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KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING TELEMEDICINE AMONG NURSES WORKING AT TERTIARY CARE SETTING

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ABSTRACT

Background: Telemedicine has become an integral part of health care, particularly in the institutions of tertiary care where the complexity of the conditions often calls for timely interventions. Telemedicine is the application of telecommunication technology in order to provide and promote access to healthcare, especially for remote or medically isolated populations

Objective : The objective of the study was to assess the knowledge, attitude and practice regarding telemedicine among nurses at tertiary care hospital setting.

Methods : It was a cross sectional, quantitative study, conducted at Sheikha Fatima Institute of Nursing and Allied Health Sciences Lahore. One hundred and eighty-six nurses of both genders were included in the study who anonymously filled questionnaire containing demographic details, professional details and response related to knowledge, attitude and practice regarding telemedicine. The data was entered and analyzed using the statistical package for social sciences version 22.0.

Results: Knowledge, attitude and practice of 186 nurses regarding telemedicine was assessed and 127(68.2%) possess accurate knowledge about telemedicine and 59(31.7%) have poor knowledge and it is not ignorable figure. 41(22%) of the nurses shows negative attitude toward the telemedicine and 145(68.2%) shows positive attitude toward telemedicine. Regardless of accurate knowledge and positive attitude of nurses in majority, telemedicine practice is poor among nurses because of several factors. 108(58%) of the nurses participants have poor practice and 42% of nurses shows good practice association between job experience and knowledge of nurses related to telemedicine because the P value is 0.004 and there is no significant association with department of nurses and knowledge of telemedicine (P- 0.41).

Conclusion

Nurses working in tertiary care hospital reported good knowledge toward

the telemedicine and thy completely understand the phenomenon of telemedicine. Nurses want to practice digital health services thus show positive attitude toward telemedicine However, some of the participant nurses considered digital health services or mobile nursing care through media an extra burden on nurses. Association of knowledge and job experienced analysis shows that as the length of service increases telemedicine knowledge increases. At the same time the practicing ratio was low due to lack of facilities and improper channel.

Introduction:

Telemedicine is also defined as the use of electronic communication technologies, such as video conferencing, telephonic consultations, and digital messaging platforms, to provide clinical health care services remotely. It allows for remote diagnosis, treatment, monitoring, and follow- up of patients by utilizing telecommunications networks to overcome geographical limitations (Mohammadnejad et al.,2023). Researchers also defined telemedicine as the use of electronic communication technologies, such as video conferencing, telephonic consultations, and digital messaging platforms, to provide clinical health care services remotely. It allows for remote diagnosis, treatment, monitoring, and follow-up of patients by utilizing telecommunications networks to overcome geographical limitations. Telemedicine in a tertiary care hospital improves patient care by allowing for real-time or asynchronous consultations, as well as supporting the management of chronic illnesses, emergency care, and preventive health measures.

Furthermore, nurses also are important in the delivery of telemedicine services. Because nurses are always at the front line of health care, they are usually responsible for orchestrating patient interaction as well as ensuring that telehealth technology is used effectively and that patients are directed appropriately to physicians and other healthcare professionals. For telemedicine to be implemented successfully, comprehensive knowledge and practice techniques among nurses regarding telemedicine is important. A perceived positive perception can be a facilitator for the adoption of telemedicine, but a perceived barrier by the nurses, such as a technological limitation, lack of training, or concern about the quality of care that will be delivered, will tend to create inefficiency in the delivery of telemedicine (Butler,L.et.al.,2019).

Additionally, Video conferencing tools are one of the most visible and interactive connectors in telemedicine. Platforms such as Zoom, Skype for Healthcare, or proprietary hospital systems allow patients and providers to engage in face-to-face consultations from a distance. These tools need to be HIPAA-compliant, ensuring that they meet the necessary privacy and security regulations to protect patient information. The quality of video and audio during these consultations is paramount, as it allows healthcare providers to visually assess symptoms, interact with patients, and maintain a level of personal engagement that is vital for patient trust and effective diagnosis. Another vital connector in telemedicine is remote monitoring devices. These are tools that patients can use at home to track their vital signs and other health parameters. Devices such as blood pressure monitors, glucose sensors, pulse oximeters, and wearable health trackers (like smartwatches) transmit data via Bluetooth or Wi-Fi to the telemedicine platform, enabling healthcare providers to monitor a patient's condition in real (Khandpur.R.S,2017).

Similarly, mobile health applications play an important part in telemedicine. These apps are developed for smartphones and tablets, allowing people to monitor their health. They can be used for a variety of purposes, including scheduling appointments, receiving medicine reminders, and recording health information like exercise or food habits. Many of these apps are compatible with wearable devices, allowing for the seamless communication of health data to the healthcare provider. Rapid advances in technology are reshaping the healthcare system, with telemedicine emerging as an important tool for improving access to care, especially in underserved and remote areas. Telemedicine allows physicians to provide remote consultation, health education, and expert advice, addressing issues such as geographic constraints, budget constraints, and special medical needs. Addressing these issues requires a better understanding of caregivers' current knowledge, attitudes, and practices regarding telemedicine. By identifying gaps and current issues, this study aims to provide evidence-based recommendations to improve nurse's preparedness and the effectiveness of telemedicine use to improve

care.This research is important to ensure that telemedicine achieves its potential to close gaps in healthcare and improve patient outcomes.

1.1 Research Objectives

- To assess the knowledge and attitude of nurses regarding telemedicine in tertiary care hospitals.
- To evaluate the practicing level of nurses and their confidence related to telemedicine.

1.2 Research question

- What is the level of knowledge and attitude regarding telemedicine among nurses working in hospitals?
- Do nurses receive training about practicing telemedicine and explore their level of confidence in using telemedicine in their practice?

1.3 Hypothesis

Null Hypotheses (H_0)

1. **Knowledge:** There is no significant relationship between nurses' level of knowledge and their ability to effectively use telemedicine in a tertiary care hospital.
2. **Attitude and Practice:** Nurses' attitudes toward telemedicine do not significantly influence their telemedicine-related practices in a tertiary care hospital.

Alternative Hypotheses (H_1)

1. **Knowledge:** There is a significant relationship between nurses' level of knowledge and their ability to effectively use telemedicine in a tertiary care hospital.
2. **Attitude and Practice:** Nurses' attitudes toward telemedicine significantly influence their telemedicine-related practices in a tertiary care hospital.

LITERATURE REVIEW

Although digitalization affects almost every aspect of life, in health and medical there is a need to be more digitalized related to cure, rehabilitation, prevention and promotion of health. In 2023 a study conducted in a private hospital in western Indonesia assessed nurses' self-reported knowledge and confidence in using telemedicine. The findings show that 76% of nurses perceived their knowledge as moderate, and 61.5% rated their self-confidence at an average level and 55.8% nurses shows positive attitude without opposition toward telemedicine practices. The study concluded that enhancing education, training, and work experience is essential to improve nurses' competencies in telemedicine(Purba et al.,2023).Another study conducted in 2024 by using knowledge, attitude and practice model resulted that there should be more empowering programs or seminars related to telemedicine application because now there is limited knowledge among registered nurses to implement telemedicine in health care services(Guillari et al.,2024). In China, a 2019 survey among healthcare professionals, including nurses, found that 74% were aware of telemedicine's potential benefits. However, the practical implementation was limited, with only 38% actively engaged in telemedicine practices. Barriers included insufficient training, lack of institutional support, and infrastructural challenges. The study call for targeted interventions, such as workshops and on-the-job training, to enhance the knowledge and practical skills of nurses in telemedicine (Chen et al., 2019).

At the same time, a study conducted in korea among nursing student and it was a cross sectional study which stated 90% nursing students shows positive attitude toward telehealth despite of this positive attitude there is lack of knowledge about application of telehealth, only 18% nurses received education and guidelines related to telemedicine or nursing care facility provided via telecommunication ways(Mun et al.,2024).

Moreover, Lemma.L.Bulto in 2022 conducted a study and that results as nurses who practices tele medicine and provided guidelines regarding home care in chronic conditions, general guidelines in prevention of particular pandemic and monitoring the specific condition for follow up is really beneficiary for patients and family that it can reduces hospital visits or economically helpful for the patient's family. But practicing ratio is very limited when underlying reason find that was lack of proper channel or practicing facilities are very limited.

Although practicing telemedicine have many benefits specially during the outbreak of some pandemic communicable diseases study found that not only nurses behavior is hinder but also institutional or managerial lacking are hinders in practicing nursing via telecommunication means(Shilpa.N.G & Jessica.N,2022).

In rural Sindh, research conducted in 2023 the study examined healthcare providers' use of telemedicine tools, such as video consultations and conferencing. Among the 200 participants, 52.2% were aware of telemedicine services, and 67.8% believed it facilitated better diagnosis and treatment. However, 63.6% of the respondents identified significant challenges, including a lack of institutional support and inadequate training. The study concluded that improving telemedicine education and infrastructure is crucial for enhancing nurses' competencies in this domain (Junaid et al., 2023).

During the COVID-19 pandemic, a nationwide assessment in Pakistan evaluated the knowledge and perception of telemedicine among medical and nursing students. The study found that while 75% of students had a good understanding of telemedicine concepts, practical application was limited due to the lack of hands-on training. The researchers recommended integrating telemedicine into educational curricula and offering practical workshops to prepare future healthcare providers for its use in clinical settings (Ali & Khan, 2021). In Pakistan due to work load, high burnout rate and deficient appropriate training programs practicing level of telemedicine is lower although knowledge and attitude related to telehealth is good(Hussain.T &Ali.A,2022).

Another research revealed that the response rate in study was 85%. A total of 335 participants responded to questionnaire. One hundred seventy-one (51.1%) were doctors, where as 164 (48.9%) were the nursing staff. Among doctors, 50 (29.4%) were recent graduates, whereas, in the nursing side, 77 (46.7%) were the senior nursing students. The knowledge and attitude of the young nursing staff were relatively better than the senior staff taking part in the study and the trends were found statistically significant. Their perception and attitude were quite positive. This is an encouraging trend in the promotion of telemedicine as an established way of managing patients with special requirements in an effective way (Ahmed et.al, 2021).

Methodology

Study design cross sectional

Study Setting : Tertiary care hospital

Population and sample size

In present study, the population we have selected included all the nurses from Punjab institute of neurosciences, Lahore from different departments such as emergency, general wards, ICUs and operation theaters comprising a total 350 nurses calculated using the following formula After applying formula we obtained sample size of 186.

Measurement

This section contains information on the questionnaire adapted to assess the biographic data, knowledge, attitude of nurses related to telemedicine and practicing level of telemedicine. The knowledge section comprises of nine items and the answer to each question was either Yes or No. The accurate answer was recorded as one, while the incorrect response was noted as zero. The total score extend from 0 to 9. A cut-off level of less than or equal to 6 was labeled as poor knowledge and more than or equal to 7 is considered as accurate knowledge. The attitude section comprises of 8 items and the responses were analyzed on likert scale ranges from 0 to 5 points. The total score ranged from 8 to 40, with a score more than 24 indicating a positive attitude toward telemedicine uses and score less than 24was indicating a negative attitude toward telemedicine. The practice section consist of 6 items and each item comprises of two answers that are Yes or No. practice section total score is 6 and the score more than 4 considered as good practice of telemedicine by nurses and the score below 4 considered as poor practice toward telemedicine.

3.1 Questionnaire Design

The questionnaire consists of two main parts;

1. Demographics (age, gender , nature of job, experience and ward)
2. Variables (knowledge, attitude and practice)

3.2 reliability and validity of tool

To check the reliability of questionnaire we apply the reliability coefficient chronbac alpha, which is statistically acceptable.

3.3 inclusion criteria

- Registered nurses working in different departments.
- Student nurses of final year, 3rd year & internees.
- Licensed practiced nurses (LPNs).
- Head nurses or managers of ward.

3.4 Exclusion criteria

- Students of 1st year and 2nd year.
- Staff nurses on medical leaves.
- Charge nurses having some psychological issues.

Data collection

Firstly, permission was obtained from the institution for data collection. A total of 186 questionnaires were distributed randomly among nurses working in PINS. Participants were reassured about the confidentiality of the response in the findings were reported as to collect data only. They were counseled that their participation is by their own choice and we are not forcing them to participate.

3.5 Data Analysis

After data collection, data was analyzed on statistical package for social sciences (SPSS).

The quantitative variables like age will be presented by calculating mean and standard deviation. The qualitative variables like education level be presented by calculating frequency and percentage. Total score of knowledge, attitude and practices score were obtained and categories as poor knowledge, accurate knowledge, positive attitude, negative attitude and good practice and poor practice, this will be presented by calculating frequency and percentage.

RESULTS

186 nurses participated in our study, majority of the participants were female that is 146(78.4%) and only 21.5% were male participants. Also a big figure of participants were belong to age group 26-45 that is 56.9%, 22(11.8%) belonged to age group up to 25 years, 39 participants aged between 46-55 years and only 10% of the participants were above 56 years of age which shows our respondents majority is mature.

Table 1: Demographic characteristics of Participants

	Frequency	Percentage	Cumulative percentage
Gender Male Female	 146 40	 78.4% 21.5%	 78.4% 99.9%
Age group Upto 25 26-45 46-55 56 +	 22 106 39 19	 11.8% 56.9% 20.9% 10%	 11.8% 68.7% 89.6% 99.6%
Nature of employment Contractual Permanent Others	 2 184 00	 1% 98.9% 00	 1% 99.9% 00

Table 2 that is given below represent the professional details of the participants. Majority of the participants have experience of 5-10 years that is 70(37.6%). 31.7% of the participants have experience of 2-5 years, 33 participants were newly appointed and have almost 1 year of job experience. 12.9%(24) of the nurses have job experience 10 + years which shows thar we have collected data from experienced nurses in the department. My data were obtained from emergency department nurses in an average(34.4%), 55(29.5%) were performing duty in ICUs and 20.9% were from HDUs. from my population only 4.3% of the participants were from operation theaters because they have least interaction with follow up patients.

Table 2: Professional Details

	Frequency	Percentage	Cumulative percentage
Length of service			
up to 1 year	33	17.7%	17.7%
2-5 years	59	31.7%	49.4%
5-10 years	70	37.6%	87.0%
10 + years	24	12.9%	99.9%
Department			
Emergency	64	34.4%	34.4%
ICU	55	29.5%	63.9%
HDU	39	20.9%	84.8%
General ward	20	10.7%	95.5%
Operation theater	8	4.3%	99.8%

Table 3 gives us the information about knowledge, attitude and practice of 186 nurses related to telemedicine. 127(68.2%) possess accurate knowledge about telemedicine and 59(31.7%) have poor knowledge and it is not ignorable figure. 41(22%) of the nurses shows negative attitude toward the telemedicine and 145(68.2%) shows positive attitude toward telemedicine. Regardless of accurate knowledge and positive attitude of nurses in majority, telemedicine practice is poor among nurses because of several factors. 108(58%) of the nurses participants have poor practice and 42% of nurses shows good practice. There is need to discuss this phenomenon more commonly.

Table 3: Knowledge, attitude and practice of nurses regarding telemedicine.

	Frequency	Percentage
Knowledge		
Poor knowledge	59	31.7%
Accurate knowledge	127	68.2%
Attitude		
Negative attitude	41	22%
Positive attitude	145	77.9%

Practice		
Poor practice	108	58%
Good practice	78	42%

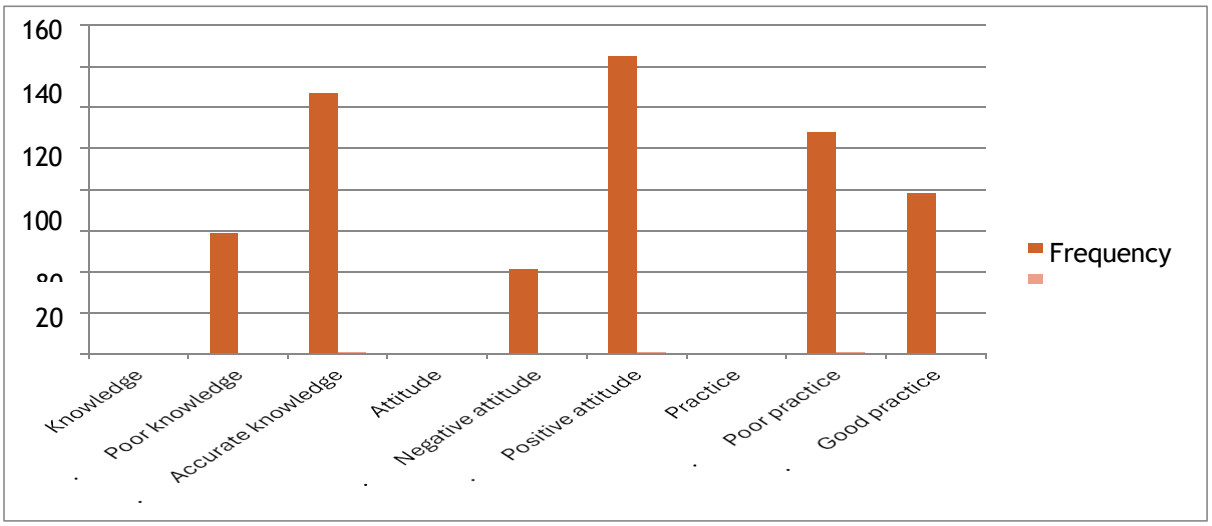

Figure 1: Graphical representation of knowledge, attitude and practice of nurses regarding telemedicine

As per the table 4 there is a association between job experience and knowledge of nurses related to telemedicine because the P value is 0.004 and the p value < 0.005 and = 0.005 taken as significant value. And there is no significant association with department of nurses and knowledge of telemedicine(P- 0.41).

Table 4: association of knowledge and professional details

	Poor knowledge	Accurate knowledge	Total	P – value
Length of service	3(1.6)	33(17.7)	33	
Up to 1 year	2(1.0)	57(30.6)	59	0.004
2-4 years	6(3.2)	64(34.4)	70	
5-10 years	2(1.6)	22(11.8)	24	
10 + years				
Department	6(3.2)	58(31)	64	
Emergency	9(4.8)	46(24.7)	55	
ICU	3(1.6)	36(19.3)	39	0.41
HDU	5(2.6)	15(8)	20	
General ward	1(0.5)	7(4.4)	8	
Operation theater				

To demonstrate the association of Attitude and professional service we use anova table because for attitude assessment we used likert scale and anova table interpret that there is no significant relationship between attitude of nurses toward telemedicine and their job experience as the significant value is 0.193 which show no association

Table 5 ANOVA (Analysis of Variance)

Association of attitude and professional details that is job experience or length of service

ANOVA[a]					
Model		Sum of Squares	Df	Mean Square	Sig. value
1	Regression	.433	1	.433	.193[b]
	residual	29.109	185	.253	
	Total	29.542	186		

DISCUSSION

Nurses and other health providers are increasingly show accurate knowledge about telemedicine due to advancement in media and digitalization. However the ratio who possess poor knowledge about telehealth, telemedicine, its mechanism or advantages is also notable so there is a need to talk, and spread awareness about the latest technological health services(Shiferaw & Mehari,2020). In COVID 19 work done to promote telemedicine as in that pendamic situation telemedicine was the best option so awareness, knowledge and practicing techniques should be impowered among nurses to tackle with any pendamic situations. Practicing level was un usually high in that pendemic outburst and desemination of telemedicine were high and more nurses show positive attitude after that(Monaghesh & Hajizadeh, 2020).

In the current study knowledge of nurses was accurate in great extant that is 68.2% but nurses having poor knowledge also have notable ratio that is 31.7%. which indicate the need of more work to be done in this regard. Nurses who have more job experience have more knowledge about telemedicine benefits its definition and using techniques. The significant P value relate to length of service is 0.004 that indicate the positive relationship between the length of service and knowledge of nurses toward telemedicine.

In another study it is concluded that nurses show positive attitude toward the telemedicine and believe that this digital health services could increase patient out come and reduce burnout and decrease the burden of health institute. Readmissions, travelling problems can be addressed easily through telemedicine and also it is cost effective(Amin. A.et al.,2022). Telemedicine is viewed by health care providers as a valuable innovation that streamlines clinical workflow and reduces time devoted to redundant tasks. It also allows for faster patient communication, accelerating decision making and improving treatment outcomes. Telemedicine, nurses believe minimize wait times for the deleivery of care, especially in rural or disadvantaged communities. It enhances continuity of care through simpler follow ups and remote monitoring. Overall this increases patient satisfaction and trust in health system(Harerimana.H.et al.,2021).

Recognizing telemedicine's potential to bridge geographic divides, enable prompt attention, and support remote management of chronic conditions may lead to positive attitudes. Additionally, the widespread use of electronic health records and mobile health tools may have conditioned medical settings to accept digital communication, preparing nurses to provide virtual care.

Unlike the optimistic results on knowledge and attitude, the study emphasized that nurses have poor practice involvement with telemedicine. Even though they are knowledgeable about its relevance and willing to embrace it, most nurses acknowledged sparse or no actual application of telemedicine devices in their clinical practices. The wide difference between knowing and doing mirrors a nationwide as well as global trend. Research by Kumar & Snigdha (2021) and Feroz et al. (2021) also noted that although healthcare professionals are aware of the advantages of telemedicine, their implementation in actual practice is limited by diverse systemic, technical, and organizational issues. The evidence highlights that without reconciling the practical limitations, knowledge and favorable attitude alone are not enough to guarantee efficient telemedicine use.

The research participants demonstrated a high level of awareness regarding the concepts, benefits, and potential applications of telemedicine. This is in line with research conducted in Pakistan, which discovered that 79% of medical professionals knew enough about telemedicine platforms and technology. Only 25% of healthcare professionals had used telemedicine in clinical settings, despite the fact that 70% of them were aware of it. Lack of institutional policies, poor training, and a lack of infrastructure constituted the majority of the

obstacles.(Akber.A.et al.,2022).Also a research conducted in Pakistan by Hameed .W.et al., concluded that 80% of health professionals, mostly nurses were willing to practice telemedicine and considered telemedicine beneficial for both the patients and the care providers. But at the same time few of them considered telemedicine unreliable for the patients.

Similarly, a cross-sectional study conducted in Turkey by Celik and Aydin (2021) found that 85% of medical professionals knew the basics and scope of telemedicine systems. Additionally, telemedicine may make healthcare services more accessible, especially for patients in underserved and rural areas, according to Alkan and Kaya (2020) in Turkey. Similar issues were raised by another study, which found that while telemedicine adoption increased during the COVID-19 pandemic, doctors faced obstacles such as inadequate internet access in hospitals, a lack of administrative support, and a lack of software tool familiarity. Nurses fced a lack of confidence while guiding nursing care to apart patients. Also they reported lack of institutional support in the application of telemedicine(Karaca et al.,2022). According to a study conducted in Iran by Gavgani et al. (2018), medical staff in teaching hospitals had a satisfactory level of knowledge regarding the applications of telemedicine, particularly teleradiology and teleconsultation. Additionally, despite the existence of pilot telemedicine projects in Iran, Bahaadinbeigy et al. (2019) found that routine clinical integration was limited because of opposition from traditional healthcare systems and a lack of legal frameworks. These results indicate a larger problem in healthcare systems of developing nations where attitude and knowledge might not always be translated into practice. This discrepancy could be due to various reasons such as inadequate technical support, weak digital infrastructure, lack of clear regulatory guidelines, and lack of standard operating procedures (SOPs) for telemedicine services.

CONCLUSION

Our results indicated the nurses working in tertiary care hospital reported accurate knowledge toward the telemedicine and thy completely understand the phenomenon of telemedicine. Also respondents show positive attitude toward telemedicine but at the same some of the participant nurses considered digital health services or mobile nursing care through media an extra burden on nurses. At the same time the practicing ratio was low due to lack of facilities and improper channel. Hospital organizational structure also did not support the practice of digital health care facilities and guidance. Implementation of telehealth facilities and policies will help the patients, families and also health care facilitators to decrease burn out, revisits, hospital stay and most importantly it is cost effective.

RECOMMENDATIONS

It is recommended that for future studies qualitative study should be conducted and barriers and facilitators should be included. Also 3-4 hospitals can be included by increasing the population size and including other health professionals in the study to assess the knowledge, attitude and practice toward telemedicine. Also studies should be done to enhance nurses knowledge and modify organizational policies to implement tele health facilities more conductively.

REFERENCES

Ahmed, T. J., Baig, M., Bashir, M. A., Gazzaz, Z. J., Butt, N. S., & Khan, S. A. (2021). Knowledge, attitudes, and perceptions related to telemedicine among young doctors and nursing staff at the King Abdul-Aziz University Hospital Jeddah, KSA. *Nigerian Journal of clinical practice*, *24*(4), 464-469.

Buchanan, T., Smith, A., & Lewis, J. (2023). Barriers to the adoption of telemedicine: A qualitative study of nurses' perceptions. Journal of Telemedicine and Telecare, 29(3), 145-156. https://doi.org/10.1177/1357633X221138719

Cheng, J., Li, H., & Wong, P. (2020). The impact of telemedicine on interdisciplinary communication and patient outcomes: A systematic review. International Journal of Medical Informatics, 141, 104224. https://doi.org/10.1016/j.ijmedinf.2020.104224

Cox, R., Green, M., & Patel, S. (2022). Understanding the impact of telemedicine on nursing workload: A qualitative analysis. Nursing Management, 53(6), 30-37. https://doi.org/10.1097/01.NUMA.0000830443.45694.87

Ferguson, J., Edwards, S., & Thompson, R. (2021). Institutional policies and the implementation of telemedicine: A survey of nursing perceptions. Journal of Nursing Administration, 51(7- 8), 370-377.

https://doi.org/10.1097/NNA.0000000000001004

Gonzalez, M., Lee, R., & Patel, R. (2022). Peer influence and telemedicine: The role of nursing champions. Journal of Health Communication, 27(2), 120-132. https://doi.org/10.1080/10810730.2022.2064132

Jenkins, S., Brown, T., & Williams, D. (2022). The effects of telemedicine on nursing workload: A national survey. Nursing Outlook, 70(4), 641-650.

Khan, A., Rehman, M., & Alvi, M. (2023). Role of governmental policies in telemedicine adoption: Perspectives from developing countries. Global Journal of Health Science, 15(5), 66-75. https://doi.org/10.5539/gjhs.v15n5p66

Malik, S. M., & Khan, M. (2020). Telemedicine: A silver lining in the pandemic cloud in Pakistan. *Annals of King Edward Medical University, 26*(Special Issue COVID-19), 331–336.

Mok, E., Wong, K., & Liu, M. (2020). Education and training as facilitators of telemedicine: A study of nursing perspectives. Nurse Education Today, 85, 104246. https://doi.org/10.1016/j.nedt.2019.104246

Nwankwo, E., Okeke, C., & Iwu, C. (2022). Telemedicine adoption in developing countries: Nurses' perceptions and barriers. African Journal of Nursing and Midwifery, 20(1), 45-59. https://doi.org/10.25159/2520-2014/4745

Patel, N., Cohen, B., & Fagan, J. (2021). Change management strategies for telemedicine integration in nursing practice. Journal of Nursing Management, 29(2), 185-193. https://doi.org/10.1111/jonm.13038

Purba, C., Sinaga, I., Rawung, S., Manik, M. J., & Sibuea, R. (2023). Nurses' perceived knowledge, self-confidence, and attitudes in using telemedicine: A case study from West Indonesia. *Enfermería Clínica*, *33*, S12-S16.

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.

Zhou, X., Wang, Y., & Zhang, Y. (2021). The role of organizational culture in telemedicine adoption: Perspectives from nurses. International Journal of Health Services, 51(1), 49-62. https://doi.org/10.1177/0020731420936705