-control, and ensuring reinforcements. These factors also influence an individual to have emotional cope which means dealing with emotional stimuli (Yadav *et al.* 2023). In addition to that, through these factors, humans also know how to do observational learning. Here, individuals learn how to acquire certain behaviors through comprehensive observation of actions and outcomes of behaviors of other people.
- This theory of behavioral change also increases the level of self-efficacy with the help of provided resources and evidence to raise individual confidence. However, Devani *et al.* (2022) argues that people with strong self-efficacy may not perform certain behaviors because of the absence of incentives. In this regard, it is understood by Rasul *et al.* (2023), that if someone is interested in getting others to enact their behavior change, it may influence them to improve their behavior as a source of reward and incentives. According to Garg (2022), for shaping the environment behavior change within the individual is encouraged. In this regard, it is very important to recognize the environmental constraints or challenges that can deter in development of behavioral changes within individuals.



(Source: Leclercq *et al.* 2022)

- With the use of this behavior change theory, it can be understood that m-health application as an effective digital technology intervention can be better delivered for the people who are needed in basic health facilities. According to Xu *et al.* (2023), this is because the social cognitive theory of behavior changes enables people to have a strong sense of efficacy in performing certain behaviors. In this regard, with the application of this theory, it can be better noted that the use of this digital technology intervention needs self-efficacy among individuals and thereby it can ensure the proper delivery of knowledge and have proper advocacy of health in response to cardiovascular diseases as a public health issue (Leclercq *et al.* 2022). Apart from that, in shaping the environment behavior change is encouraged. In this regard, to get better health facilities in response to public health issues like CVD, behavior change is necessary not only among healthcare providers but also among the people who are affected by the diseases.
- This can only be done with the use of digital technology invention to get more details about the disease, track and monitor the stage of the disease they are at and ensure self-management skills among them to deal with health issues. as commented by Xiong *et al.* (2023), this theory includes emotional coping among individuals to ensure behavioral change. In this regard, individual needs to cope with their emotions if they have to deal with new technology to ensure better health access. Self-efficacy is the ability to perform the behavior of utilizing the m-health application which needs to be seen among healthcare providers to ensure better health promotion strategies among individuals suffering from public health issues like CVD and obesity.

Conclusion:

From the above discussion, it can be concluded that the implication of M-health interventions to deal with public health issues leads to the introduction of new policies related to the application of digital technology and education of people about chronic disease management, research on the process of improving symptoms of diseases. This has the positive application of propagating education among people regarding self-management of public health issues through tracking and monitoring disease symptoms, stages of the disease, medication details and appointments of health experts. Apart from that, M-health intervention has an impact on the entire research process among healthcare providers and researchers regarding its effectiveness in dealing with chronic diseases as a public health issue. This intervention further influences community actions taken by community healthcare experts to deliver health facilities in remote places through effective communication.

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