



Task 1 - Blogs

Blog 1- Critically discuss the impact of an existing digital technology currently used for a digital health promotion intervention

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Blog 1

Common Public health problems with concern

The worldwide increase in chronic illnesses, such as **diabetes** poses enormous challenges to public health. According to the “World Health Organisation (WHO)”, these illnesses constitute a significant proportion of worldwide mortality, around 77% and 17.9 million people annually (who.int, 2023). The advent of technological advances, namely mobile health (mHealth), has emerged as a catalyst for tackling various medical problems in a disruptive manner.

Digital technologies for promoting public health problem

The use of smartphones, apps, and sensors towards the context of mHealth is of significant importance towards programmes for health promotion targeting chronic illnesses (O'Hara *et al.*, 2022). This technology enables the distance surveillance of patients, provides information about health, promotes behaviour change, as well as allows interaction between patients, doctors and nurses.

Numerous studies continually provide evidence of the positive effects of mHealth. Notably, a study article published in the Journal of Medical Internet study highlights substantial enhancements in health behaviours among persons who use mHealth apps to manage diabetes (O'Hara *et al.*, 2022). Furthermore, scholarly research published in JMIR mHealth, including MHealth, sheds illumination on the efficacy of mobile applications in monitoring physical activity, tracking food patterns, and offering tailored guidance, ultimately leading to enhanced health outcomes (mhealth.jmir.org, 2023).

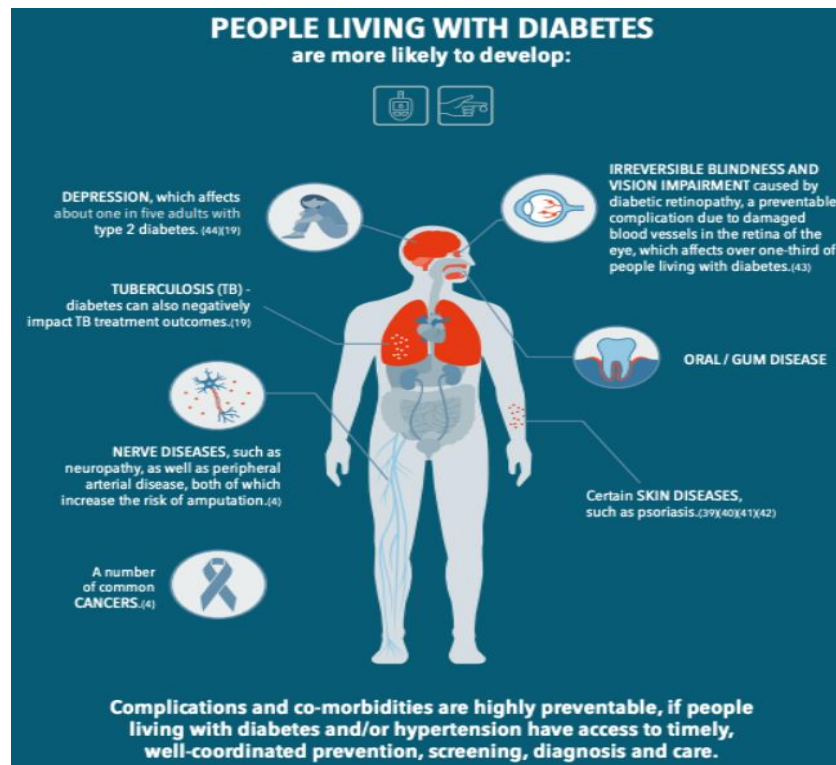


Figure 1: Effect of Diabetes

(Source: O'Hara *et al.*, 2022)

Advantages

The benefits of mobile health (mHealth) within the context of wellness promotion are readily apparent. Enhanced accessibility to medical information is facilitated, hence yielding notable advantages for marginalised communities and geographically isolated regions (Fleming *et al.*, 2020). The use of real-time tracking and prompt feedback has an opportunity to boost patient involvement through enthusiasm, hence possibly mitigating healthcare expenses by delaying the advancement of chronic diseases via early intervention and behavioural adjustments.

Obstacle

Nevertheless, notwithstanding its inherent advantages, the field of mobile health (mHealth) has certain obstacles. The phenomenon known as the "digital divide" contributes to inequities in both the accessibility and results of healthcare services (Fleming *et al.*, 2020). Persistent concerns exist over the data security, privacy, trustworthiness, and correctness of medical information offered by specific applications. Moreover, the difficulty of maintaining customer interest and commitment persists.

Minimising the short falling

To effectively tackle these difficulties, it is essential to use a comprehensive and multidimensional strategy. Implementing methods that prioritise equal utilisation of technologies, including developing advanced digital literacy abilities, is of utmost importance in addressing the digital gap. In addition, it is imperative to enhance data security protocols, establish regulatory frameworks for mobile health applications, and prioritise providing precise information (Triantafyllidis *et al.*, 2019). The augmentation of user engagement may be attained by the implementation of app designs that prioritise user convenience and the provision of benefits to encourage sustained use, including the utilisation of behavioural science concepts for sustaining motivation.

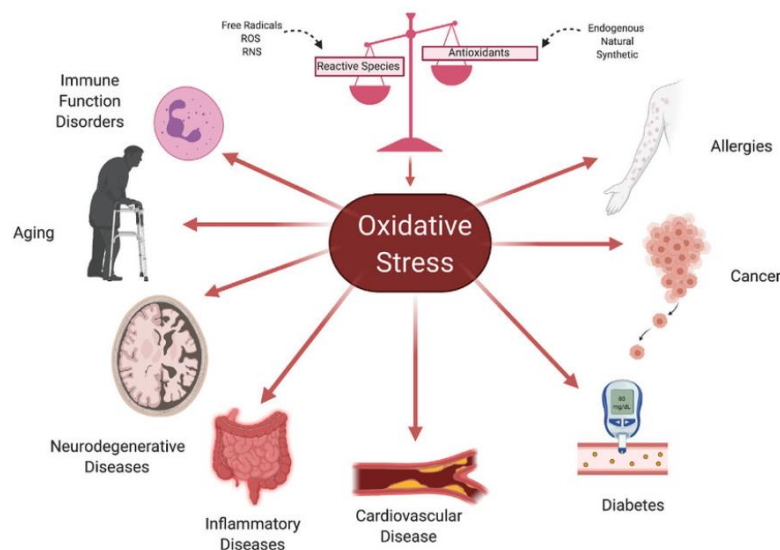


Figure 2: Oxidative stress based on Diabetes

(Source: mhealth.jmir.org, 2023)

Overall outcome

In summary, the incorporation of mobile health (mHealth) into programmes to promote health has significant promise in the management of chronic illnesses. The benefits of this technology in terms of availability, observation, and affordability are readily apparent. However, it is crucial to proactively tackle the issues associated with equality, protection, and ongoing participation. Addressing these difficulties would enhance the efficacy of technological advances in advancing the health of everyone, therefore contributing to a more healthful future.



Task 1 - Blogs

Blog 2- Critically discuss the impact of a digital technology you designed for a digital health promotion intervention

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Blog 2

Public health issue

There has been a significant increase in **mental health issues**, including stress and burnout, on a worldwide scale. If not effectively handled, stress may give rise to significant mental health disorders, therefore impacting an individual's productivity and general state of well-being. Based on data provided by the American Institute of Stress, it has been observed that a significant proportion, namely about 77%, of individuals manifest bodily symptoms as a direct consequence of stress (stress.org, 2023). These symptoms are associated with various health complications, including but not limited to cardiovascular disease, being overweight, and depression. The significance of addressing the management of stress needs to be emphasised enough in order to mitigate the negative effects it has had on the general population.

Digital Technology Implemented:

The creation pertains to a stress reduction application powered through artificial intelligence (AI), which was originally designed to evaluate customers' feelings of stress via the utilisation of voice examination, recognition of facial features, and other pertinent personal data (Lee *et al.* 2021). The website offers personalised stress reduction tactics, including techniques such as contemplation, breathing exercises, and psychological treatment materials. The application utilises automated learning technologies, including customised recommendations for alleviating stress, taking into account individual reactions and variations in stress.

Application in the Promotion of Health:

The digital technology that has been built functions as a personalised tool for managing stress, enabling individuals to gain insight into, control, and diminish their levels of stress. The application monitors stress indicators and provides personalised solutions, including guided relaxation methods and proactive tactics for stress reduction, based on regular user interactions (Ranschaert *et al.* 2019). The primary objective of this initiative is to enhance mental well-being by facilitating the proper management of stress among people.

Impact of the Designed Digital Technology:

Advantages

Customised Stress Solutions: Tailored therapies are designed to address particular stress triggers, facilitating the achievement of optimal decreases in stress outcomes.

Frequent tracking and providing input in enabling customers (Chang, 2023).

Accessibility Convenience: The application offers immediate assistance and direction, readily available at all times.

Disadvantages

The gathering and examination of personally identifiable biometric information might give rise to questions regarding the security and confidentiality of data (Chang, 2023).

The dependability and precision of artificial intelligence in comprehending the degree of stress, as well as providing suitable remedies, may raise concerns.

The excessive dependence on technological advances, namely on the smartphone application, may discourage individuals from obtaining competent psychological assistance when necessary.



Figure 3: Mental Health Wellbeing

(Source: Chang, 2023)

Addressing Shortfalls:

The implementation of powerful encryption as well as user-controlled communication measures is essential for enhancing the safety of data, therefore ensuring the utmost privacy and the security of sensitive information (Mohammad, 2020).

The principle of open communication and continuous improvement entails the ongoing enhancement of AI algorithms, accompanied by a clear acknowledgement of their limits and guidance to engage expert assistance where appropriate (Mohammad, 2020).

The implementation of unified systems for referrals aims to provide procedures that facilitate the connection between individuals experiencing severe distress and mental health specialists.

Overall outcome

In summary, the potential regarding the stress reduction app utilising AI technology to promote mental well-being is evident. However, to maximise its effectiveness towards combating associated stress issues related to public health, it becomes imperative to prioritise the security of information, enhance the precision of AI algorithms, and foster a well-rounded strategy that incorporates qualified psychological services.

poster

EMPOWERING HEALTH EQUITY THROUGH DIGITAL INCLUSION



Background

Contemporary society is confronted with a pressing public health issue, namely the conspicuous and disconcerting contradiction in access to digital health resources. The use of digital technology in healthcare for tasks such as obtaining crucial health information, making arrangements, and keeping track of health problems has led to a notable exacerbation of health inequalities due to discrepancies in access (Rajak and Shaw, 2019). The absence of access among some demographic cohorts further amplifies existing health inequalities, hence necessitating a measure.

A variety of initiatives, including digital and non-digital approaches, have been successfully used in the past in an effort to address this problem. A variety of efforts have been implemented, including local healthcare programmes, outreach techniques, as well as technological advances like telemedicine as well as wellness applications (Duarie and Pinho, 2019). Although attempts have been made to mitigate the disparity, the fundamental issue underlying digital health inequalities has not been adequately resolved by these approaches.

The selected digital health intervention that functions as a prospective solution is telecommunications, an infrastructure for providing healthcare services remotely. As extensively examined in Part A, telemedicine presents a potential solution for effectively addressing the issue of digital health disparity (Duarie and Pinho, 2019). This breakthrough enables remote people to receive healthcare, overcoming geographical and logistical obstacles that impede people's ability to reach conventional medical centres.

Telemedicine offers people from diverse demographic groups the chance to engage alongside healthcare experts, get essential medical guidance, and avail themselves of medical amenities unencumbered by the limits of their geographical proximity to exchange additional constraints (Vion et al., 2020). This strategy has considerable potential in addressing the prevalent digital health disparity by improving the availability of crucial healthcare providers, irrespective of location restrictions or various barriers that prevent access.

Expected Outcome

It is established that the use of the Transtheoretical Model (TTM) in the process of putting into action an online health intervention, including telemedicine, would result in substantial effects (Lee et al., 2013). The Transtheoretical Transformation Model (TTM) seeks to improve the uptake and continued use of distant medical care by customizing intervention to the degree to which people are ready to undergo transformation (Hudgens, 2020). As a consequence of greater and continuing involvement regarding digital intervention, it is anticipated that this individualised approach would improve overall health. The expected results include a greater degree of engagement on the part of patients in the management of their own health, which will hopefully result in better-informed choices about medical treatment and engaged involvement with the provision of healthcare via remote means (Pinho, 2021). This might lead to more effective assessment of health, quicker treatment, and enhanced health management, which would ultimately result in a reduction in the gaps in medical results that exist across different population groups. Additionally, the implementation of TTM has an opportunity to contribute to an approach to healthcare delivery that becomes more cost-effective (Hudgens, 2020). This may be accomplished by avoiding health problems using prevention, cutting down on needless hospital visits, and improving resource allocation throughout the medical field.



TRANSTHEORETICAL CHANGE MODEL

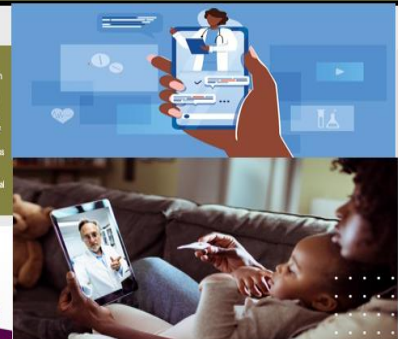
Transtheoretical Model of Behavior Change



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EMPOWERING HEALTH EQUITY THROUGH DIGITAL INCLUSION



Behaviour change theory

The selected theoretical framework for behavioural transformation is the **Transtheoretical Model (TTM)**, which provides a complete description of the sequential phases people go through while undergoing behavioural changes (McCallum-Crawford, 2022). The process has six distinct steps, namely 'pre-contemplation, contemplation, preparation, action, maintenance, and termination'.

Within the realm of digital technology interventions aimed at improving health, including telecommunications- the **Transtheoretical Model** assumes a pivotal role in comprehending and effectively resolving the preparedness of people to embrace and actively participate in distant healthcare services.

Precontemplation: People throughout this period had an inclination to adopt telemedicine. The strategies used in this context include the dissemination of information aimed at increasing knowledge of the advantages associated with remote healthcare (McCallum-Crawford, 2022). Various strategies such as public relations efforts, testimonials, and instructional materials may be used to effectively emphasize the benefits of telemedicine, with the ultimate goal of influencing consumers' attitudes and inclinations towards adopting this kind of digital healthcare.

Contemplation: refers to the stage in which individuals see the potential advantages of telemedicine but have not yet initiated any action towards its adoption (McCallum-Crawford, 2022). Conducting information sessions, facilitating conversations, and presenting empirical data on the efficacy and ease of telemedicine may serve as further incentives to encourage individuals.

Preparation: Individuals in the preparatory stage are making arrangements to engage in telemedicine. It is vital to provide instructions on the means of accessing and using telemedicine platforms in an efficient manner (McCallum-Crawford, 2022). The process includes providing persons with education about the many resources, technological components, and the utilisation of these services to guarantee their readiness to embrace telemedicine.

Action: The current phase entails persons actively engaging in the use of telemedicine for the provision of distant healthcare services. In this context, the emphasis is redirected towards facilitating a seamless encounter (Bial et al., 2020). The provision of technical assistance, effective utilization advice, and prompt resolution of issues or obstacles encountered by people during their utilisation of telemedicine services are included under this framework.

Maintenance: Practitioners in this phase have successfully incorporated telemedicine throughout their regular practices. The primary objective is to promote and maintain constant consumption, so encouraging people to interact with these services consistently (Bial et al., 2020). This may include providing encouragement and materials to maintain the behaviour.

Termination: During this phase, the adoption of telemedicine becomes an inherent and enduring practice, seamlessly incorporated into people's daily routines.

Health Promotion Values and Principles

The selected health technology assistance, telemedicine, is deeply grounded in the morals and concepts of promoting health and demonstrating alignment with the fundamental aspects of fairness, being empowered engagement while participating in equality for all.

The intervention has a strong emphasis on equity, aiming to promote justice and equal access to healthcare services by using digital technologies. Telemedicine eliminates geographical limitations and offers medical treatments to people regardless of their residence or financial limitations (Rogers et al., 2023). The use of distant consultations and medical track facilitates equal access to medical services for persons from various demographic groups, hence fostering a more equal healthcare environment.

The concept of empowerment is an integral component deeply embedded within the framework of telemedicine. The use of digital health technology confers people with more agency in managing their own health (Aceto et al., 2020). This approach promotes patient involvement in their healthcare, cultivating a perception of accountability and self-governance (Usak et al., 2020). The use of standalone health guidance along with medical services enables patients to adopt an aggressive approach towards the management of their overall well-being.



Conclusion

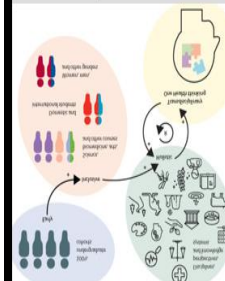
The use of digital technology efforts, underpinned by behavioural change theories such as the Transtheoretical Model, has significant implications for legislation, teaching, and investigation within the healthcare sector.

Policies: Integrating digital health technologies may need legislative modifications to enable fair access, safeguard privacy, and establish compensation systems for remote healthcare providers.

Education: plays a crucial role in facilitating the integration of digital health solutions, necessitating the implementation of instructional programmes targeting healthcare practitioners and patients alike. Training programmes and instructional efforts will play a crucial role in ensuring the acquisition of skills and promoting broad comprehension of the aforementioned technological advances.

Research: The aforementioned intervention sets the stage for further study aimed at assessing the effectiveness, influence, and optimisation of digital health technologies, hence shaping future enhancements and progress in the provision of remote healthcare.

The aforementioned consequences underscore the importance of broad legislative reforms, instructional strategies, and focused research endeavours to facilitate the effective integration and ongoing improvement of digital health treatments within the field of health care.



1. Background

Contemporary society is confronted with a pressing public health issue, namely the conspicuous and disconcerting contradiction in access to digital health resources. The use of digital technology in healthcare for tasks such as obtaining crucial health information, making arrangements, and keeping track of health problems has led to a notable exacerbation of health inequalities due to discrepancies in access (Rajak and Shaw, 2019). The absence of access among some demographic cohorts further amplifies existing health inequalities, hence necessitating a measure.

A variety of initiatives, including digital and non-digital approaches, have been successfully used in the past in an effort to address this problem. A variety of efforts have been implemented, including local healthcare programmes, outreach techniques, as well as technological advances like telemedicine as well as wellness applications (Duarte and Pinho, 2019). Although attempts have been made to mitigate the disparity, the fundamental issue underlying digital health inequalities has not been adequately resolved by these approaches.

The selected digital Mhealth intervention that functions as a prospective solution is telecommunications, an infrastructure for providing healthcare services remotely. As extensively examined in Part A, telemedicine presents a potential solution for effectively addressing the issue of digital health disparity (Duarte and Pinho, 2019). This breakthrough enables remote people to receive healthcare, overcoming geographical and logistical obstacles that impede people's ability to reach conventional medical centres.

Telemedicine offers people from diverse demographic groups the chance to engage alongside healthcare experts, get essential medical guidance, and avail themselves of medical amenities unencumbered by the limits of their geographical proximity to exchange additional constraints (Wan *et al.* 2020). This strategy has considerable potential in addressing the prevalent digital health disparity by improving the availability of crucial healthcare providers, irrespective of location restrictions or various barriers that prevent access.

2. Health Promotion Values and Principles

The selected health technology assistance, telemedicine, is deeply grounded in the morals and concepts of promoting health and demonstrating alignment with the fundamental aspects of fairness, being empowered engagement while participating in equality for all.

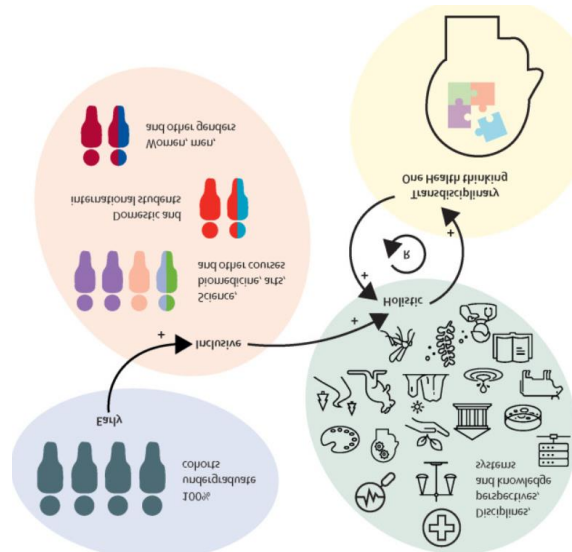


Figure 4: Health Promotion Value Principle

(Source: Duarte and Pinho, 2019)

The intervention has a strong emphasis on equity, aiming to promote justice and equal access to healthcare services by using digital technologies. Telemedicine eliminates geographical limitations and offers medical treatments to people regardless of their residence or financial limitations (Rogers *et al.* 2023). The use of distant consultations and medical track facilitates equal access to medical services for persons from various demographic groups, hence fostering a more equal healthcare environment.

The concept of empowerment is an integral component deeply embedded within the framework of telemedicine. The use of digital health technology confers people with more agency in managing their own health (Aceto *et al.* 2020). This approach promotes patient involvement in their healthcare, cultivating a perception of accountability and self-governance (Usak *et al.* 2020). The use of standalone health guidance along with medical services enables patients to adopt an aggressive approach towards the management of their overall well-being.

The conceptual framework of the intervention facilitates active engagement in healthcare choices (Konttila *et al.* 2019). Telemedicine facilitates patient-provider communication, fostering mutually beneficial decisions and encouraging consumers (Usak *et al.* 2020). The aforementioned active collaboration facilitates the cultivation of a cooperative strategy for medical care, whereby people are given the opportunity to actively participate in the decision-making processes that directly affect their well-being.

Moreover, the use of telemedicine plays a significant role in promoting social justice via the reduction of disparities in access to digital health resources. By surpassing physical limitations and using digital technology, the objective is to reduce inequalities in healthcare accessibility (Mulati *et al.* 2022). This technology enables marginalised groups to have improved accessibility to healthcare services, therefore mitigating the influence of socioeconomic factors on medical conditions and fostering a more equitable and inclusive healthcare system.

3. Behaviour change theory

The selected theoretical framework for behavioural ***transformation is the Transtheoretical Model (TTM)***, which provides a complete description of the sequential phases people go through while undergoing behavioural changes (McCallum-Crawford, 2022). The process has six distinct steps, namely “*pre-contemplation, contemplation, preparation, action, maintenance, and termination*”.

Within the realm of digital technology interventions aimed at improving health, including telecommunications- the ***Transtheoretical Model*** assumes a pivotal role in comprehending and effectively resolving the preparedness of people to embrace and actively participate in distant healthcare services.

Precontemplation: People throughout this period had an inclination to adopt telemedicine. The strategies used in this context include the dissemination of information aimed at increasing knowledge of the advantages associated with remote healthcare (McCallum-Crawford, 2022). Various strategies such as public relations efforts, testimonials, and instructional materials may be used to effectively emphasise the benefits of telemedicine, with the ultimate goal of influencing consumers' attitudes and inclinations towards adopting this kind of digital healthcare.

Contemplation refers to the stage in which individuals see the potential advantages of telemedicine but have not yet initiated any action towards its adoption (McCallum-Crawford, 2022). Conducting information sessions, facilitating conversations, and presenting empirical data on the efficacy and ease of telemedicine may serve as further incentives to encourage individuals.

Preparation: Individuals in the preparatory stage are making arrangements to engage in telemedicine. It is vital to provide instructions on the means of accessing and using telemedicine platforms in an efficient manner (McCallum-Crawford, 2022). The process includes providing persons with education about the many resources, technological components, and the utilisation of these services to guarantee their readiness to embrace telemedicine.

Action:

The current phase entails persons actively engaging in the use of telemedicine for the provision of distant healthcare services. In this context, the emphasis is redirected towards facilitating a seamless encounter (Bilal *et al.* 2020). The provision of technical assistance, effective utilisation advice, and prompt resolution of issues or obstacles encountered by people during their utilisation of telemedicine services are included under this framework.

Maintenance: Practitioners in this phase have successfully incorporated telemedicine throughout their regular practices. The primary objective is to promote and maintain constant consumption, so encouraging people to interact with these services consistently (Bilal *et al.* 2020). This may include providing encouragement and materials to maintain the behaviour.

Termination: During this phase, the adoption of telemedicine becomes an inherent and enduring practice, seamlessly incorporated into people's daily routines.

Application

Using the Transtheoretical Framework will facilitate the implementation of a technological intervention by customising interventions based on someone's stage of transformation (Bilal *et al.* 2020). Healthcare practitioners may use this approach to assess the level of preparedness of those interested in telemedicine and customise their assistance, education, and motivation appropriately (Bilal *et al.* 2020). For instance, individuals who

are in the stage of contemplation could possibly potentially get advantages from knowledge efforts, whilst individuals in the implementation stage may need further practical assistance in effectively applying telemedicine.

4. Expected Outcome

It is established that the use of the Transtheoretical Model (TTM) in the process of putting into action an online health intervention, including telemedicine, would result in substantial effects (Lee *et al.* 2013). The Transformational Transformation Model (TTM) seeks to improve the uptake and continued use of distant medical care by customising intervention to the degree to which people are ready to undergo transformation (Hudgens, 2020). As a consequence of greater and continuing involvement regarding digital intervention, it is anticipated that this individualised approach would improve overall health.

The expected results include a greater degree of engagement on the part of patients in the management of their own health, which will hopefully result in better-educated choices about medical treatment and engaged involvement with the provision of healthcare via remote means (Perumal, 2021). This might lead to more effective assessment of health, quicker treatments, and enhanced health management, which would ultimately result in a reduction in the gaps in medical results that exist across different population groups. Additionally, the implementation of TTM has an opportunity to contribute to an approach to healthcare delivery that becomes more cost-effective (Hudgens, 2020). This may be accomplished by avoiding health problems using prevention, cutting down on needless hospital visits, and improving resource utilisation throughout the medical field.

5. Conclusion

The use of digital technology efforts, underpinned by behavioural change theories such as the Transtheoretical Model, has significant implications for legislation, teaching, and investigation within the healthcare sector.

Policies: Integrating digital health technologies may need legislative modifications to enable fair access, safeguard privacy, and establish compensation systems for remote healthcare providers.

Education plays a crucial role in facilitating the integration of digital health solutions, necessitating the implementation of instructional programmes targeting healthcare practitioners and patients alike. Training programmes and instructional efforts will play a

crucial role in ensuring the acquisition of skills and promoting broad comprehension of the aforementioned technological advances.

Research: The aforementioned intervention sets the stage for further study aimed at assessing the effectiveness, influence, and optimisation of digital health technologies, hence shaping future enhancements and progress in the provision of remote healthcare. The aforementioned consequences underscore the importance of broad legislative reforms, instructional strategies, and focused research endeavours to facilitate the effective integration and ongoing improvement of digital health treatments within the field of health care.

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