

Tele-Health: The Improvement Process of Healthcare among Elderly during the COVID-19 Pandemic

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ABSTRACT

In the current COVID-19 pandemic, where social distance is the norm and hospitals have turned into infection hotspots, it's vital for health-care providers to figure out how to provide care to the elderly while limiting their exposure to healthcare environments. In light of the ongoing pandemic, it has been suggested that older people be replaced by virtual visits and told to attend to the doctor right away. Telehealth-based therapies have emerged as viable options for overcoming these geriatric care delivery roadblocks. Even in the most remote regions, technological developments have solved the challenge of telehealth access. Teleconsultation is becoming a realistic option for the elderly and health-care practitioners in this age of information technology. Despite the fact that the difficulties we face are complex and hence cannot be addressed with a single, all-encompassing solution, telemedicine and tele-health based interventions appear to hold promise in complementing our efforts in this area. In terms of providing quality treatment without having to relocate, telehealth is useful for both the elderly and healthcare providers.

KEYWORDS: tele-health, healthcare, elderly, covid-19

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1. INTRODUCTION

As a result of the present COVID-19 outbreak, practically every country in the world is experiencing serious challenges with health-care quality management. In a variety of ways, it has an impact on the country's population's health and quality of life. Thailand is one of the countries that has had to deal with these issues. The covid-19 epidemic in Thailand is expected to increase the number of persons sick, although there is now a vaccination regimen in place to help establish immunity among the population.

The Covid-19 outbreak in Thailand, on the other hand, happened during a period when the Thai people were confronted with severe obstacles. Elderly individuals over the age of 65 are particularly vulnerable. These elderly people have difficulty seeing a doctor in the hospital, which causes the treatment process to fall short of its objectives (Meethien et al., 2011). As a result, promoting proper

healthcare knowledge and behavior among the elderly is seen as a crucial technique for improving their health, reducing their risk of diabetic complications, prolonging their lives, and enhancing their quality of life (Meethien et al., 2011). Appropriate and sufficient health education programs are a successful technique for improving elderly people's healthcare knowledge, attitudes, and habits (De Almeida et al., 2001; Meethien et al., 2011). Multiple teaching methods, motivation, and group participation are all effective ways to improve elderly people's knowledge and conduct in the healthcare field (Ammerman et al., 2002; Baker & Figueroa, 2021; Hoevenaars et al., 2020). Individuals and communities have benefited from theory-based educational programs that have improved their health-care understanding and behavior (Ammerman et al., 2002). On the other hand, the bulk of these educational programs utilised teaching or training methods. Despite the fact that a

number of efforts have been developed to encourage healthy habits.

Several studies have shown that the notion of quality development, or "PDSA," has been accepted as the key concept and method for the development of health education programs (Cleghorn & Headrick, 1996). PDSA is a concept that emphasizes methodical operation with the purpose of continual improvement. It is not simply focused on planning. Administrative procedures executed in accordance with PDSA guidelines are systematic and comprehensive, resulting in productive activities that are appropriate for the firm (Nordberg, 2021). The state of the organization is investigated in areas such as manufacturing and personnel, with the results being utilized as input for planning and developing operating guidelines. Periodic evaluations enable the plan to be updated in response to changing circumstances (Nordberg, 2021 & Rogers, 2021). Furthermore, the project's success analysis identifies the operation's faults and strengths, and serves as a lesson for future operations; at this stage, it is feasible to make modifications and make actual progress. As a result, there is potential for more appropriate and directional development. The operation, whether it's through productivity tools, quality improvements, or even activity management within the company. Proper planning based on the analysis of relevant data is a good place to start, and following the plan will lead to success and achievement of the goals, but it will also necessitate periodic monitoring of progress or problems in order to obtain information that can be used to align the plan with the situation (Rogers, 2021). Each time an operation is completed, the program automatically reviews and summarizes the lessons learned for advantages, disadvantages, or areas for improvement in order to make the next round easier to achieve better results, and all of this is done in accordance with the PDSA circuit, which is at the heart of continuous improvement. Researchers have the aim of producing health education programs that are as effective and focused as feasible by considering and preparing according to PDSA standards. This is in line with the covid-19 pandemic, which has made it impossible for the general public, notably the elderly and diabetic patients, to access healthcare. The researchers used the "Tele-health concept" to build health education programs employing social media, including line apps and telephone consultations, as the primary research methods (Nordberg, 2021).

We explore how tele-health -based interventions might help sustain efficient delivery of care for the elderly throughout the ongoing covid-19 pandemic,

and how the old would be content with participation in this well-being program, which will be centered on the notion of "Patient Satisfaction"

2. Improvement Process of Healthcare Quality Improvement

2.1. Plan-Do-Study-Act (PDSA) Cycle for Improvement

The Plan-Do-Study-Act (PDSA) method is a methodical approach to obtaining valuable knowledge and learning to enhance a product, process, or service over time. This integrated learning-improvement paradigm. The plan is the first phase in the cycle. Identifying a goal or purpose, establishing a theory, defining success measures, and putting a plan into action are all part of this process (Donnelly & Kirk, 2015). These actions are followed by the Do stage, which involves putting the plan's components into action, such as manufacturing a product. The next step is the study, in which the plan's validity is tested by looking for indicators of progress and success, as well as difficulties and opportunities for improvement. The Act stage completes the cycle by incorporating the knowledge gained throughout the process. This knowledge can be used to change the aim, change the methodology, reformulate a theory, or expand the learning improvement cycle from a small-scale experiment to a broader implementation Plan. These four processes can be performed indefinitely as part of a never-ending cycle of progress and learning (Cleghorn & Headrick, 1996; Donnelly & Kirk, 2015).

The PDSA model is a four-stage problem-solving strategy for improving a process or bringing about change. Customers, both internal and external, should be involved in the PDSA cycle since they may provide feedback on what works and what doesn't. Because the client defines quality, it seems sense to involve them as much as possible in the process to increase the acceptability of the final product health (Donnelly & Kirk, 2015; Leis & Shojania, 2017).

Plan: Only a few key questions should be considered at this time. • What exactly are you seeking to achieve? It's referred to as the desired statement. • This is supported by the question, "What is the problem?" After that, you must answer the following: • How do you know you have a problem? To answer this question, baseline measurements are required. These give a clearer picture of the problem and its scope (Leis & Shojania, 2017). It's also critical to learn more about the problem's likely or actual cause. As a result of the preceding considerations, a solution description is naturally formulated. The following step is to choose and describe the solution's short, medium, and long-term characteristics. The plan for

successful implementation must be described and written down, including who will do what, why they will do it, and when they will do it. The progress review process relies heavily on these roles and responsibilities, as well as accountabilities and targets. Then you must decide how you will measure your success. It's critical to consider predictions, or what we expect to see and why we expect to see it. What are the most likely system-wide effects and repercussions? (Leis & Shojania, 2017; Donnelly & Kirk, 2015).

Do: This is where we put the change, test, or intervention into action and track its progress. To capture the data trend, it's critical to start at a given time and gather measurements over a period of time. Keeping note of difficulties, changes, and unexpected observations is crucial. Use a run chart, which is a graphical representation of our data that is plotted in some order. The horizontal axis is commonly used to depict a time scale (days, weeks, or months), but it can also be used to show successive patients, visits, or treatments. On the vertical axis, the quality indicator under investigation is located (e.g. infection rate, number of patients falls, readmission rate) (Donnelly & Kirk, 2015; Leis & Shojania, 2017).

Study: This is essentially about examining or evaluating your data, as well as the process itself. The following are some critical considerations to consider during this step:

- Was the outcome close to what we predicted?
- Did everything go according to plan?
- What were the key takeaways?

Act: The act is vital in that it requires you to assess what protections and procedures are in place to guarantee that whatever solution or solutions you have discovered remain effective, so questions like "What modifications are required to process?" are important. Is there a clear path to follow? Inquire about your willingness to make another adjustment, which will lead to the development of a PDSA cycle approach (Leis & Shojania, 2017). This third component is crucial for PDSA implementation since research suggests that small incremental changes inside a complex system are more likely to result in overall positive effects. It's possible to become caught up in a never-ending loop of little adjustments. However, it is critical to assess readiness for further change, which is aided by PDSA cycles (Donnelly & Kirk, 2015).

The PDSA cycle is at the heart of continuous improvement because it is a reinterpretation of the scientific method for use in the business. Healthcare as a setting for health professions education educational institutions should create the best "quality

learning" environments for students by creating close partnerships with healthcare organizations that promote employee development. One of the most important effects of both enterprises becoming "learning" organizations and forming a connection will be the integration of individual and organizational learning processes. The PDSA cycle is a learning theory that can be used to help people and organizations grow. It covers topics such as transformation and action/reflection, which are common in well-accepted theory on individual and organizational learning (Cleghorn & Headrick, 1996). The PDSA cycle as a learning theory is presented with one set of implications. It proposes a new way of thinking about learning evaluation that goes beyond the traditional emphasis on judgment. Incorporating the PDSA cycle into health professions education has huge promise. The historical importance of the scientific method in healthcare, the relationship between clinical education and practice, recent advances in our ability to define and measure health outcomes, emerging pressures for change in healthcare and education, and the PDSA cycle's compatible multiple functions are all contributing factors to this potential (Cleghorn & Headrick, 1996).

In healthcare, quality improvement is a method for achieving great results by combining evidence-based medicine with the best clinical expertise to satisfy the requirements and expectations of patients (Martinez, 2021). Several key quality improvement activities are included in this definition, including: 1) gaining a better understanding of the sources of both systematic and unwanted and unnecessary variation, 2) implementing cost-effective strategies to reduce unwanted variation, and 3) developing organizational-wide knowledge on structured approaches to change processes and improve outcomes. These crucial processes are integrated into quality improvement in a way that distinguishes the discipline. To better understand variance and improve results, a systems approach is required. Continuous improvement requires data-driven approaches and regular review to be implemented properly and efficiently. Continuous learning is necessary for a company that values management through teamwork, strategic planning leadership, alignment of support services, suppliers, and distributors, and outcomes in reflection. The emphasis on implementation in everyday practice is the single most important element that distinguishes quality improvement from standard evaluative research. Some have named this technique "real-time science" (Speroff et al., 2004). Nonetheless, the goal of quality improvement research is to create generalizable information that may be used in other settings and under various situations from the one

described in this issue's study. As a result, the quality movement involves the creation of new methods and statistical techniques to assess quality progress. The core components of plan-do-study-act (PDSA) quality improvement real-time science and traditional research methodology excellence standards are surprisingly comparable. There are parallels between the two courses because they are both based on the scientific process. In quality improvement, the scientific approach is interlaced in sequential applications of learning cycles known as PDSA cycles (Speroff et al., 2004).

2.2. Tele-health

Tele-health is a term that is used interchangeably with telemedicine and telehealth to describe the use of medical information that is shared from one place to another through electronic communication to improve a patient's health. The purpose of this article is to describe policy-relevant trends in telemedicine adoption, summarize the current state of the telemedicine evidence base, and assist physicians, other healthcare professionals, and researchers in identifying essential telemedicine research objectives. To fully realize the promise of telehealth in addressing socially desired goals like the quadruple aim in healthcare: improving patient experience, improving population health, lowering per capita healthcare expenditures, and improving the experience of providing treatment, further study is required (Tuckson et al., 2017).

Three interrelated trends are now shaping telehealth. The first is the shift in telehealth's use from improving access to healthcare to providing convenience and, ultimately, financial savings. The second is the expansion of telehealth to address episodic and chronic disorders in addition to acute diseases. The third trend is the expansion of telemedicine from hospitals and satellite clinics to the home and mobile devices. From the perspective of patients, the primary purpose of telehealth is to improve access to care, and it has typically enhanced access to healthcare for conditions and groups for which care was not previously available (Dorsey & Topol, 2016). The first and most consistent uses of tele-health were programs to provide therapy to people in the military, jails, and rural areas. In the same way that the Internet has made travel, shopping, and banking more accessible, it is also making healthcare more accessible. Many organizations, from academic health institutes to startups, now offer low-cost virtual visits (available 24 hours a day, 7 days a week) for the "most common, most annoying, most inconvenient" conditions. In comparison, a 20-minute visit with a physician takes an average of 20 days to

schedule, and the session takes 2 hours to complete owing to travel and wait time. Given the increased interest in bending the cost curve, tele-health may become more prevalent in delivering intensive services to the 20% of people who account for 80% of healthcare spending. "Traditionally, tele-health has been considered as a tool to increase access to services," according to the US Senate Committee on Finance, "but attention is developing to explore if tele-health has the potential to cut healthcare costs" (Dorsey & Topol, 2016; Tuckson et al., 2017).

More recently, telemedicine has expanded to include care for episodic disorders such as sinusitis, utilizing a range of care models such as physician aides visiting schools, video calls, phone calls, and online algorithms. Until recently, tele-health applications for chronic conditions were limited to asynchronous monitoring (e.g., text message) or phone support, with the exception of mental health. According to a 2012 research, only 10 of 141 randomized, controlled trials of telemedicine therapy for chronic conditions involved videoconferencing with a clinician. Despite the absence of evidence, tele-health is becoming more popular for a range of chronic conditions, which affect 140 million people in the US and account for 80% of healthcare spending. Future versions will add rich data transfer from remote monitoring (through wearable sensors and mobile diagnostic devices like electrocardiograms), patient education, and regular virtual and in-person visits from doctors, nurses, therapists, and social workers to today's predominantly conversational approach (Dorsey & Topol, 2016; Tuckson et al., 2017).

2.3. The Role of Tele-health in the Disasters Era

Over the last decade, tele-health, or technology that supports and encourages long-distance clinical treatment, education, and health management, has become increasingly popular. Mobile health apps, text, and email, as well as live video teleconferencing, store-and-forward technologies (e.g., radiograph readings), remote patient monitoring (e.g., intensive care unit tele-health coverage), and mobile health apps, are all common modalities. The frequency and intensity of disasters or incidents that inflict damage, ecological disruption, loss of human life, or degradation of health and health services, and necessitate a response from outside the afflicted community have increased during the last several decades (Lurie & Carr, 2018; Zhou et al., 2020).

The coincidence of these seemingly unrelated events provide an opportunity for creative thinking about how telemedicine can help with disaster medical response. When key infrastructure, such as electricity, internet connectivity, hospitals, clinics, and clinician

access, is disrupted, telehealth presents both challenges and opportunity. Hurricane Maria, which slammed Puerto Rico in 2017, highlighted some of these challenges and opportunities. Despite the fact that the Centers for Medicare & Medicaid Services (CMS) restricts financing to services delivered in rural areas, tele-health is more concerned with care delivery than with location. Tele-health is becoming more common in military health systems, particularly in forward-deployed and difficult-to-reach places. Congress has ordered the Department of Defense to improve telehealth services across the military healthcare system by 2018 (Lurie & Carr, 2018). The Department of Veterans Affairs has revealed plans to roll out telehealth across the country, allowing for “anywhere to anywhere” care. Stroke consultations in emergency rooms and telemedicine coverage of intensive care units are two well-known instances. Tele-behavioral healthcare, which allows mental health care to be delivered from a distance, is also popular (Lurie & Carr, 2018). The need for safe food, water, shelter, and clothing is common among disaster survivors. Disasters usually result in an increase in medical demand that surpasses local capacity. Timely care saves lives and prevents people's and communities' health from deteriorating further. Medical teams may be dispatched to provide crisis care, decompress emergency rooms, care for nursing home residents, and provide general and mental health services. Despite its potential to change medical response, tele-health has been neglected in disasters and everyday clinical practice due to administrative (licensing, credentialing) obstacles. Despite the fact that telehealth has the potential to alter medical response, it has been underutilized in catastrophes, as well as in routine clinical practice, owing to administrative (license, credentialing) and reimbursement hurdles (Lurie & Carr, 2018; Wosik et al., 2020; Zhou et al., 2020).

The COVID-19 epidemic continues to pose a significant public health threat around the world, and the United States is not immune. The COVID-19 pandemic has far-reaching implications in a variety of areas, including global health security, economics, and healthcare delivery in low- and middle-income countries, to mention a few. In order to effectively contain the epidemic, responses have been stepped up. On the other hand, national health authorities and other stakeholders must continue to ensure that high-quality healthcare services are available. Innovation is more crucial than ever in the battle against COVID-19, and we must continue to find ways to ensure country-compatible measures and regulations (Okereke et al., 2021). To ensure a proactive response, a certain technique is also required.

Increased testing capacity, cross-border cooperation and collaboration, effective community participation, and infection prevention and control measures like physical distance and proper hand and cough etiquette/respiratory hygiene. As a result, the load on already vulnerable healthcare systems would be eased. This will allow for a sufficient response to the unprecedented COVID-19 epidemic while also ensuring that healthcare service is not hindered (Okereke et al., 2021).

The COVID-19 pandemic may provide an opportunity to introduce and enhance understanding of the digital era's prospects across a wide range of health professionals (Di Carlo et al., 2021). Examine the challenges that poor countries have in implementing telehealth services. COVID-19 patients are already inundating hospitals around the world, necessitating challenging staffing and resource allocation considerations. During this public health crisis' infectious outbreak and the ensuing fear, it is critical to restructure healthcare delivery. Around the world, tele-health has emerged as a viable strategy for protecting frontline healthcare workers and supporting vulnerable chronic disease patients. Socioeconomic and racial disparities have inhibited the efficient deployment of telemedicine in low- and middle-income countries. However, in both poor and developed countries, desirable health knowledge and behavior are frequently overlooked, despite their importance in the adoption of telemedicine (Butler, 2020; Nair et al., 2020; Neubeck et al., 2020).

2.4. Information technology and social network with Elderly

The value of information technology in healthcare is generally recognized, but as medicine becomes more complex, the sophistication of information technology tools and processes rises to new heights. Recently, the healthcare community has voiced a desire to use and turn huge amounts of healthcare data and information into value-added "decision quality knowledge." Despite the well-established importance of information technology in healthcare, medical practice is becoming increasingly complex, driving the sophistication of information technology tools to new heights.

The emergence of smartphones, tablets, and mobile applications has had a tremendous impact on health and healthcare, particularly Line apps, which provide busy health workers with learning and collaboration choices as well as peer-to-peer aid and public health education (Boulos et al., 2014). The successful use of social media on smartphones is part of how doctors and patients connect in the twenty-first century. Instagram, WhatsApp, Facebook, and Line are among

the most popular social media platforms and mobile applications for sharing and discussing clinical situations and medical and health knowledge (Kamel Boulos et al., 2016; Thongprasit, 2020). In the medical and healthcare industries, a growing number of social media and networking services have emerged, and their popularity has grown. The Line application, which is an instant messaging client with photo and video sharing features, is the most popular social networking platform in Thailand, according to this study. Line is finding a home in medicine and health, as health workers use hospital-specific and specialized profiles and groups on these platforms to communicate and generate social and mobile learning. The line is a simple and free platform that allows for clinical and non-clinical communication as well as mobile learning. The program, which is available for Android and iOS smartphones, allows users to exchange text messages and share video, voice, and image messages and photographs with their personal and professional learning networks via the Internet. Line's Group Chat function allows users to chat and share content with up to 400 people at once, making it ideal for clinical use. Because of the numerous benefits of Line, it is the most popular app among Thais. It has a very high utilization rate of Line applications for various purposes, especially among the elderly. However, one of the most essential reasons for using Line is to improve one's health (Thongprasit, 2020).

2.5. Patient Satisfaction

Patient satisfaction is a major influence of patients' behavior and an important indicator of healthcare quality since it reflects how effectively a provider meets their customers' expectations (Williams, 1994). In the healthcare industry, quality of care is an essential topic in quality assurance and improvement programs. Although the value of quality has always been acknowledged in the healthcare industry, it has risen in recent years as a result of increased quality insurance, quality improvement activities, and patient agendas. While quality of care is more important than cost in healthcare, judging a patient's technical ability, as well as the immediate repercussions of many medicines, is difficult. The structure, techniques, and outcomes of healthcare have all been said to be used to assess its quality. While the goals of healthcare efficacy and safety are essentially universal, patient-centeredness, timeliness, efficiency, and equity are valued differently in different communities and cultures around the world. Healthcare measurements, such as process measures, are designed for a variety of audiences that may desire to use them to acquire, use, or improve healthcare performance. For all of these reasons, they must be relevant, scientifically

valid, generalizable, and interpretable (Batbaatar et al., 2017; Williams, 1994).

Patient satisfaction is a critical indicator of healthcare quality because it reflects how well a provider satisfies the client's most important expectations. Patient happiness has been linked to favorable outcomes such as increased compliance, lower medical service consumption, fewer malpractice lawsuits, and a better prognosis. A proliferation of surveys focusing solely on patient experience, i.e., aspects of the care experience such as waiting times, the quality of basic amenities, and communication with healthcare providers, has resulted from the lack of a solid conceptual foundation and consistent measurement tool for consumer satisfaction, all of which help identify tangible priorities for quality improvement (Batbaatar et al., 2017). Some academics believe that improving quality from the perspective of patients delivers more value for money by improving safety, accessibility, equity, and comprehensiveness of care, although improving quality from the perspective of providers may be more beneficial. Patient happiness is one of the top concerns for every medical practitioner for a variety of reasons.

Conclusion

COVID-19's after effects are widely assumed to last significantly longer than they now do. To limit viral exposure, vulnerable persons, such as the elderly, would have to continue to undertake varying degrees of lifestyle adjustments. Elderly care research would continue to accommodate to their "new normal" for the benefit of communities and patients. Despite the fact that the problems we face are complex and cannot be solved with a single, all-encompassing answer, telehealth-based interventions appear to be a promising way to augment our efforts in this area. Telehealth is beneficial to both the elderly and healthcare practitioners in terms of giving quality treatment without needing to move. Care teams and health systems all across the world must work together to design and develop breakthrough technology in order to include virtual care into cancer practice. Telemedicine is here to stay, and it will have a significant impact on geriatric care in the future. It has the potential to improve the elderly's health and quality of life while also reducing access to healthcare services, hospitalization, and costs.

REFERENCES

- [1] Ammerman, A. S., Lindquist, C. H., Lohr, K. N., & Hersey, J. (2002). The efficacy of behavioral interventions to modify dietary fat and fruit and vegetable intake: a review of the

- evidence. *Prev Med*, 35(1), 25-41. <https://doi.org/10.1006/pmed.2002.1028>
- [2] Baker, K., & Figueroa, R. (2021). Motivation, Attitudes, and Diet Quality Among US Parents and Adolescents. *American Journal of Health Behavior*, 45(1), 125-137.
- [3] Batbaatar, E., Dorjdagva, J., Luvsannyam, A., Savino, M. M., & Amenta, P. (2017). Determinants of patient satisfaction: a systematic review. *Perspectives in public health*, 137(2), 89-101.
- [4] Boulos, M. N. K., Brewer, A. C., Karimkhani, C., Buller, D. B., & Dellavalle, R. P. (2014). Mobile medical and health apps: state of the art, concerns, regulatory control and certification. *Online journal of public health informatics*, 5(3), 229.
- [5] Butler, S. M. (2020). After COVID-19: thinking differently about running the healthcare system. *Jama*, 323(24), 2450-2451.
- [6] Cleghorn, G.D., & Headrick, L.A. (1996). The PDSA cycle at the core of learning in health professions education. *The Joint Commission journal on quality improvement*, 22(3), 206-212.
- [7] De Almeida, M., Graca, P., Afonso, C., Kearney, J., & Gibney, M. (2001). Healthy eating in European elderly: concepts, barriers and benefits. *The journal of nutrition, health & aging*, 5(4), 217-219.
- [8] Di Carlo, F., Sociali, A., Picutti, E., Pettorruso, M., Vellante, F., Verrastro, V., Martinotti, G., & di Giannantonio, M. (2021). Telepsychiatry and other cutting-edge technologies in COVID-19 pandemic: Bridging the distance in mental health assistance. *International journal of clinical practice*, 75(1).
- [9] Donnelly, P., & Kirk, P. (2015). Use the PDSA model for effective change management. *Education for Primary Care*, 26(4), 279-281.
- [10] Dorsey, E. R., & Topol, E. J. (2016). State of Tele-health . *New England Journal of Medicine*, 375(2), 154-161.
- [11] Hoevenaars, F. P. M., Berendsen, C. M. M., Pasma, W. J., van den Broek, T. J., Barrat, E., de Hoogh, I. M., & Wopereis, S. (2020). Evaluation of Food-Intake Behavior in a Healthy Population: Personalized vs. One-Size-Fits-All. *Nutrients*, 12(9). <https://doi.org/10.3390/nu12092819>
- [12] Kamel Boulos, M. N., Giustini, D. M., & Wheeler, S. (2016). Instagram and WhatsApp in Health and Healthcare: An Overview. *Future Internet*, 8(3), 37. <https://www.mdpi.com/1999-5903/8/3/37>
- [13] Leis, J. A., & Shojania, K. G. (2017). A primer on PDSA: executing plan–do–study–act cycles in practice, not just in name. *BMJ quality & safety*, 26(7), 572-577.
- [14] Lurie, N., & Carr, B. G. (2018). The role of Tele-health in the medical response to disasters. *JAMA internal medicine*, 178(6), 745-746.
- [15] Martinez Ibañez, V., Ochoa de Echagüen, A., Campos, A., & Romea, S. (2021). Creating efficient professional healthcare organizations. *International Journal of Healthcare Management*, 1-7.
- [16] Meethien, N., Pothiban, L., Ostwald, S., Sucamvang, K., & Panuthai, S. (2011). Effectiveness of Nutritional Education in Promoting Healthy Eating among Elders in Northeastern Thailand. *Pacific Rim international journal of nursing research*, 15, 188-202.
- [17] Nair, S. C., Satish, K. P., Sreedharan, J., Muttappallymyalil, J., & Ibrahim, H. (2020). Letter to the Editor: Improving health literacy critical to optimize global telemedicine during COVID-19. *Telemedicine and e-Health*, 26(11), 1325-1325.
- [18] Neubeck, L., Hansen, T., Jaarsma, T., Klompstra, L., & Gallagher, R. (2020). Delivering healthcare remotely to cardiovascular patients during COVID-19: a rapid review of the evidence. *European Journal of Cardiovascular Nursing*, 19(6), 486-494.
- [19] Nordberg, S. S., McAleavey, A. A., & Moltu, C. (2021). Continuous quality improvement in measure development: Lessons from building a novel clinical feedback system. *Quality of Life Research*, 1-12.
- [20] Okereke, M., Ukor, N. A., Adebisi, Y. A., Ogunkola, I. O., Favour Iyagbaye, E., Adiola Owhor, G., & Lucero-Prisno III, D. E. (2021). Impact of COVID-19 on access to healthcare in low-and middle-income countries: current evidence and future recommendations. *The International journal of health planning and management*, 36(1), 13-17.
- [21] Rogers, A. D., Wallace, D. L., & Cartotto, R. (2021). A Systematic Review of Quality

- Improvement Interventions in Burn Care. *Journal of Burn Care & Research*.
- [22] Speroff, T., James, B. C., Nelson, E. C., Headrick, L. A., & Brommels, M. (2004). Guidelines for appraisal and publication of PDSA quality improvement. *Quality Management in Healthcare*, 13(1), 33-39.
- [23] Thongprasit, J. (2020). Elderly User's Usage Behavior of Line Application on a Smartphone. *The Journal of KMUTNB*, 30(118-129).
- [24] Tuckson, R. V., Edmunds, M., & Hodgkins, M. L. (2017). Tele-health . *New England Journal of Medicine*, 377(16), 1585-1592.
- [25] Williams, B. (1994). Patient satisfaction: a valid concept? *Social science & medicine*, 38(4), 509-516.
- [26] Wosik, J., Fudim, M., Cameron, B., Gellad, Z. F., Cho, A., Phinney, D., Curtis, S., Roman, M., Poon, E. G., & Ferranti, J. (2020). Tele-health transformation: COVID-19 and the rise of virtual care. *Journal of the American Medical Informatics Association*, 27(6), 957-962.
- [27] Zhou, X., Snoswell, C. L., Harding, L. E., Bambling, M., Edirippulige, S., Bai, X., & Smith, A. C. (2020). The role of Tele-health in reducing the mental health burden from COVID-19. *Telemedicine and e-Health*, 26(4), 377-379.

