Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

NAME: ASHIMA SHERIN C
STUDENT NUMBER:2224658
UNIVERSITY: UNIVERSITY OF WALES TRINITY SAINT DAVID COURSE: MSc Public Health and Social Care in Practice
MODULE: Population Health and Digital Health Promotion

MODULE CODE: LCHS7007

ASSIGNMENT TITLE: Blog And Poster

Lecturer name: Dr Diola Bijlhout

Blog 1

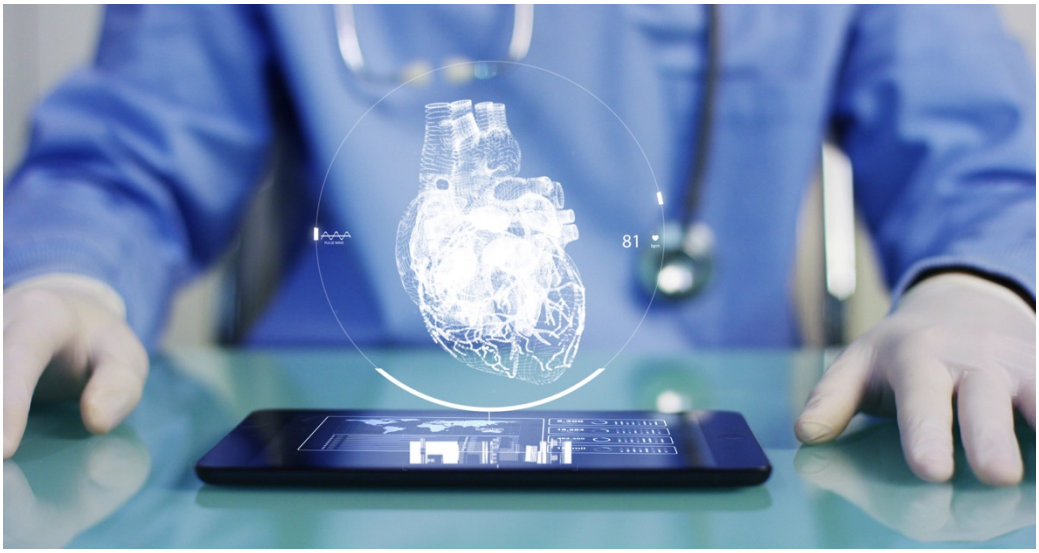
Critically discuss the impact of an existing digital technology currently used for a digital health promotion intervention.

Public health problems indicate several medical issues that generally affect a significant or a specific portion of the population. The surveillance of public health issues has led to the prioritization and identification of many medical problems that the world is facing today. In this blog, cardiovascular disease has been mentioned, which is heart disease and one of the leading causes of heart failure or death of people these days. Cardiovascular disease (CVD) affects the blood vessels and heart, and it happens because of fats that build up inside the veins and arteries (Fuchs and Whelton, 2020). As a result, blood gets clotted and damages the arteries that help to function the organs. Based on the information (who, 2023), around 17.9 million people died from cardiovascular disease in 2019, where 85% of people died because of stroke and heart attack.

Digital technology and health promotion

Several digital technologies are being used to promote a healthy lifestyle which helps in disease prevention and health promotion in the general population. Digital technologies such as smartphone apps, health websites, and wearable devices are contributing to health promotion. Out of these digital technologies, smartphone apps have become very useful for people nowadays. Many heart disease patients are using the AliveCor ECG heart monitor app on their smartphones which allows people to monitor heart rate and rhythm. This app allows the users to record the patient's details and symptoms. People who are diagnosed or suspected of heart conditions and

individuals who are health conscious can get benefit through this app by monitoring the app from time to time. This smartphone app is helping people with health promotion by addressing their concerns about a heart condition.



AliveCor ECG heart monitor smartphone app is designed to store, record, and transfer electrocardiogram rhythms. This app helps the user to detect the irregular heartbeat of the user, which is generally not felt by the user (Wegner *et al.,* 2020). Many people are using this app from any location, and if any concerns are detected, then people are going to see a cardiologist. This app is helping in health promotion by making significant strides in providing the user with digital health technology with the medical quality ECGs and analysis to improve heart conditions. This app has been cleared by FDA and has new CE-marked automated detectors, which generally allow the users to focus on the ECGs.

Advantages and Disadvantages

The main advantage of the AliveCor ECG Heart Monitor app is that individuals can monitor or track the condition of their heart from anywhere at any time at an affordable cost. This app is available for iOS and Android. This app also benefits the user through Automatic AF Detection, which is used to detect atrial fibrillation (AF), which is the leading cause of stroke and heart rhythm disturbance that is detected in the ECG. The major shortfall of the AliveCor ECG Heart Monitor app is that this app is not designed to monitor the heart rate of patients who are less than 10kg of weight as it has never been tested on infants who are below 10kg. This app is not intended or designed for

the complete diagnosis of heart conditions. These shortfalls or disadvantages can be addressed through the advancement of digital technology and by guiding people on how to use the app to get accurate results.

For better understanding visit: https://www.alivecor.com,

Blog 2

Critically discuss the impact of a digital technology you designed for a digital health promotion intervention.

All ages are affected by the chronic lung illness known as asthma. Breathing becomes more difficult as a result of inflammation and muscular stiffness around the airways. Coughing, wheezing, shortness of breath, and chest tightness are among symptoms. These signs and symptoms might be minor or major, and they can change over time. Nowadays , there are several medical approved digital devices and apps available which are useful for people to monitor arrhythmia or irregular heartbeat. Therefore, digital technology can be used to detect such diseases, increasing the awareness of the people and reducing the mortality rate.

Digital technology and health promotion

To encourage a healthy lifestyle, which aids in illness prevention and public health promotion, several digital technologies are being deployed. Digital innovations that promote health include wearables, health websites, and smartphone apps. Smartphone apps have grown to be one of the most useful digital tools for individuals today. Many people with arrhythmia use the AliveCor ECG heart monitor app on their

cell phones to track their breathing rate and oxygen level so that they can manage any risks of heart failure and . Users of this app can log patient information and symptoms (Duarte and Pinho, 2019).

Electrocardiogram rhythms can be maintained, recorded, and transmitted via the AliveCor ECG heart monitor smartphone app. This program assists the user in identifying their breathing shortness, through which the Asthma can be detected (Wan, Gu, and Ni, 2020)also helps in forecasting the air quality. Many people use this app from many different places, and if any issues are found, folks visit the doctor. By taking substantial steps to provide the user with digital health technology that includes medical-grade ECGs and analysis to improve blood pressure problems, this app is assisting in the promotion of good health. This app's new CE-marked automatic detectors and FDA-cleared software generally allow users to concentrate on their heartbeat. Therefore, the app can be modified by the implementation of software. By implementing new software, some more features can be added to the app, such as people can measure their breathing problems such as shortness of breath, breathing patterns,besides oxygen level. Measuring breathing is very important for people who are suffering from Asthma as they have the symptoms of shortness of breathing, as per the opinion of (Duarte and Pinho, 2019).

Impact of digital technology

This advanced app will be beneficial for increasing awareness among people, and it also will help reduce the rate of heart attack, asthmatic attack and mortality. People can check their irregular heart rate, blood pressure and breathing pattern by using this mobile phone app if they feel uneasy, and they also can take precautions and proper treatment to reduce the risks. The main advantage of the advanced version of the

AliveCor ECG heart monitor smartphone app is that people can check their heartbeat, blood pressure and breathing pattern,at any time if they are having any symptoms and it will reduce the rate of death, and people can use it as a multipurpose health app. However, it has some disadvantages, such as a complex use system. The upgraded version of the app is quite complex in comparison to the previous version. Therefore people may have some difficulties using it. The advanced version of the AliveCor ECG heart monitor smartphone app will have a huge contribution to controlling asthmatic attack.

Reference

who (2023) *Cardiovascular diseases (CVD)*, *World Health Organization*. Available at: https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-%28cvds%29 (Accessed: 08 July 2023).

Fuchs, F.D. and Whelton, P.K., 2020. High blood pressure and cardiovascular disease. *Hypertension*, *75*(2), pp.285-292. Available at: https://doi.org/10.1161/HYPERTENSIONAHA.119.14240 (Accessed: 08 July 2023).

Wegner, F.K., Kochhäuser, S., Ellermann, C., Lange, P.S., Frommeyer, G., Leitz, P., Eckardt, L. and Dechering, D.G., 2020. Prospective blinded Evaluation of the smartphone-based AliveCor Kardia ECG monitor for Atrial Fibrillation detection: The PEAK-AF study. *European Journal of internal medicine*, *73*, pp.72-75. Available at: https://doi.org/10.1016/j.ejim.2019.11.018 (Accessed: 08 July 2023).

Duarte, P. and Pinho, J.C., 2019. A mixed methods UTAUT2-based approach to assess mobile health adoption. *Journal of Business Research*, *102*, pp.140-150. Available at: https://doi.org/10.1016/j.jbusres.2019.05.022 (Accessed: 08 July 2023).

Wan, S., Gu, Z. and Ni, Q., 2020. Cognitive computing and wireless communications are on the edge for healthcare service robots. *Computer Communications*, *149*, pp.99-106. Available at: https://doi.org/10.1016/j.comcom.2019.10.012 (Accessed: 08 July 2023)

Population Health and Digital Health Promotion

STUDENT NAME:ASHIMA SHERIN CHALIL

STUDENT ID: 2224658

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Background

Public health problems indicate several conditions and diseases that can impact the entire population. The threats to public health need immediate action. There can be various types of public health issues, including mental health crises, food safety and malnutrition, infectious disease, diabetes, cardiovascular disease, and many more. These are defined as the overall health problems of the global population, where public health only focuses on the health of the population, not only on individuals (Malm, Jakobsson, and Isaksson, 2019). Here, as a public health problem, cardiovascular disease (CVD) has been described. Heart disease is becoming the biggest cause of mortality in the world. Several advanced digital technologies are being used to detect disease in the body.

Public health interventions indicate to promote specific habits and behaviours that can improve the emotional, physical, and mental health of people. These interventions are necessary to manage and prevent injuries, diseases, and other health issues. These public health interventions include health promotion, water and food supplementation, screening programs, and vaccination. For cardiovascular disease, a public health intervention is to inform people to reduce or decrease their salt intake, as the blood pressure gets high because of sodium which leads to stroke or an indicator of heart disease (Ma *et al.*, 2018).

Digital public health interventions use mobile, wireless, and digital technologies which support the achievement of heart objectives. Some digital technology intervention includes patient education, public health alerts, remote monitoring of medical devices, point-of-care data exchange, sleep trackers, smartwatches, fitness trackers, wellness applications, clinical trials information, electronic discharge summaries, digital health platforms, health websites, SMS reminders through mobile messaging, and many more (Blandford *et al.,* 2018). Here for cardiovascular disease, as a public health intervention, the use of the AliveCor ECG heart monitor smartphone app has been mentioned. This smartphone app allows users to monitor their heart rate and rhythms. The primary goal of public health interventions is to promote and enhance the health of the population, as well as to minimise or eliminate health inequities.. The successful implementation of public health interventions can help people monitor their health from time to time.

Health promotion values and principles

Health promotion empowers people to raise control over their behaviour and health as it covers a broad range of environmental and social interventions that are generally designed to protect and give benefit to individual person or people's health by preventing the root cause of diseases and addressing the quality of life, not just giving attention on the cure and treatment (Braithwaite, 2018). Some of the values and principles are mentioned below:

- A good diet, positive attitude, rest, work, and regular exercise are the key components of an individual's health. The health of an individual is maintained when all these factors are followed and preserved.
- Health is more than just the absence of illness; it is a condition of mental, bodily, and social well-being. It entails the ability to adjust to one's surroundings, particularly one's lifestyle (Santana et al., 2018).
- Setting a perspective by considering the environment and health context where the health promotion can take place.

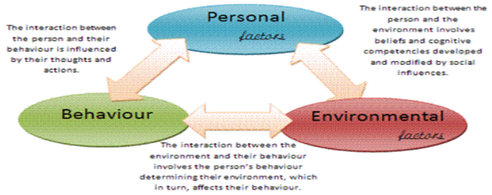
Digital health technology intervention has enormous potential to provide effective, safe, scalable, and cost-effective interventions to improve the healthcare and health of people by delivering the intervention through digital technologies such as websites, text messaging, and smartphones. Digital health intervention is used to give support and promote healthy activities and behaviours (Jiang, Ming, and You, 2019), which help people to improve long-term health problems like diabetes, cardiovascular disease, and mental health conditions. It helps to promote the principles of health promotion by providing remote access to people with effective treatment and enabling the users to get informed about their health issues.

- Engagement and participation of people, which indicates involvement of communities and people in actions and decision-making for health.
- People who do not engage in the activities of health promotions are less likely to get the benefits of several prevention programs such as screening, immunizations, and treatment for diabetes and high blood pressure. The absence of people's input can make it impossible or difficult to develop solutions for health problems (Ntoumanis *et al.,* 2021).

Behaviour change theory

The idea of choice underpins behaviour change theory, which holds that individuals or people select their health behaviours. It proposes various aspects such as a person's ideas about behaviour, what other people believe about the activity, and a person's capacity to do a behaviour (Michie et al., 2018). All these behaviours are accompanied by the reality of a person's situation, such as surrounding demographics, cultures, and past behaviours. Public health promotion involves implementing large-scale and cost-efficient interventions. When forbidding or mandating a specific behaviour is not permissible, then public health promotion on the behaviour change intervention can achieve the objectives of socially beneficial policies.

The social cognitive theory emphasizes the interaction between personal behaviours, factors, and the environment. It considers several levels of social-ecological models to address the behaviour change of an individual. To promote well-being and health, several holistic approaches are assimilated into primary care, which includes physical activity, good nutrition, and recognition and treatment of the disease. Through the use of Alivecor ECG heart monitor app people can check their heart rate, blood pressure, beathing activities, and check for their electrocardiogram rhythms of heart which can be maintained, transmitted, and recorded by this smartphone app. Social cognitive theory is widely utilised in health promotion to emphasise the environment and the person, which has recently been a focal focus of health promotion activities, and the Alivecor ECG heart monitor app contributes to the promotion of people's health and well-being.However, according to the opinion of Beauchamp, Crawford, and Jackson (2019), through the implementation of social cognitive theory, the program of health promotion and prevention into practice and evaluating the victory at the primary healthcare level is not always easy. The programs for the modification of lifestyle are designed to highlight the behaviour of an individual while economic, social, environmental, and cultural perspectives of health, disease, and behaviour stay unaddressed (Lin *et al.,* 2020). For the lifestyle modification Alivecor app plays an essential role for people who suffer from short breathing as it helps them recognize the symptoms of asthma and promote healthy behavior and self control. All these factors substantially impact the determinants of an individual's health behaviour in the development of health behaviour patterns. Implementing the social cognitive theory in health promotion can identify the techniques for optimal public health intervention for cardiovascular disease based on a theoretical framework that can consider the factors of health. This theory constructs self-efficacy, self-control, behavioural capability, reinforcement, and observational learning in public health intervention. In health promotion intervention, the strategies of this theory best fit as individual learning depends not only on the experience of an individual but also witnessing the behaviour of others or the positive outcome of that behaviour.



Expected outcome

Implementation of social cognitive theory helps to get better results from digital health intervention. It is broadly applied to help treatments that can modify the behaviour. It could be particularly useful to look at how people connect to their surroundings in rural areas. It can be used to better understand how social determinants of health and an individual's prior experiences affect behaviour change. In the present project, the use of social cognitive theory is beneficial as it helps to increase awareness in people. Electrocardiogram rhythms can be maintained, recorded, and transmitted via the AliveCor ECG heart monitor smartphone app. This program assists the user in identifying their breathing shortness, through which the Asthma can be detected. According to the opinion of Ma *et al.* (2018), social cognitive theory is beneficial to understand new facts, and people also can acquire knowledge. It makes reference to some variables, including a person's ideas about behaviour, what others think about the behaviour, and a person's capacity to carry out a behaviour. The realities of a person's position, such as the local demographics, cultures, and previous behaviours, all go hand in hand with these behaviours. The implementation of extensive and economical interventions is necessary for public health promotion. When it is not acceptable to restrict or require a particular behaviour, public health promotion on behaviour change interventions can accomplish the goals of socially good policies. Moreover, by implementing this theory, people can be aware of premature death.

CONCLUSION

Considering all these factors, it can be said that Mobile, wireless, and digital technologies are used in digital public health interventions to promote the attainment of heart objectives. Patient education, public health alerts, remote medical device monitoring, point-of-care data exchange, sleep trackers, smartwatches, fitness trackers, wellness applications, clinical trial information, electronic discharge summaries, digital health platforms, health websites, SMS reminders via mobile messaging, and many other digital technology interventions are just a few examples. AliveCor ECG heart monitor smartphone app has been mentioned as a public health intervention for cardiovascular disease. Different policies have also been used for performing public health intervention. Users of this smartphone software can keep an eye on their heart rates and rhythms. The major goals of public health interventions are to promote and enhance population health, as well as to lessen or eliminate health disparities.

REFERENCE

Braithwaite, J., 2018. Changing how we think about healthcare improvement. *Bmj*, *361*. Available at: https://doi.org/10.1136/bmj.k2014 [Accessed on : 08 July 2023]

Santana, M.J., Manalili, K., Jolley, R.J., Zelinsky, S., Quan, H. and Lu, M., 2018. How to practice person-centred care: A conceptual framework. *Health Expectations*, *21*(2), pp.429-440. Available at: https://doi.org/10.1111/hex.12640 [Accessed on : 08 July 2023]

Ntoumanis, N., Ng, J.Y., Prestwich, A., Quested, E., Hancox, J.E., Thøgersen-Ntoumani, C., Deci, E.L., Ryan, R.M., Lonsdale, C. and Williams, G.C., 2021. A meta-analysis of self-determination theory-informed intervention studies in the health domain: Effects on motivation, health behavior, physical, and psychological health. *Health psychology review*, *15*(2), pp.214-244. Available at: https://doi.org/10.1080/17437199.2020.1718529 [Accessed on : 08 July 2023]

Jiang, X., Ming, W.K. and You, J.H., 2019. The cost-effectiveness of digital health interventions on the management of cardiovascular diseases: systematic review. *Journal of medical Internet research*, *21*(6), p.e13166. Available at: https://doi.org/10.2196/13166 [Accessed on : 08 July 2023]

Blandford, A., Gibbs, J., Newhouse, N., Perski, O., Singh, A. and Murray, E., 2018. Seven lessons for interdisciplinary research on interactive digital health interventions. *Digital health*, *4*, p.2055207618770325. Available at: https://doi.org/10.1177/2055207618770325 [Accessed on : 08 July 2023]

Malm, C., Jakobsson, J. and Isaksson, A., 2019. Physical activity and sports—real health benefits: a review with insight into the public health of Sweden. *Sports*, *7*(5), p.127. Available at: https://doi.org/10.3390/sports7050127 [Accessed on : 08 July 2023]

Ma, L.Y., Chen, W.W., Gao, R.L., Liu, L.S., Zhu, M.L., Wang, Y.J., Wu, Z.S., Li, H.J., Gu, D.F., Yang, Y.J. and Zheng, Z., 2020. China cardiovascular diseases report 2018: an updated summary. *Journal of geriatric cardiology: JGC*, *17*(1), p.1. Available at: https://doi.org/10.11909%2Fj.issn.1671-5411.2020.01.001 [Accessed on : 08 July 2023]

Michie, S., West, R., Sheals, K. and Godinho, C.A., 2018. Evaluating the effectiveness of behavior change techniques in health-related behavior: a scoping review of methods used. *Translational behavioral medicine*, *8*(2), pp.212-224. Available at: https://doi.org/10.1093/tbm/ibx019 [Accessed on : 08 July 2023]

Beauchamp, M.R., Crawford, K.L. and Jackson, B., 2019. Social cognitive theory and physical activity: Mechanisms of behavior change, critique, and legacy. *Psychology of Sport and Exercise*, *42*, pp.110-117. Available at: https://doi.org/10.1016/j.psychsport.2018.11.009 [Accessed on : 08 July 2023]

Lin, C.Y., Imani, V., Majd, N.R., Ghasemi, Z., Griffiths, M.D., Hamilton, K., Hagger, M.S. and Pakpour, A.H., 2020. Using an integrated social cognition model to predict COVID-19 preventive behaviours. *British journal of health psychology*, *25*(4), pp.981-1005. Available at: https://doi.org/10.1111/bjhp.12465 [Accessed on : 08 July 2023]

RESEARCH POSTER PRESENTATION DESIGN © 2015
www.PosterPresentations.com