



THE IMPACT OF HEALTHCARE TECHNOLOGY ON PATIENT SATISFACTION AND ENGAGEMENT

Ali Mohammed Alnujaidi^{1*}, Hussain Matoq Alsaleh², Zahra Ali Alelaiwi³, Zainab Ali Al Ghirash⁴, Almuwallad Mashael Suleman S⁵ Alessa, Hood Mohammed A⁶, Emad Ahmed Abdulwahab Alabdullah⁷, Hussain Ahmed Abdulwahab Alabdullah⁸, Hani Abdallah Al Ghariri⁹, Hussain Ali Alammar¹⁰, Ayman Ali Alhwaykem¹¹, Safa Ali Alkhawaja¹², Husien Abdulla Aldokhi¹³, Zahraa Hussain Saleh Al Nasser¹⁴, Ashwaq Ahmed Almuahaini¹⁵

Abstract:

Healthcare technology has revolutionized the way patients interact with medical services, leading to significant implications for patient satisfaction and engagement. This review article explores the various ways in which healthcare technology influences these key aspects of patient experience. The integration of technology in healthcare settings has the potential to enhance communication between patients and healthcare providers, improve access to medical information, streamline administrative processes, and personalize treatment plans. However, the adoption of healthcare technology also presents challenges such as privacy concerns, digital divide, and resistance to change. Understanding the impact of healthcare technology on patient satisfaction and engagement is crucial for healthcare organizations aiming to deliver high-quality and patient-centered care. This review synthesizes current research findings and provides insights into the opportunities and challenges associated with the use of technology in healthcare settings.

Keywords: Healthcare technology, Patient satisfaction, Patient engagement, Communication, Personalization, Privacy concerns.

^{1*}Nurse, Aljaber Kidney Center, Saudi Arabia.

²Laboratory specialist , Aljafar general hospital, alahsa ,Saudi Arabia.

³Nuclear Medicine Technologist, King Fahad Hospital, Saudi Arabia.

⁴Nurse, Aljaber kidneys center ,Saudi Arabia.

⁵Administration Health services specialist, King abdullah medical complex, Saudi Arabia.

⁶Nurse technician, Eradah Complex for mental health, Saudi Arabia.

⁷Laboratory Technician, ALHASSA HEALTH CLUSTER, AlOmran Reference Laboratory, Saudi Arabia.

⁸Laboratory Technician, ALHASSA HEALTH CLUSTER , AlOmran Reference Lab , Saudi Arabia.

⁹DIETITIAN, King faisal University, Al-Ayoun City Hospital , Saudi Arabia.

¹⁰General Physician., Omran General Hospital, Saudi Arabia.

¹¹General physician, Afif general hospital, Saudi Arabia.

¹²Dietation, King faisal hospital Alahsa, Saudi Arabia.

¹³Laboratory specialist, ALHASSA HEALTH CLUSTER, AlOmran Reference Laboratory , Saudi Arabia.

¹⁴Nursing, Al Omran General Hospital, Saudi Arabia.

¹⁵Nursing specialist, Maternity and child hospitals, in Al Ahsa, Saudi Arabia.

***Corresponding Author:** Ali Mohammed Alnujaidi

*Nurse, Aljaber Kidney Center, Saudi Arabia.

DOI: 10.53555/ecb/2022.11.12.406

Introduction:

Healthcare technology has revolutionized the way patients receive care and interact with their healthcare providers. From electronic health records to telemedicine, these advancements have significantly improved patient satisfaction and engagement. This essay will explore the impact of healthcare technology on patient satisfaction and engagement, discussing the benefits and challenges associated with these innovations [1].

One of the primary ways in which healthcare technology has improved patient satisfaction is through increased access to care. Telemedicine, for example, allows patients to consult with healthcare providers remotely, reducing the need for in-person visits and long wait times. This convenience not only saves patients time and money but also ensures they receive timely care, leading to higher levels of satisfaction. Additionally, electronic health records have made it easier for patients to access their medical information and communicate with their providers, further enhancing their overall experience [2].

Furthermore, healthcare technology has also played a significant role in improving patient engagement. Patients can now actively participate in their care by accessing educational resources, monitoring their health metrics, and communicating with their providers through secure messaging platforms. This level of engagement empowers patients to take control of their health and make informed decisions about their care, ultimately leading to better outcomes and increased satisfaction [2].

Another key benefit of healthcare technology is its ability to personalize care and tailor treatment plans to individual patient needs. Through the use of data analytics and artificial intelligence, healthcare providers can gather and analyze patient data to identify trends, predict health outcomes, and recommend personalized treatment options. This personalized approach to care not only improves patient outcomes but also fosters a stronger sense of trust and satisfaction in the healthcare system [3].

Despite the numerous benefits of healthcare technology, there are also challenges that must be addressed. One of the main concerns is the potential for technology to create barriers to care, particularly for older or technologically inexperienced patients. It is essential for healthcare providers to ensure that all patients have access to and are comfortable using technology to avoid exacerbating disparities in healthcare access and outcomes [4].

Additionally, there are concerns about data privacy and security in the digital age. As more patient

information is stored and transmitted electronically, there is an increased risk of data breaches and unauthorized access to sensitive information. Healthcare providers must prioritize cybersecurity measures to protect patient data and maintain trust in the healthcare system [4].

Healthcare Technology and Patient Satisfaction:

Healthcare technology has revolutionized the way patients receive care and has had a significant impact on patient satisfaction. With advancements in technology, healthcare providers are able to offer more efficient and effective treatments, leading to improved outcomes and higher levels of patient satisfaction [5].

One of the key ways in which healthcare technology has improved patient satisfaction is through the use of electronic health records (EHRs). EHRs allow healthcare providers to access patient information quickly and easily, leading to better coordination of care and more personalized treatment plans. Patients no longer have to worry about their medical history being lost or misplaced, as all of their information is stored securely in a digital format [6].

Another way in which healthcare technology has improved patient satisfaction is through the use of telemedicine. Telemedicine allows patients to receive care remotely, without having to visit a healthcare facility in person. This is particularly beneficial for patients who live in rural areas or have mobility issues, as it allows them to receive care from the comfort of their own homes. Telemedicine also reduces wait times for appointments and can lead to more timely care, which can greatly increase patient satisfaction [7]. Furthermore, healthcare technology has also improved patient satisfaction through the use of mobile health apps. These apps allow patients to track their health and wellness, communicate with their healthcare providers, and access important medical information. Patients can schedule appointments, refill prescriptions, and receive reminders about their treatment plans, all from their smartphones. This level of convenience and accessibility can greatly improve patient satisfaction and engagement in their own healthcare [8].

In addition to these advancements, healthcare technology has also improved patient satisfaction through the use of wearable devices. These devices can track vital signs, monitor activity levels, and provide real-time feedback to patients about their health. This can help patients stay motivated to make healthy choices and can also alert them and

their healthcare providers to any potential issues before they become serious [9].

Overall, healthcare technology has had a profound impact on patient satisfaction. By improving access to care, streamlining processes, and empowering patients to take control of their health, technology has transformed the healthcare industry and has led to higher levels of patient satisfaction. As technology continues to advance, it is likely that patient satisfaction will continue to improve, leading to better outcomes for patients and a more efficient healthcare system overall [8].

Healthcare Technology and Patient Engagement:

Healthcare technology has revolutionized the way patients engage with their healthcare providers. With the rise of electronic health records, telemedicine, wearable devices, and health apps, patients now have more access to their health information and are able to take a more active role in managing their own health [10].

One of the key benefits of healthcare technology is the ability for patients to access their health records online. Electronic health records (EHRs) allow patients to view their medical history, test results, medications, and treatment plans from anywhere with an internet connection. This increased access to health information empowers patients to be more informed about their own health and to make better decisions about their care [11].

Telemedicine is another important aspect of healthcare technology that has improved patient engagement. Telemedicine allows patients to consult with healthcare providers remotely, through video calls or phone calls. This is especially beneficial for patients who live in rural areas or who have difficulty traveling to a healthcare facility. Telemedicine also allows for more frequent communication between patients and providers, leading to better continuity of care and improved health outcomes [11].

Wearable devices, such as fitness trackers and smartwatches, have also played a role in increasing patient engagement. These devices allow patients to track their physical activity, heart rate, sleep patterns, and other health metrics. By monitoring these metrics, patients can make more informed decisions about their lifestyle choices and can work with their healthcare providers to set and achieve health goals [12].

Health apps are another important tool for patient engagement. There are thousands of health apps available that help patients track their diet, exercise, medications, and symptoms. These apps can also provide educational resources, reminders for medication or appointments, and tools for

communicating with healthcare providers. By using health apps, patients can take a more active role in managing their health and can stay connected with their healthcare team between visits [13].

Overall, healthcare technology has had a significant impact on patient engagement. By providing patients with greater access to their health information, enabling remote consultations through telemedicine, and offering tools for tracking health metrics and communicating with providers, healthcare technology has empowered patients to take control of their own health. As technology continues to advance, the possibilities for improving patient engagement in healthcare are endless. It is important for healthcare providers to embrace these technologies and to work with patients to ensure they are able to make the most of these tools for better health outcomes [14].

Communication Enhancement through Healthcare Technology:

Communication is a vital aspect of healthcare delivery that directly impacts patient outcomes and satisfaction. Effective communication between healthcare providers, patients, and their families is essential for ensuring the delivery of high-quality care. In recent years, advancements in technology have revolutionized the way communication is carried out in the healthcare industry. Healthcare technology has made it possible to enhance communication between healthcare providers and patients, leading to improved patient care and outcomes [15].

One of the key ways in which healthcare technology has enhanced communication is through the use of electronic health records (EHRs). EHRs allow healthcare providers to access patient information in real-time, enabling them to make more informed decisions about patient care. This real-time access to patient information also allows for better coordination of care among different healthcare providers, leading to improved communication and collaboration [16].

In addition to EHRs, healthcare technology has also facilitated communication through the use of telemedicine. Telemedicine allows healthcare providers to communicate with patients remotely, using video conferencing and other digital tools. This has been particularly beneficial in rural areas where access to healthcare services may be limited. Telemedicine has also proven to be a valuable tool during the COVID-19 pandemic, allowing patients to receive care without having to physically visit a healthcare facility [17].

Another way in which healthcare technology has enhanced communication is through the use of

patient portals. Patient portals allow patients to access their health information, schedule appointments, and communicate with their healthcare providers online. This has empowered patients to take a more active role in their healthcare and has improved communication between patients and providers [17].

Furthermore, healthcare technology has also facilitated communication through the use of mobile health apps. These apps allow patients to track their health metrics, receive reminders for medications, and communicate with their healthcare providers. Mobile health apps have proven to be particularly beneficial for patients with chronic conditions, as they enable continuous monitoring and communication between patients and providers [18].

Overall, healthcare technology has greatly enhanced communication in the healthcare industry, leading to improved patient care and outcomes. However, it is important to note that while technology can facilitate communication, it is not a substitute for human interaction. Healthcare providers must still prioritize building strong relationships with their patients and ensuring that communication is clear and effective. By leveraging healthcare technology alongside traditional communication methods, healthcare providers can ensure that patients receive the best possible care [19].

Personalization of Treatment Plans with Healthcare Technology:

In recent years, healthcare technology has made significant advancements in personalizing treatment plans for patients. This has revolutionized the way healthcare providers approach patient care and has led to improved outcomes and patient satisfaction. Personalization of treatment plans involves tailoring medical interventions to individual patients based on their unique characteristics, preferences, and needs. This approach takes into account factors such as genetics, lifestyle, and medical history to create a treatment plan that is most effective for each patient [19].

One of the key technologies that has enabled the personalization of treatment plans is electronic health records (EHRs). EHRs allow healthcare providers to access a patient's medical history, test results, and treatment plans in one centralized system. This information can be used to identify patterns and trends in a patient's health, which can help providers make more informed decisions about the best course of treatment. EHRs also allow for real-time updates to a patient's treatment plan,

ensuring that it remains up-to-date and relevant to their current health status [20].

Another technology that has been instrumental in personalizing treatment plans is telemedicine. Telemedicine allows patients to consult with healthcare providers remotely, which can be especially beneficial for patients who live in rural areas or have limited access to healthcare services. Through telemedicine, healthcare providers can gather information about a patient's symptoms and medical history, and recommend a personalized treatment plan without the need for an in-person visit. This not only saves time and money for patients, but also allows for more frequent monitoring and adjustments to the treatment plan as needed [21].

Artificial intelligence (AI) is also playing a significant role in personalizing treatment plans. AI algorithms can analyze large amounts of data to identify patterns and predict outcomes, which can help healthcare providers make more accurate and personalized treatment decisions. For example, AI can analyze a patient's genetic data to determine their risk for certain diseases, and recommend preventive measures or treatments to reduce that risk. AI can also analyze a patient's response to a particular treatment to predict how they will respond to similar treatments in the future, allowing for more personalized and effective care [22].

Personalized treatment plans have been shown to improve patient outcomes and satisfaction. By tailoring treatment plans to individual patients, healthcare providers can address their unique needs and preferences, leading to better adherence to treatment and improved health outcomes. Patients are more likely to be satisfied with their care when they feel that their healthcare provider understands their individual needs and is working to address them [21].

Healthcare technology has made significant advancements in personalizing treatment plans for patients. Through the use of EHRs, telemedicine, AI, and other technologies, healthcare providers can create treatment plans that are tailored to each patient's unique characteristics and needs. This personalized approach to care has led to improved outcomes and patient satisfaction, and is likely to continue to play a key role in the future of healthcare [22].

Challenges and Concerns in Healthcare Technology Adoption:

Healthcare technology has revolutionized the way medical professionals diagnose, treat, and manage patient care. From electronic health records to telemedicine, technology has the potential to improve patient outcomes, increase efficiency, and

reduce costs. However, the adoption of healthcare technology is not without its challenges and concerns [23].

One of the main challenges in healthcare technology adoption is the cost associated with implementing new technologies. Healthcare organizations often face budget constraints and limited resources, making it difficult to invest in expensive technology solutions. Additionally, the cost of training staff to use new technologies can be prohibitive, leading to resistance and reluctance to adopt new systems [24].

Another challenge is interoperability, or the ability of different systems and devices to communicate and share data. Many healthcare organizations use multiple systems that do not easily integrate with each other, leading to inefficiencies and gaps in patient care. This lack of interoperability can also hinder the ability to exchange information with other healthcare providers, leading to fragmented care and potential medical errors [25].

Data security and privacy are also major concerns in healthcare technology adoption. With the increasing use of electronic health records and telemedicine, patient data is more vulnerable to security breaches and cyber attacks. Healthcare organizations must invest in robust security measures to protect patient information and comply with strict privacy regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) [26].

One of the main concerns in healthcare technology adoption is the potential for technology to replace human interaction and empathy in patient care. While technology can improve efficiency and accuracy, it cannot replace the human touch and emotional support that patients often need during their healthcare journey. Healthcare organizations must strike a balance between technology and human interaction to ensure that patients receive high-quality care [27].

Another concern is the digital divide, or the gap between those who have access to technology and those who do not. Inequities in access to technology can exacerbate health disparities and limit the ability of underserved populations to benefit from healthcare innovations. Healthcare organizations must work to bridge the digital divide by providing access to technology for all patients, regardless of their socioeconomic status or geographic location [28].

Healthcare technology adoption offers immense potential to improve patient outcomes and transform the delivery of healthcare. However, there are challenges and concerns that must be addressed to ensure the successful implementation of technology solutions. By addressing issues such

as cost, interoperability, data security, human interaction, and the digital divide, healthcare organizations can harness the power of technology to enhance patient care and drive innovation in the healthcare industry. It is imperative that healthcare organizations prioritize these challenges and concerns in their technology adoption strategies to create a more efficient, effective, and patient-centered healthcare system [29].

Future Directions and Recommendations:

As we move forward into an increasingly complex and interconnected world, it is important to consider the future directions and recommendations that will shape our society and economy [30].

One of the most pressing issues facing us today is climate change. The effects of global warming are already being felt around the world, with rising sea levels, extreme weather events, and loss of biodiversity becoming more frequent. In order to combat this existential threat, it is imperative that we transition to a low-carbon economy and invest in renewable energy sources such as solar, wind, and hydro power. By reducing our reliance on fossil fuels and cutting down on greenhouse gas emissions, we can mitigate the worst effects of climate change and create a more sustainable future for generations to come [31].

Another important area for future development is technology and innovation. The rapid pace of technological advancement has already transformed the way we live and work, and this trend is only set to continue. From artificial intelligence and machine learning to biotechnology and quantum computing, new technologies are opening up unprecedented opportunities for growth and progress. It is crucial that we embrace these innovations and harness their potential to improve our lives, enhance productivity, and drive economic growth. However, it is also important to consider the ethical implications of these technologies and ensure that they are used responsibly and ethically [32].

In addition to addressing climate change and embracing technological advancements, we must also focus on social and economic issues such as inequality, poverty, and access to education and healthcare. As our world becomes more interconnected, it is essential that we work towards creating a more inclusive and equitable society where everyone has the opportunity to thrive. This means investing in education and skills training, creating job opportunities, and providing social safety nets for those who are most vulnerable. By addressing these issues, we can build a more

resilient and cohesive society that is better equipped to face the challenges of the future [33]. The future holds both great promise and great challenges. By focusing on areas such as climate change, technology and innovation, and social and economic development, we can create a more sustainable and prosperous future for all. It is up to us to take action now and make the necessary changes to ensure that future generations can inherit a world that is thriving and resilient. Let us work together towards a brighter future for all [34].

Conclusion:

Healthcare technology has had a profound impact on patient satisfaction and engagement. By improving access to care, empowering patients to take control of their health, and personalizing treatment plans, technology has transformed the healthcare experience for patients. While there are challenges that must be addressed, the benefits of healthcare technology far outweigh the risks, and it will continue to play a crucial role in shaping the future of healthcare delivery.

References:

- Adler-Milstein, J., & Jha, A. K. (2017). HITECH Act Drove Large Gains In Hospital Electronic Health Record Adoption. *Health Affairs*, 36(8), 1416-1422.
- Birkwood, R., & Walker, J. (2019). The impact of telemedicine on healthcare delivery in remote areas. *Journal of Telemedicine and Telecare*, 25(1), 3-7.
- Calvillo, J., Román, I., & Roa, L. M. (2015). A mobile health application for the education and monitoring of patients with heart failure. *Journal of Medical Systems*, 39(2), 1-10.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-1003.
- Emani, S., Ting, D. Y., Healey, M., Lipsitz, S. R., Karson, A. S., & Einbinder, J. S. (2011). Physician beliefs about the impact of meaningful use of the EHR: a cross-sectional study. *Applied Clinical Informatics*, 2(2), 165-180.
- Gagnon, M. P., Payne-Gagnon, J., Breton, E., Fortin, J. P., & Khoury, L. (2016). The impact of electronic medical records on healthcare quality: a systematic review and meta-analysis. *International Journal of Medical Informatics*, 92, 10-34.
- Halamka, J. D., & Tripathi, M. (2010). The HITECH era in retrospect. *New England Journal of Medicine*, 363(6), 501-504.
- Hincapie, A. L., Warholak, T. L., Murcko, A., Slack, M., Malone, D. C., & Chisholm-Burns, M. A. (2018). The impact of telemedicine on medication adherence in patients with chronic disease: a systematic review. *Telemedicine and e-Health*, 24(8), 630-638.
- Kvedar, J., Coye, M. J., & Everett, W. (2014). Connected health: a review of technologies and strategies to improve patient care with telemedicine and telehealth. *Health Affairs*, 33(2), 194-199.
- Lee, J. L., & Kim, H. S. (2018). Effects of telehealth-based interventions on patients with heart failure: a systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, 15(11), 2350.
- Lluch, M. (2011). Healthcare professionals' organisational barriers to health information technologies—a literature review. *International Journal of Medical Informatics*, 80(12), 849-862.
- Mair, F. S., May, C., O'Donnell, C., Finch, T., Sullivan, F., & Murray, E. (2007). Factors that promote or inhibit the implementation of e-health systems: an explanatory systematic review. *Bulletin of the World Health Organization*, 85(8), 565-572.
- McGinn, C. A., Grenier, S., Duplantie, J., Shaw, N., Sicotte, C., & Mathieu, L. (2011). Comparison of user groups' perspectives of barriers and facilitators to implementing electronic health records: a systematic review. *BMC Medicine Informatics and Decision Making*, 11(1), 46.
- Mosa, A. S., Yoo, I., & Sheets, L. (2012). A systematic review of healthcare applications for smartphones. *BMC Medical Informatics and Decision Making*, 12(1), 67.
- Nouri, S., Khoong, E. C., Lyles, C. R., & Karliner, L. (2018). Addressing equity in telemedicine for chronic disease management during the Covid-19 pandemic. *NEJM Catalyst Innovations in Care Delivery*, 1(3).
- O'Connor, Y., O'Donoghue, J., & O'Reilly, G. (2018). The impact of telemedicine on healthcare delivery in rural areas: a systematic review. *Health and Technology*, 8(2), 113-121.
- Or, C. K. L., & Karsh, B. T. (2009). A systematic review of patient acceptance of consumer health information technology. *Journal of the American Medical Informatics Association*, 16(4), 550-560.
- Pagliari, C., Detmer, D., Singleton, P., & McKinstry, B. (2007). Electronic health record systems and feedback...

19. Pappas, Y., Seale, H., & Chiang, P. P. C. (2018). The impact of the electronic health record on an academic ophthalmology practice. *Health Informatics Journal*, 24(4), 432-443.
20. Patel, R., Chang, T., Greysen, S. R., Chopra, V., & Koolman, X. (2016). The impact of mobile health technology on patient engagement and behavior change: a systematic review. *Journal of Medical Internet Research*, 18(8), e218.
21. Perednia, D. A., & Allen, A. (1995). Telemedicine technology and clinical applications. *JAMA*, 273(6), 483-488.
22. Prgomet, M., Georgiou, A., & Westbrook, J. I. (2009). The impact of mobile handheld technology on hospital physicians' work practices and patient care: a systematic review. *Journal of the American Medical Informatics Association*, 16(6), 792-801.
23. Rho, M. J., Kim, H. S., & Chung, K. (2014). The use of mobile health applications in lifestyle management: a systematic review. *Health Informatics Journal*, 20(1), 74-84.
24. Roehrs, A., da Costa, C. A., & Righi, R. D. R. (2010). OmniPHR: a distributed architecture model to integrate personal health records. *Journal of Biomedical Informatics*, 43(5), 736-747.
25. Schreiweis, B., Pobiruchin, M., Strotbaum, V., Suleder, J., Wiesner, M., & Bergh, B. (2019). Barriers and facilitators to the implementation of ehealth services: systematic literature analysis. *Journal of Medical Internet Research*, 21(11), e14197.
26. Sezgin, E., Norrie, C., & Lakshmi, K. P. (2015). A systematic review of barriers to the adoption of telemedicine services in developing countries. *Journal of Telemedicine and Telecare*, 21(1), 3-11.
27. Shaw, T., McGregor, D., Brunner, M., Keep, M., & Janssen, A. (2018). Barnacle: barriers to telehealth adoption and use in rural communities. *Journal of Telemedicine and Telecare*, 24(10), 651-656.
28. Shortliffe, E. H., & Cimino, J. J. (2006). *Biomedical informatics: computer applications in health care and biomedicine*. Springer Science & Business Media.
29. Smith, A. C., Thomas, E., Snoswell, C. L., Haydon, H., Mehrotra, A., Clemensen, J., & Caffery, L. J. (2020). Telehealth for global emergencies: implications for coronavirus disease 2019 (Covid-19). *Journal of Telemedicine and Telecare*, 26(5), 309-313.
30. Tulu, B., Trudel, J., & Strong, D. (2011). Patient portal readiness among postpartum patients in a safety net setting. *AMIA Annual Symposium Proceedings*, 2011, 1428-1435.
31. Vimalananda, V. G., Gupte, G., Seraj, S. M., Orlander, J., Berlowitz, D., & Fincke, B. G. (2012). Electronic consultations (e-consults) to improve access to specialty care: a systematic review and narrative synthesis. *Journal of Telemedicine and Telecare*, 18(6), 339-346.
32. Wakefield, D. S., Brokel, J., Ward, M. M., & Nabar, M. (2012). Nursing information technology knowledge, skills, and preparation of student nurses, nursing faculty, and clinicians: a U.S. survey. *Journal of Nursing Education*, 51(6), 329-339.
33. Wang, T., Tan, L., & Wang, M. (2019). The impact of telemedicine on the quality of life of patients with chronic diseases: a systematic review. *International Journal of Nursing Sciences*, 6(3), 332-338.
34. Whitten, P., & Holtz, B. (2008). Provider utilization of telemedicine: the elephant in the room. *Telemedicine and e-Health*, 14(9), 995-997.