Transformational Leadership in Telenursing Implementation Towards Hospital Digital Transition

Reni Asmara Ariga [1], Elisabet Siahaan [1], Ritha F. Dalimunthe [1], Prihatin Lumbanraja [1]

[1] *Universitas Sumatera Utara, Medan, Indonesia*

Abstract - **Hospitals are transforming healthcare by adopting digital telenursing technology to address the shortage of nurses, the distance between healthcare services and patients, and the cost and time efficiency of treatment and transformational leadership can help direct these changes. It was conducted in three government hospitals in Medan City, Indonesia, with 239 nurses. The data were processed using SEM-PLS. Results show transformational leadership has a positive and significant effect on telenursing with implications for helping hospitals design digital care leadership strategies.**

Keywords - **Digital, hospital, telenursing, transformational leadership, transition.**

1. Introduction

Transformational leadership is a leadership style that nursing managers can use to inspire and motivate nurses to reach maximum achievement and adapt to individual changes and social systems in which followers develop into leaders [1].

Transformational leadership has the ability to improve soft skills, job satisfaction, and achieve common goals in order to provide excellent service to the community in accordance with public expectations and demands in the nursing profession, which can increase patient satisfaction and ensure patient safety in the provision of nursing services. [2].

There are now 12 systemic challenges in the Indonesian health sector that must be addressed with a focus on transformation, one of which is access to referral services and the use of digital technology, which remains limited due to the need for greater use of digital technology. In addition, the public's demand for high quality health services is very high, with the increasing population and the dynamic changes that occur [3].

The Ministry of Health prioritizes care for 9 (nine) types of degenerative diseases with the greatest morbidity and mortality rates in the country, including heart disease, cancer, diabetes, kidney, liver, stroke/brain, maternal and child health, tuberculosis, and infectious diseases. These diseases necessitate a significant investment of time and money, therefore health services utilizing technology such as telenursing are required as a strategy for nursing service innovation and hospital digital transition to improve health services and increase patient relationships [4].

This is supported by the substantial amount of internet users in the community, so that the implementation of telenursing as part of the hospital's digital transition does not become an impediment to the implementation of alternative care, integrative care, and sustainable care that can be implemented as a current treatment trend between hospitals, health centers, and the community, so individuals or patients with certain conditions do not need to come to the hospital.

Telenursing is the use of technology to give nursing care to patients at a distance in order to acquire health information, improve health care, and even treatment.

Although telenursing causes minor modifications in the delivery of nursing care, it does not significantly change the principles of nursing care delivery [5].

The results of a survey of leadership styles conducted in the three hospitals where this study was conducted in November 2022 revealed that the application of leadership styles was a combination of one-way and two-way. There are emergencies that demand very quick management according to defined protocols in the implementation of nursing care, thus the nature of the assignment is one-way, but many nursing activities can also be planned and done by involving team members. Member involvement and manager attempts to encourage members to always be creative, innovative by improving subordinates' creativity and dedication in Human Resources (HR) have not been proper.

Human resources, facilities, infrastructure, and equipment are not optimal as a result of website observations in three hospitals related to the implementation of telenursing based on Minister of Health Regulation number 20 of 2019, while the applications already available in hospitals are web, e-mail, call centers, cell phones, short message services, and information services are limited to general hospital information. Web, e-mail, call centers, cell phones, short message systems, and hospital information services remain limited to general hospital information services.

The purpose of this study is to assess the relationship between transformational leadership indicators such as charismatic, idealistic, therapeutic communication, integrity, visionary, involving subordinates, enthusiastic, setting goals, creating good relationships, respect for members opinions and purpose and telenursing indicators such as therapeutic communication, technological competence, implementation of nursing care, technology, facility, infrastructure, and equipment.

2. Methodology

This section contains study design, data collection, and statistical analysis.

2.1. Study Design

This type of research is quantitative with a cross sectional approach. The research was carried out in three government hospitals in Medan, Indonesia namely RSUP H. Adam Malik, RSUD Dr. Pirngadi, and RS Prof. H. Chairuddin Panusunan Lubis Hospital Universitas Sumatera Utara.

2.2. Data Collection

This study has received approval from the health research ethics committee of the University of North Sumatra, Indonesia with number 167/KEPK/USU/2023.

From March to April 2023, data was collected by distributing questionnaires to all respondents who were considered to meet the inclusion criteria. These respondents were nurses who worked in inpatient rooms for at least one year, had a permanent job, and freely participated in the research. Participants who did not complete the consent form or questionnaire were removed from the study.

According to the opinion of the authors of study [6] the sample size should contain more than 100 people. This study's respondents were 239 nurses who were chosen using non-probability selection techniques and a purposive sample method. Data about identification, employment status, and the inpatient room where nurses work are received from the leader of each hospital's ward. Before beginning data collection, the researcher described the researcher's identity, objectives, benefits, and research variables, as well as data confidentiality. If the nurses accepted, participants were subsequently required to fill out and sign a formal informed consent form in order to participate in future studies. The nurses were next instructed to completely fill out the research questionnaire. Demographic information, transformational leadership, and telenursing were all included in the research questionnaire.

2.3. Statistic Analysis

The analytical tool used is Structural Equation Modeling Partial Least Square (SEM-PLS). A validity test was performed in this study, with a transformational leadership variable value of 0.702 and a telenursing variable value of 0.792. The transformational leadership variable has a reliability of 0.92, whereas the telenursing variable has a reliability of 0.987.

The questionnaire is based on a Likert scale which can be used to assess respondents' attitudes and opinions about the variables under consideration [7]. For the transformational leadership research variable and the telenursing variable, the respondent's answer interval is adjusted to the statement submitted. Strongly agree (SA) score 5, agree (A) score 4, neither agree (NA) score 3, disagree (D) score 2, and strongly disagree (SD) score 1.

3. Results

This study included 239 nurses who matched the inclusion criteria and volunteered to participate. This research data consists of demographic data and data distribution analysis of transformational leadership and telenursing variables.

3.1. Respondent Characteristics

Demographic data in Table 1 shows that the majority of respondents consisted of 100 early male adults (41.8%), 217 females (90.8%), 119 educational background diploma (49.8%), working period 1-10 years as much as 113 (47.3%), and therapeutic communication seminars around 162 (46%).

Table 1. Demographic data (n=239)

Characteristics	Indicator	Total	
		N	%
Age	Late Adolescence	4	1.7
	Early Adulthood	100	41.8
	Late Adulthood	86	36.0
	Early Elderly	38	15.9
	Late Adulthood	11	4.6
Sex	Male	22	9.2
	Female	217	90.8
Education	Diploma	119	49.8
	Undergraduate	46	19.2
	Ners	74	31.0
Period of employment	1-10 years	113	47.3
	11-20 years	84	35.1
	21-30 years	37	15.5
	>31 years	5	2.1

3.2. Transformational Leadership

Transformational leadership is a leadership style that can be applied in hospital service units to develop health workers soft skills, increase job satisfaction, and achieve shared goals. In this research, transformational leadership is represented by ten indicators, as shown in Table 2.

The charismatic indicator is a leader who is able to influence subordinates to follow directions, be used as idols and role models by members so that leaders more easily influence and direct members to act in accordance with what is intended.

Dominated by 142 agreed answers, it has a mean value of 4.331 that represents the "very high" category.

Idealistic indicators are leaders who have high vision, values and goals to achieve common goals. Dominated by 139 agreed answers, it has a mean value of 4.377 that represents the "very high" category.

Indicators of therapeutic communication are the ability of a leader to communicate well and effectively in overcoming problems, improving relationships, and achieving common goals. Dominated by 135 agreed answers, it has a mean value of 4.381 that represents the "very high" category.

The integrity indicator is a leader who is constantly obedient to every norm, rule, and provision that applies, and always acts in the interests of many people. Dominated by 121 agreed answers, it has a mean value of 4.397 that represents the "very high" category.

Visionary indicators are leaders who can think ahead, develop an inspiring vision, motivate others to contribute to achieving goals, and anticipate changes. Dominated by 135 agreed answers, it has a mean value of 4,389 that represents the "very high" category.

Indicators of involving subordinates are leaders who are actively involved with members, communicate openly, listen to information, and take action based on the feedback provided. Dominated by 134 agreed answers, it has a mean value of 4.393 that represents the "very high" category.

Enthusiastic indicators are leaders who have strong leadership characteristics and are able to inspire and move members by showing high enthusiasm in everything they do. Dominated by 142 agreed answers, it has a mean value of 4,343 that represents the "very high" category.

The indicator of setting goals is one of the effective ways for leaders to set relevant, challenging, and inspiring goals. Dominated by 149 agreed answers, it has a mean value of 4,297 that represents the "very high" category.

Indicators of creating good relationships are critical in achieving organizational goals, affecting member performance and motivation. Dominated by 147 agreed answers, it has a mean value of 4.301 that represents the "very high" category.

Indicators of respect for members' opinions is critical because it can create a positive work climate, increase motivation, and increase member involvement to achieve common goals. Dominated by 125 agreed answers, it has a mean value of 4,360 that represents the "very high" category.

Table 2. Respondents responses to indicators transformational leadership

Indicator	Measurement Scale				
	SD	D	NA	A	SA
Charismatic	0	2	6	142	89
Idealistic	0	2	2	139	96
Therapeutic Communication	0	3	2	135	99
Integrity	0	1	10	121	107
Visionary	0	1	4	135	99
Involving Subordinates	0	1	4	134	100
Enthusiastic	0	3	3	142	91
Setting Goals	0	1	8	149	81
Creating Good Relationships	0	2	7	147	83
Respect for Members Opinions	2	2	7	125	103

Abbreviation: SD: Strongly disagree; D: Disagree; NA: Neither agree; A: Agree; SA: Strongly Agree

3.3. Telenursing

Telenursing is the combination of telecommunication and information technologies to provide nursing care when there is a significant physical distance between nurses or between patients and nurses. In this study, telenursing contains seven indicators, which are displayed in the responses of respondents in Table 3.

The therapeutic communication indicator is a communication strategy that aims to create trust between patient nurses so that patients feel heard, understood, and supported during the treatment process. Dominated by 109 agreed answers, it has a mean value of 4,210 that represents the "very high" category.

The indicator of technological competence is the ability to use and integrate information and communication technology in long-distance nursing practice carried out by nurses to their patients. Dominated by 117 agreed answers, it has a mean value of 3.992 that represents the "high" category.

The indicator of implementation of nursing care is the application of nursing practice using information technology. Dominated by 106 agreed answers, it has a mean value of 4,029 that represents the "very high" category.

Technology indicators within the context of telenursing encompass a range of communication and information tools and devices employed for the remote administration and delivery of healthcare information. These tools include telephones, personal assistants, smartphones, computers, the Internet, and computer information systems.

Dominated by 120 agreed answers, it has an averagategory.e value of 3.985 in the "high" category.

The facility indicator is a building / room used in carrying out telenursing services that can stand alone or be separate from the service area. Dominated by 115 agreed answers, it has a mean value of 3.891 that represents the "high" category.

Indicators of infrastructure in the application of telenursing are in the form of electricity, adequate internet networks and other infrastructure that supports telenursing services. Dominated by 109 agreed answers, it has a mean value of 4.017 that represents the "high" category.

Equipment indicators must meet service standards, quality requirements, security, safety, and usability in accordance with statutory regulations. Dominated by 119 agreed answers, it has a mean value of 3.939 that represents the "high" category.

Table 3. Respondents responses to indicators telenursing

Indicator	Measurement Scale				
	SD	D	ND	A	SA
Therapeutic Communication	11	4	9	109	106
Technological Competence	17	8	16	117	81
Implementation of Nursing Care	17	5	25	106	86
Technology	19	5	15	120	80
Facility	23	11	17	115	73
Infrastructure	20	6	14	109	90
Equipment	21	4	18	119	77

Abbreviation: SD: Strongly disagree; D: Disagree; ND: Neither disagree; A: Agree; SA: Strongly Agree

Table 4 shows that the majority of respondents attended nursing care seminars/training 117 (48.95%), Diabetes Mellitus (DM) 43 (17.95%), the attitude of nurses in the application of telenursing the majority agree 236 (98.75%), and the application of telenursing in the hospital the majority have not implemented 168 (70.30%).

Table 4. Telenursing data (n=239)

Category	Indicator	Total	
		N	%
Seminars/trainings attended	Therapeutic Communication	98	41
	Application of Technology	24	10.05
	Nursing Care	117	48.95
Types of diseases treated	Heart Disease	29	12.22
	Cancer	30	12.67
	Diabetes	43	17.95
	Kidney	34	14.18
	Liver	14	6.03
	Stroke/Brain	24	9.80
	Maternal and Child Health	12	4.82
	Tuberculosis	20	8.45
	Infectious	33	13.88
Attitude toward telenursing	Agree	236	98.75
	Disagree	3	1.25
Implementation of telenursing in hospitals	Already	71	29.70
	Not yet	168	70.30

3.4. Data Processing Results

Based on the results of data processing using SEM-PLS, the transformational leadership variable in the application of telenursing towards the hospital digital transition obtained an original sample value (O) of 0.170, sample mean (M) of 0.171, standard deviation (STDEV) of 0.076, T statistics (O/STDEV) 2.246 and a p value of 0.025 which means that there is a relationship between transformational leadership indicators in the application of telenursing towards the hospital digital transition.

4. Discussion

Demographic data from 239 respondents of transformational leadership research in implementing telenursing towards hospital digital transition show that the majority of respondents' age is early adulthood (100 respondents with a percentage of 42%), indicating that early adulthood is capable of applying transformational leadership positively and fairly [8] and early adults are more tech-savvy in the application of telenursing [9].

The majority of respondents were female, 91%. Women tend to exhibit more transformative behaviors which can influence their members' perceptions of the leader's gender role identity and transformational leadership helps women overcome the mismatch between leader roles and gender role expectations [10]. Telenursing is the application of nursing care, information and communication technology mainly used by women [11].

The majority of respondents were in the diploma program category with a percentage of 50%. This study shows that the respondents of this study are implementing nurses who provide direct nursing care. Nursing diploma education provides the skills and knowledge needed [12]. There is a relationship between education level and nurse managers' transformational leadership. A higher level of education may be associated with enhanced leadership skills [13]. Nurses with higher skills and education are better equipped to implement telenursing practices and increase the value of nurses as health professionals [14].

The majority of respondents were in the period of employment category (1-10 years) with a percentage of 47%. Nurses' performance can be affected by their length of employment since more experienced nurses have greater capacities and experience in dealing with complicated situations such as time management, decision making, and clinical practice implementation. The level of nurse empowerment shows an increase along with the increase in nurses' period of employment. This implies that knowledge and experience with the work might enhance nurses' performance [15]. Transformational leadership can improve the quality of nursing services, increase members' enthusiasm and initiative, and promote better nursing outcomes [16]. Length of service influences nurses' intention to practice telenursing [17].

The majority of seminars that have been attended are nursing care seminars/training with a percentage of 48.95%. Nursing care seminars provide nurses with the knowledge and skills necessary to effectively deliver health care services through telenursing [18].

Based on the results of research on therapeutic communication seminars/training conducted by nurses as much as 41%. Transformational leaders have good communication skills that can effectively convey vision, goals, and expectations to members. Therapeutic communication seminars or training can improve the ability of communication skills, making it possible for transformational leaders to inspire and motivate members who ultimately increase job satisfaction, involvement, and member empowerment. Therapeutic communication seminars can provide transformational leaders with the skills for effective listening, empathy, and effective feedback, enabling leaders to address conflict constructively and maintain positive relationships within the team [19]. Therapeutic communication seminars can equip nurses with the skills to communicate effectively with patients remotely using technology and communication systems, by having communication skills nurses can better understand the needs and customize individualized plans and interventions.

The results of technology seminars and training showed 10.05%. Nurses must be skilled in using telehealth technology to perform virtual assessments, remotely monitor vital signs, and accurately interpret data [18]. In implementing telenursing, nurses have to be competent in therapeutic communication, nursing care, and practicing information and communication technology.

Transformational leadership is when a leader and followers support each other to achieve higher levels of morale and motivation [20]. In this study there are 10 indicators of transformational leadership, namely charisma, idealism, therapeutic communication, integrity, visionary, involving subordinates, enthusiasm, setting goals, creating good relationships, and respecting members' opinions.

A charismatic leader is a leader who has attractiveness, charm, and strong self-confidence so as to influence and inspire members. Leader charisma is shaped by individual values and is characterized by courage and high self-confidence [21]. Charisma is based on members' respect and admiration for the leader [22]. This is in accordance with the respondent's response "the head of the room becomes a role model" with mean value of 4.33 and a very high category. Nurses with charismatic transformational leaders tend to have higher levels of commitment [23].

Idealistic indicators in transformational leadership contribute to leader effectiveness by building trust, respect, motivating, inspiring, and empowering members [24]. This is in accordance with the respondents' responses "the head of the room carries out tasks based on performance standards" with a mean value of 4.37 and represents a very high category. Idealistic transformational leaders improve their followers' work attitudes and encourage proactive behavior [25].

Indicators of therapeutic communication in transformational leadership are types of communication to build trust and good relationships between individuals [26]. This is in accordance with the respondents' responses "the head of the room communicates the change program with therapeutic communication techniques" with mean value of 4.38 and represents a very high category. Therapeutic communication involves being honest, transparent, and reliable [27].

The integrity indicator in transformational leadership is an important component that can influence leaders to inspire and motivate [28]. This corresponds to the respondents' comments "the head of the room can be trusted" with a mean value of 4.39 and represents as very high category.

Leaders with great integrity are those who have strong moral and ethical characteristics when carrying out their tasks and responsibilities as leaders. Nurse leaders with integrity may make moral decisions that are consistent with policies while also protecting their staff and subordinates [29].

Visionary indicators of transformational leaders are leaders who communicate an inspiring vision, using vision as a force to achieve common goals [26]. Visionary leadership is an essential component of transformational leadership. Leaders can forecast changes and inspire innovation by thinking forward, developing an exciting vision, and motivating individuals to participate in reaching goals. This correlates to the respondent's response "the head of the room has clear goals for change" with mean value of 4.38 and represent as very high category. Transformational leaders can assess the vision's performance by analyzing the progress of the goals that have been established.

The indicator of involving subordinates in transformational leadership is the attitude of a leader who gives a role to his subordinates to increase strength and encourage intellectual stimulation and innovation in the team [30]. Transformational leaders aggressively interact with members, communicate honestly, listen to suggestions, and act on feedback to build a collaborative and inclusive work environment. This relates to the respondent's response "the head of the room continuously involves nurses in the change program" with mean value of 4.39 and represent as very high category. Transformational leaders are able to engage subordinates to go beyond personal interests for the benefit of the team [31].

The enthusiasm indicator in transformational leadership is how the attitude of a leader is in transferring energy and enthusiasm, as well as high strength to subordinates [30]. This is in accordance with the respondent's response "the head of the room gives nurses confidence," which mean value of 4.34 and represent as very high category. Leaders with excellent leadership characteristics who can motivate and mobilize members by being enthusiastic about all they do. This enthusiasm motivates team members to work harder and provide better results.

Goal setting indicators are one of the effective ways of intellectually stimulating transformational leaders. Transformational leaders are able to inspire and motivate others to achieve higher goals and create positive changes in the organization and society. Transformational leaders are important to set goals that are relevant, challenging and inspiring. [32]. This is in accordance with the respondents' responses "in program planning, the head of the room has set goals for change" with a mean value of 4.29 and represents a very high category.

Transformational leaders inspire followers to evaluate the goals to be achieved and play a role in shaping the attitudes and behavior of members [25].

Indicators of creating good relationships in transformational leadership by actively listening, providing feedback from every existing opinion and recognizing every contribution of each individual. [33]. This is in accordance with the respondents' responses "in program planning, the head of the room has set the objectives of the changes to be implemented" with mean value of 4.3 and represent a very high category. Leaders must be able to speak clearly, freely, and establish a safe environment in order to foster excellent connections [34].

The indicator of respecting differences of opinion in transformational leadership is how leaders address differences by accepting and respecting one another.Innovation can be improved by making the right decision in dissent [35]. This is in accordance with the respondent's response "the head of the room gives freedom to nurses to express opinions" with a mean value of 4.36 and represents a very high category. A transformational leader must be able to value every difference and create an environment where diverse perspectives are welcomed and encouraged [36].

Telenursing is the use of information and communication technology to develop all areas of nursing care, education, and research remotely [18]. In this study, there are 7 indicators of telenursing, namely therapeutic communication, technology competence, implementation of nursing care, technology, facilities, infrastructure, and equipment.

Indicators of therapeutic communication are communication processes in telenursing that build trust and good relationships with patients, increase patient satisfaction, meet emotional needs, improve patient education, reduce anxiety and stress, and improve patient safety [37]. This is in accordance with the respondents' responses "nurses conduct therapeutic communication" with a mean value of 4.20 and represent a very high category. Through therapeutic communication nurses actively listen to the patient's concerns, questions and needs [38].

The indicator of mastery of technology is how a nurse is able to use software and hardware systems, as well as technology [39]. This is in accordance with the respondent's response "nurses can use the hospital's application," which has mean value of 3.99 and represent as high category. Technology provides access that can improve care, particularly for patients who reside in distant places or do not have access to health care. Nurses can learn technical skills in technology systems [40].

Nursing care implementation indicators are nursing care provided to patients remotely based on nursing standards [18].

This is in accordance with the respondents' responses "nurses carry out the nursing process using telenursing" with a mean value of 4.12 and represent a very high category. Implementation of nursing care through telenursing creates improved patient health conditions and accelerates the process of improving health and reducing discomfort [41].

Technology indicators are a medium that can improve care for patients who do not near health care facilities. Telenursing technology can help reduce travel time and costs associated with in-person visits to health care facilities [42]. This is in accordance with the respondents' responses "nurses use applications in service delivery" with mean value of 3.98 and represent a high category. Technological advances in telenursing are able to assist nurses in communicating with patients, monitoring health status, and providing education and support through distance [18].

The facility indicator is a building or space used in conducting telemedicine or telenursing services, which can be independent or separate from the service area [43]. Facilities are part of the telenursing infrastructure in the use of information and communication technology [44]. This is in accordance with the respondent's response "nurses use a special room in providing telenursing services" with mean value of 3.89 thus representing high category. Facilities in telenursing aim to assist the team in building and maintaining a safe, fair, and high-quality telenursing program [45].

Infrastructure indicators include at least electricity, an adequate internet network, and other infrastructure that supports telemedicine or telenursing services [43]. This is in accordance with the respondent's response "nurses use an adequate network" with mean value of 3.84 and represent a high category. One of the main points is reliable and high-speed internet connectivity [46].

Equipment indicators are medical and non-medical equipment that supports telemedicine and telenursing services [43]. This is in accordance with the respondents' responses "nurses use medical, non-medical equipment in telenursing services' with mean value of 3.93 and represent as high category. Telenursing equipment relies heavily on technology to facilitate communication between nurses and patients. Nurses can communicate with patients distantly using technology such as smartphones, computers, and video conferencing equipment [47].

5. Limitations

The most significant limitation of this study is that it was carried out in three government hospitals with a limited number of respondents, so the results cannot be widely applied to other government and private hospitals.

However, the data in this study comes from respondents who have direct knowledge and experience of the application of the leadership style of the direct supervisor being assessed. Research data can be subjective because individual perceptions of leadership can be different and this affects the results of the study. Also, this study measures the influence of transformational leadership in the implementation of telenursing where changes in behavior and its impact require a long time to be observed.

6. Conclusion

Transformational leadership style and nursing manager characteristics have a significant influence on innovation in the application of information and communication technology in nursing care towards hospital digital transition. The implications of the results of this study were useful in helping hospitals design leadership strategies for digital care managers. It is suggested that future research should examine whether transformational leadership contributes to improving the quality of patient care through telenursing, such as patient satisfaction, reduction of care errors, and care efficiency.

Acknowledgements

References:

[1]. Alzahrani, S., & Hasan, A. A. (2019). Transformational Leadership Style on Nursing Job Satisfaction Amongst Nurses in Hospital Settings: Findings From Systematic Review. *Global Journal of Health Science*, *11*(6), 25.
Doi: 10.5539/gjhs.v11n6p25

[2]. Fleaca, B., Fleaca, E., & Maiduc, S. (2022). Digital Transformation and Current Challenges of Higher Education. *TEM Journal*, *11*(3), 1235–1241.
Doi: 10.18421/TEM113-32

[3]. Kementerian K.RI. (2022). *Profil Kesehatan Indonesia 2021*. Jakarta.

[4]. Koebe, P., & Bohnet-Joschko, S. (2023). The Impact of Digital Transformation on Inpatient Care: Mixed Methods Study. *JMIR Public Health and Surveillance*, *9*(1). Doi: 10.2196/40622

[5]. Asiri, H., & Househ, M. (2016). The impact of Telenursing on nursing practice and education: A systematic literature review. *Unifying the applications and foundations of biomedical and health informatics,* 105-108.
Doi : 10.3233/978-1-61499-664-4-105.

[6]. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning, 46*, 1-12.
Doi: 10.1016/j.lrp.2013.01.001.

[7]. Sullivan, G. M., & Artino Jr, A. R. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of graduate medical education*, *5*(4), 541-542.
Doi: 10.4300/JGME-5-4-18.

[8]. Tziner, A., & Shkoler, O. (2018). Estilos de liderazgo y actitudes en el trabajo:¿ modera la edad su relación?. [Leadership Styles and Work Attitudes: Does Age Moderate their Relationship?]. *Journal of Work and Organizational Psychology, 34*(3), 195-201.
Doi: 10.5093/jwop2018a21.

[9]. Pang, N. Q., Lau, J., Fong, S. Y., Wong, C. Y. H., & Tan, K. K. (2022). Telemedicine acceptance among older adult patients with cancer: scoping review. *Journal of medical Internet research*, *24*(3), e28724.
Doi: 10.2196/28724.

[10]. Saint-Michel, S. E. (2018). Leader gender stereotypes and transformational leadership: Does leader sex make the difference?. *M@n@gement*, *21*(3), 944-966.
Doi: 10.3917/mana.213.0944.

[11]. Hakimnia, R., Holmström, I. K., Carlsson, M., & Höglund, A. T. (2014). Exploring the communication between telenurse and caller—a critical discourse analysis. *International Journal of Qualitative Studies on Health and Well-being*, *9*(1), 24255.
Doi: 10.3402/qhw.v9.24255

[12]. Gede Juanamasta, I., Iblasi, A. S., Aungsuroch, Y., & Yunibhand, J. (2021). Nursing development in Indonesia: colonialism, after independence and nursing act. *SAGE Open Nursing*, *7*, 23779608211051467.
Doi: 10.1177/23779608211051467

[13]. Kelly, L. A., Wicker, T. L., & Gerkin, R. D. (2014). The relationship of training and education to leadership practices in frontline nurse leaders. *The Journal of Nursing Administration*, *44*(3), 158-163.
Doi: 10.1097/NNA.0000000000000044

[14]. Marco-Franco, J. E., Reis-Santos, M., Barrachina Martinez, I., Jurewicz, A., & Camaño-Puig, R. (2023). Telenursing: The view of care professionals in selected EU countries. A pilot study. *Heliyon*.
Doi: 10.1016/j.heliyon.2023.e16760.

[15]. Tan, H. V. D., & Conde, A. R. (2021). Nurse empowerment—Linking demographics, qualities and performances of empowered Filipino nurses. *Journal of Nursing Management, 29*(5), 1302-1310.
Doi: 10.1111/jonm.13270

[16]. Su, F., Cheng, D., & Wen, S. (2019). Multilevel impacts of transformational leadership on service quality: evidence from China. *Frontiers in psychology*, 10, 1252. Doi: 10.3389/fpsyg.2019.01252

[17]. Chang, M. Y., Kuo, F. L., Lin, T. R., Li, C. C.,& Lee, T. Y. (2021). The intention and influence factors of nurses' participation in telenursing. *Informatics, 8*(2), 35. MDPI. Doi: 10.3390/informatics8020035

[18]. Souza-Junior, V. D., Mendes, I. A. C., Mazzo, A., & Godoy, S. (2016). Application of telenursing in nursing practice: an integrative literature review. *Applied nursing research, 29*, 254-260.
Doi: 10.1016/j.apnr.2015.05.005

[19]. Jankelová, N., & Joniaková, Z. (2021). Communication skills and transformational leadership style of first-line nurse managers in relation to job satisfaction of nurses and moderators of this relationship. *Healthcare*, *9*(3), 346. MDPI. Doi: 10.3390/healthcare9030346

[20]. Saad Alessa, G. (2021). The dimensions of transformational leadership and its organizational effects in public universities in Saudi Arabia: A systematic review. *Frontiers* in psychology, *12*, 682092. Doi: 10.3389/fpsyg.2021.682092

[21]. Wowak A. J., Mannor M. J., Arrfelt M., McNamara G. (2016). Earthquake or glacier? How CEO charisma manifests in firm strategy over time? *Strateg. Manag*. J. *37,* 586–603. Doi: 10.1002/smj.2346

[22]. Williams Jr, R., Raffo, D. M., & Clark, L. A. (2018). Charisma as an attribute of transformational leaders: what about credibility?. J*ournal of Management Development*, *37*(6), 512-524. Doi:10.1108/JMD-03-2018-0088

[23]. Iqbal, K., Fatima, T., & Naveed, M. (2019). The impact of transformational leadership on nurses' organizational commitment: a multiple mediation model. *European Journal of Investigation in Health, Psychology and Education*, *10*(1), 262-275. Doi: 10.3390/ejihpe10010021

[24]. Hannah, S. T., Sumanth, J. J., Lester, P., & Cavarretta, F. (2014). Debunking the false dichotomy of leadership idealism and pragmatism: Critical evaluation and support of newer genre leadership theories. *Journal of organizational behavior*, *35*(5), 598-621. Doi: 10.1002/job.1931

[25]. Steinmann, B., Klug, H. J., & Maier, G. W. (2018). The path is the goal: How transformational leaders enhance followers' job attitudes and proactive behavior. *Frontiers in psychology, 9,* 2338. Doi: 10.3389/fpsyg.2018.02338

[26]. Cohrs, C., Bormann, K. C., Diebig, M., Millhoff, C., Pachocki, K., & Rowold, J. (2020). Transformational leadership and communication: Evaluation of a two-day leadership development program. *Leadership & Organization Development Journal*, *41*(1), 101-117. Doi: 10.1108/LODJ-02-2019-0097

[27]. Chou, H. W., Lin, Y. H., Chang, H. H., & Chuang, W. W. (2013). Transformational leadership and team performance: The mediating roles of cognitive trust and collective efficacy. *Sage Open*, *3*(3), 2158244013497027. Doi: 10.1177/2158244013497027

[28]. Munandar, A. I., & Lubis, M. Z. N. (2020). Integrity in Leadership Style Context: A Review. In *Proceedings of the 1st International Conference on Anti-Corruption and Integrity ICOACI, 1*, 62-69, Jakarta, Indonesia. Doi: 10.5220/0009399800620069

[29]. Flores, I. F., Dator, W. L. T., Olivar, J. J., & Gaballah, M. K. (2023). Congruence of Effective Leadership Values between Nurse Leaders and Staff Nurses in a Multicultural Medical City in Saudi Arabia: A Sequential Mixed-Methods Study. *In Healthcare*, *11*(3), 342. MDPI. Doi: 10.3390/healthcare11030342

[30]. Hayati, D., Charkhabi, M., & Naami, A. (2014). The relationship between transformational leadership and work engagement in governmental hospitals nurses: a survey study. *Springerplus*, *3*(1), 1-7. Doi: 10.1186/2193-1801-3-25

[31]. Singh, A. (2019). Role of transformational leadership in enhancing employee engagement: evolving issues and direction for future research through literature review. In *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*. Doi: 10.2139/ssrn.3316331

[32]. Bronkhorst, B., Steijn, B., & Vermeeren, B. (2015). Transformational leadership, goal setting, and work motivation: The case of a Dutch municipality. *Review of public personnel administration*, *35*(2), 124-145. Doi:10.1177/0734371X13515486

[33]. Chen, Y., Ning, R., Yang, T., Feng, S., & Yang, C. (2018). Is transformational leadership always good for employee task performance? Examining curvilinear and moderated relationships. *Frontiers of Business Research in China*, *12*(1), 1-28. Doi: 10.1186/s11782-018-0044-8

[34]. Pattison, N., & Corser, R. (2023). Compassionate, collective or transformational nursing leadership to ensure fundamentals of care are achieved: A new challenge or non-sequitur?. *Journal of Advanced Nursing*, *79*(3), 942-950. Doi : 10.1111/jan.15202.

[35]. Sarfraz, R., Rathore, K., Ali, K., Khan, M. A., & Zubair, S. S. (2022). How level 5 leadership escalates organizational citizenship behaviour in telecom sector of Pakistan? Exploring mediatory role of organizational dissent. *PloS one*, *17*(10), e0276622. Doi: 10.1371/journal.pone.0276622

[36]. Asif, M., Jameel, A., Hussain, A., Hwang, J., & Sahito, N. (2019). Linking transformational leadership with nurse-assessed adverse patient outcomes and the quality of care: assessing the role of job satisfaction and structural empowerment. *International journal of environmental research and public health*, *16*(13), 2381. Doi: 10.3390/ijerph16132381

[37]. Barbosa, I. D. A., Silva, K.C.C.D.D., Silva, V. A. D., & Silva, M. J. P. D. (2016). The communication process in Telenursing: integrative review. *Revista brasileira de enfermagem*, *69,* 765-772. Doi: 10.1590/0034-7167.2016690421i

[38]. Morony, S., Weir, K., Duncan, G., Biggs, J., Nutbeam, D., & Mccaffery, K. J. (2018). Enhancing communication skills for telehealth: development and implementation of a Teach-Back intervention for a national maternal and child health helpline in Australia. *BMC health services research*, *18*(1), 1-9. Doi: 10.1186/s12913-018-2956-6

[39]. Isidori, V., Diamanti, F., Gios, L., Malfatti, G., Perini, F., Nicolini, A., ... & Gaudino, A. (2022). Digital technologies and the role of health care professionals: scoping review exploring nurses' skills in the digital era and in the light of the COVID-19 pandemic. *JMIR nursing*, *5*(1), e37631. Doi: 10.2196/37631

[40]. Nagel, D. A., Pomerleau, S. G., & Penner, J. L. (2013). Knowing, Caring, and Telehealth Technology: "Going the Distance" in Nursing Practice. *Journal of Holistic Nursing*, *31*(2), 104-112. Doi: 10.1177/0898010112465357.

[41]. Kord, Z., Fereidouni, Z., Mirzaee, M. S., Alizadeh, Z., Behnammoghadam, M., Rezaei, M., ... & Zaj, P. (2021). Telenursing home care and COVID-19: a qualitative study. *BMJ supportive & palliative care.* Doi: 10.1136/bmjspcare-2021-003001

[42]. Koivunen, M., & Saranto, K. (2018). Nursing professionals' experiences of the facilitators and barriers to the use of telehealth applications: a systematic review of qualitative studies. *Scandinavian journal of caring sciences*, *32*(1), 24-44. Doi: 10.1111/scs.12445

[43]. Permenkes. (2019). *Penyelenggaraan Pelayanan Telemedicine Antar Fasilitas Pelayanan Kesehatan*. Jakarta: Kementerian Kesehatan Republik Indonesia.

[44]. Scholz, S., Ngoli, B., & Flessa, S. (2015). Rapid assessment of infrastructure of primary health care facilities–a relevant instrument for health care systems management. *BMC health services research, 15*, 1-10. Doi: 10.1186/s12913-015-0838-8

[45]. Kobeissi, M. M., & Hickey, J. V. (2023). An Infrastructure to Provide Safer, Higher Quality, and More Equitable Telehealth. *The Joint Commission Journal on Quality and Patient Safety*. Doi: 10.1016/j.jcjq.2023.01.006

[46]. Li, J., & Wilson, L. S. (2013). Telehealth trends and the challenge for infrastructure. *Telemedicine and e-Health*, *19*(10), 772-779. Doi: 10.1089/tmj.2012.0324

[47]. Yu, P. (2021). Telenursing. In Gu, D., Dupre, M.E. (eds) *Encyclopedia of Gerontology and Population Aging*. Springer, Cham. Doi: 10.1007/978-3-030-22009-9_457