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Fatigue its Related Factors and Quality of Life among Patients with Heart Failure in Tertiary Care Hospital Kochi

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Abstract

Background: Heart failure (HF) is a common disease caused by inability of the heart to pump for supporting the circulation and the functional abnormalities of the heart. The present study was designed to assess the Fatigue, its related factors and Quality of life (QoL) among Patients with HF in Tertiary Care Hospital, Kochi with the objectives to (1) Find out the correlation between fatigue and (QoL) among patients with HF. (2) Identify the related factors among patients with HF. (3) Find the correlation between fatigue and its related factors among patients with HF.

Methods: A cross sectional design with non-probability convenience sampling technique was used to collect data from 150 HF patients from cardiology OPD at AIMS, Kochi. A standardized MFI, PSQI, HADS, MLHFQ tool were used for the assessment of fatigue, sleep, anxiety, depression, and QoL. The emotional aspects of QoL is significantly correlated with general fatigue (p=0.026), physical fatigue (p=0.004) and reduced motivation (< 0.001). The correlation with depression and dimensions of fatigue was found to be significant as the p-value was less than 0.05..

Conclusion: The study concludes that the general fatigue level increases the QoL decrease. General and mental fatigue increases the depression also increases.

Key words: Anxiety; Depression; Fatigue; Heart failure; Quality of life; Sleep quality

Introduction

Heart Failure (HF) is an abnormal clinical condition involving impaired cardiac pumping. It is associated with numerous types of cardiovascular disease[1], particularly long standing hypertension,

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coronary artery disease (CAD) and myocardial infarction. Heart failure is characterized by ventricular dysfunction, reduced exercise tolerance, diminished quality of life and shortened life expectancy. It is characterized by several complex symptoms that are difficult to control and result in a high rate of re hospitalization, morbidity, and mortality across the world.[2,3] Worsening symptoms such as fatigue, exercise intolerance, and dyspnea are associated with an increased prevalence of sleep disturbances, estimated at 30% to 70%.[4]

Fatigue – as defined by North American Nursing Diagnosis Association (NANDA-I Definition) an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work at the usual level. Fatigue is also one of the most commonly reported symptoms by patients with chronic heart diseases. The causes of fatigue in heart failure[5] include low cardiac output, poor tissue perfusion, muscle metabolic abnormalities, autonomic nervous system abnormalities, deconditioning effects, and endothelial dysfunction. Fatigue is a subjective experience with physiologic, treatment-related, and psychological components of patients with various chronic illnesses. Acute tiredness is an expected response to physical exertion, change in daily activities, additional stress, or inadequate sleep. It can affect the work performance as well as social and family responsibilities. Fatigue can be physical, mental, and motivational. The causes of fatigue are multifactorial. The related factors of fatigue according to NANDA it is defined as the etiologic or other contributing factors that have influenced the health status change. Such factors can be grouped into four categories pathophysiologic (biologic- sleep deprivation , pregnancy, poor physical condition disease states, increased physical exertion, malnutrition, anemia or psychological- boring lifestyle, stress, anxiety, depression), treatment-related, situational- negative life events, occupation (environmental- humidity, lights, noise, temperature, personal), and maturational. So fatigue affects physical, social, emotional, social, role and cognitive functioning. Simply stated, fatigue reduces the quality of life (QoL). It interferes with the performance of activities of daily living, may lead to mood disturbances and dependency on others. The quality of life is a multidimensional term, which consist of different domains such as physical and social functioning and psychological wellbeing. The incidence of heart failure in patients with a systolic blood pressure (SBP) of 144-154 mmHg is 0.1% to 0.6% United Kingdom Prospective Diabetes study (UKPDS) trials, the number of new HF cases due to hypertension may increase from 1,18000 - 7,08000 per year in 2000 to 2,14000 - 1.3million respectively per year in 2025. The prevalence of HF due to obesity alone could be estimated to range from 4, 50000 to7, 50000 and diabetic estimated at 184000.[6]

The prevalence of heart failure in India due to coronary artery disease ,hypertension ,obesity, diabetes and rheumatic heart disease to range from 1.3 to 4.6 million ,with annual incidence of 491 600- 1.8 million.[7]In Kerala the age related Coronary Artery Disease (CAD) mortality rates per 100,000 are 382 for men and 128 women. Heart failure affects people of all ages, from children to young adults to the middle aged and elderly. Almost 1.4 million persons with heart failure are under 60 years of age. Chronic heart failure is present in two percent of persons age 40 to59. More than of persons age 60 to 69 have heart failure.[8]

According to Trivandrum Heart Failure Registry in 2013, Heart Failure occurs younger by 10 years have male predominance, more have CAD, in-hospital stay was longer and mortality was higher. One year mortality was 31.7% - similar to data from the US and Europe. The prevalence of heart disease in rural Kerala is 7%, which is nearly double that of north India and parallel the high level of cholesterol in Kerala.[9]

Keeping in view of all the above facts and including highlights the burden of HF among public. This possibly puts them at high risk of mortality and morbidity. Fatigue is also most commonly reported Symptoms by patient with chronic HF related factors including sleep, anxiety and depression are important predictive of quality of life of HF patients. The intervention targeting physical symptoms and depression are excepted to improve quality of life in HF patients.

During the clinical posting period, the researcher has come across with patient who had attended the heart failure clinics and identified the patients with

heart failure had some physical and psychological disturbances that had impact on their quality of life. Considering all these factors the researcher felt the need for assessing the fatigue, its related factors and quality of life among patients with heart failure. The conceptual framework used for this study was Levine's Energy Conservation Model.

Materials and Methods

A Cross sectional study was conducted among 150 heart failure patients during the month of December 2019 February 2020 to from department of cardiology 0PD in a multispecialty hospital, Kochi, Kerala, India. The subjects were selected by non-probability convenience sampling technique. The data were collected using standardized questionnaire.

The following tools were used for the study. Tool I was a structured questionnaire to assess the sociodemographic and clinical variables, which had two sections. Section A sociodemographic data and section B clinical data. Tool II: Multidimensional Fatigue Inventory-(MFI) which had 20 items, with scores ranging from 0 to 5. Tool IIIa: Pittsburg Sleep Quality Index-(PSQI) include 19items, with scores ranging from 0 to 3. Tool IIIb: Hospital Anxiety and Depression Scale (HADS) which had 14 items scores ranging from 0 to 21. Tool 3c: Minnesota Living with Heart Failure Questionnaire (MLHFQ) consist 21 items are there with scores ranging from 0 to 105. All tools were freely available. Prior to the commencement of the study, Ethical clearance obtained from Institution Review Board. After establishing rapport with the subjects, an informed consent was taken prior to data collection explaining the importance of study and the data collection procedure. 150 subjects who met the inclusion criteria were taken. Inclusion criteria for the present study was, all heart failure patients who undergone heart failure clinics and those who are willing to participate in the study. Exclusion criteria was patients who are critically ill. Data entry and descriptive analysis was done using software SPSS 20.0.

Results and Discussion

Table 1: Distribution of subjects based on demographic variables. (n = 150)

Sl No.	Demographic variables	Frequency (f)	Percentage (%)
1.	**Sex**		
	Male	103	68.7
	Female	47	31.3
2.	**Monthly income**		
	Below 5000	37	24.7
	5000-10000	29	19.3
	10000-25000	68	45.3
	25000 above	16	10.7
3.	**Diet Pattern**		
	Vegetarian	47	31.0
	Non-Vegetarian	103	69.0
4.	**Family History of Heart Disease**		
	Yes	31	21.0
	No	119	79.0

Table 2: Distribution of subjects based on clinical variables. (n = 150)

Sl No.	Clinical variables	Frequency (f)	Percentage (%)
1.	**BMI Group**		
	Normal	101	77.3
	Over Weight	37	24.7
	Obese	12	8.0
2.	**Smoking Habit**		
	Current Smoker	18	12.0
	Non-Smoker	125	83.0
	Ex-Smoker	7	5.0
3.	**Alcoholic Habit**		
	Current Alcoholic	18	12.0
	Non-Alcoholic	120	80.0
	Ex- Alcoholic	12	8.0
4.	**Dyspnea assessment**		
	No dyspnea	42	28.0
	Slight dyspnea	22	14.7
	Moderate dyspnea	54	36.0
	Severe dyspnea	32	21.3

Table 3: Descriptive Statistics based on fatigue (n = 150)

Dimensions	Minimum	Maximum	Mean	SD
General Fatigue	4	10	5.90	1.473
Physical Fatigue	4	9	6.19	1.392
Mental Fatigue	4	10	6.13	1.570
Reduced activity	4	11	6.18	1.750
Reduced Motivation	4	11	6.30	1.592

Table 3 shows that General fatigue score of the present subjects ranges in between 4 to 10 with mean score 5.90 and standard deviation 1.473. Physical fatigue score for the present subjects ranges in between 4 to 9 with mean score 6.19 and standard deviation 1.392. Mental fatigue score for the present subjects ranges in between 4 to 10 with mean score 6.13 and standard deviation 1.570. Score for reduced activity in the present subjects ranges in between 4 to 11 with mean score 6.18 and standard deviation 1.750 and that for reduced motivation also ranges in between 4 to 11 with mean score 6.30 and standard deviation 1.592.

The Pittsburgh Sleep Quality Index (PSQI)

(n = 150)

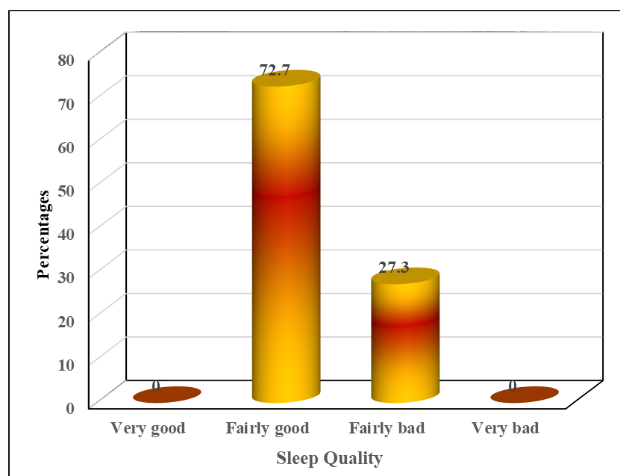


Fig.1. Distribution of subjects based on Level of overall sleep quality

The figure 1 shows that majority of the subjects 109 (72.7% had fairly good sleep quality) and 41 (27.3%) had fairly bad sleep quality whereas no one had history of very good and bad sleep quality level respectively.

Table. 4 Descriptive Statistics regarding Quality of Life (n = 150)

Dimensions	Range	Mean	SD
Physical	17 - 35	24.09	5.09
Emotional	7 - 23	14.70	3.49
Social	9 - 23	15.04	3.43
Total	38- 88	59.50	12.16

Table 4 shows that mean score of physical dimension of quality of life was 24.09 with a standard deviation of 5.09. While the range between the highest and lowest score was 17- 35. Mean score of emotional dimensional using MLHFQ for the present subjects ranges in between 17 to 35 with mean score 24.90 and standard deviation 5.09, that of emotional aspects of quality of life using MLHFQ for the present subjects ranges in between 7 to 23 with mean score 14.70 and standard deviation 3.49 and score for social aspects of quality of life using MLHFQ for the present sample ranges in between 9 to 23 with mean score 15.04 and standard deviation 3.43. Total score for quality of life using MLHFQ for the present subjects ranges in between 38 to 88 with mean score 59.50 and standard deviation 12.16.

Distribution of subjects based on Hospital Anxiety and Depression Scale (HADS) (n = 150)

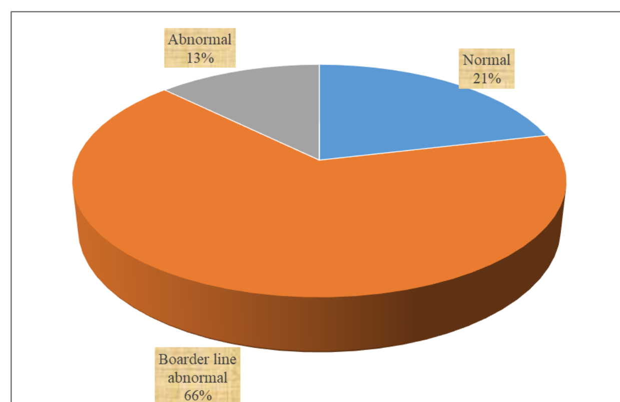
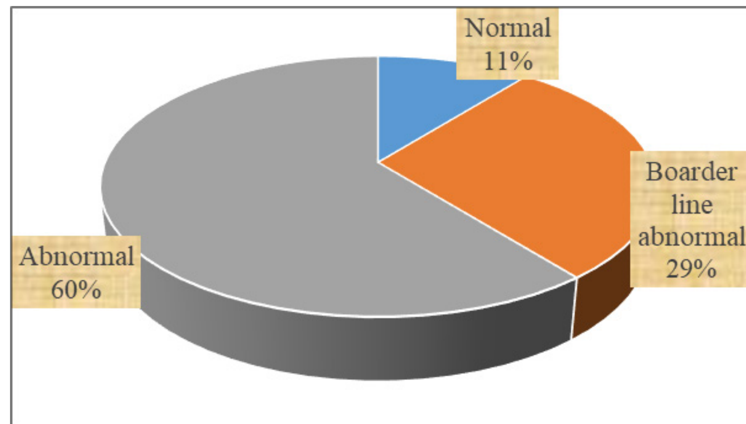


Figure 2: Distribution of subjects based on anxiety level

Figure 2 depicts that majority (66%) subjects had border line abnormal level of anxiety whereas (21%) and (13%) subjects included in normal and abnormal anxiety respectively.



(n= 150)

Figure 3: Distribution of subjects based on level of depression

Figure 3 shows that majority (60%) of the subjects had abnormal level of depression whereas (29%) and (11%) had border line abnormal and normal level of depression respectively.

Correlation between fatigue and quality of life among patients with heart failure

Table 5. Correlation between Fatigue and Quality of Life (n = 150)

Fatigue dimension	**Quality of life (MLHFQ)**			
	Physical	**Emotional**	**Social**	**Total**
General Fatigue	0.052^{ns} (0.528)	0.182* (0.026)	-0.109^{ns} (0.185)	0.004^{ns} (0.965)
Physical Fatigue	0.021^{ns} (0.799)	0.232** (0.004)	0.009^{ns} (0.917)	0.051^{ns} (0.532)
Mental Fatigue	0^{ns} (0.997)	-0.008^{ns} (0.925)	-0.001^{ns} (0.994)	-0.010^{ns} (0.902)
Reduced activity	-0.014^{ns} (0.864)	0.055^{ns} (0.504)	-0.121^{ns} (0.139)	-0.098^{ns} (0.234)
Reduced Motivation	0.117^{ns} (0.155)	0.293** (<0.001)	0.083^{ns} (0.315)	0.137^{ns} (0.094)

Values in the brackets are P-values

*** Significant at 0.01 level; * significant at 0.05 level*

Table 5 shows that correlation between different dimensions of quality of life with fatigue level was carried out by using Spearman's Rank Correlation. Correlation of the fatigue level with physical and social aspects and overall quality of life was found to be non-significant indicating that there exists no significant relationship between fatigue level and physical and social aspects and overall quality of life. Emotional aspects of quality of life is significantly correlated with general fatigue, physical fatigue and reduced motivation.

Correlation of fatigue with anxiety and depression

Table 6. Correlation of fatigue with anxiety and depression (n = 150)

Fatigue dimension	Anxiety		Depression	
	Correlation	P-value	Correlation	P-value
General Fatigue	-0.094^{ns}	0.590	0.359**	< 0.001
Physical Fatigue	0.165*	0.043	0.082^{ns}	0.319
Mental Fatigue	0.111^{ns}	0.178	0.275**	0.001
Reduced activity	0.056^{ns}	0.499	0.184*	0.024
Reduced Motivation	-0.013^{ns}	0.876	0.350**	< 0.001

**** significant at 0.01 level; * significant at 0.05 level; ns - non-significant**

Table 6 shows that correlation between different fatigue level with level of anxiety and depression was carried out by using Spearman's Rank Correlation. In the case of anxiety, all correlation except with physical fatigue was found to be non-significant as the p-value is >0.05 indicating that there exists no significant relationship between general fatigue, mental fatigue, reduced activity and reduced motivation with anxiety. In the case of depression correlation with physical fatigue was found to be non-significant. However, p-value for the correlation of the anxiety with physical fatigue and the correlation of depression with general fatigue, mental fatigue, reduced activity and reduced motivation was found to be significant as the p-value was less than 0.05.

The first objective of the study was to find the correlation between fatigue and quality of life among patients with heart failure. In the present study findings shows that samples had fatigue and the different fatigue dimensions are general fatigue, physical fatigue, mental fatigue, and reduced activity. Whereas p value corresponding to emotional quality of life less than 0.05 level of significant and there is a significant correlation between general fatigue, physical fatigue and reduced motivation.

The study findings where supported by a correlational study conducted by Hägglund L, Boman K, Olofsson M, Brulin C, the study titled fatigue and health-related quality of life in elderly patients with and without heart failure in primary healthcare in the city of Skellefteå in Northern Sweden. A questionnaire including the MFI, the SF-36, and the social provisions scale was used. The result of the study is Patients in the heart failure and non-heart failure groups reported worse physical QoL and more general and physical fatigue than the control group. Heart failure patients had worse general health than the non-heart failure group.[10]

The second objective of the study was to identify the related factors among patients with heart failure. This objective focused on the related factors included anxiety, depression and sleep. Majority (66%) of the subjects had border line abnormal level of anxiety whereas (21%) and (13%) subjects included in normal and abnormal anxiety respectively. Most of the subjects had abnormal level of depression (60%) and (29%) for border line abnormal level of depression and others had (11%) had no depression. Majority of the subjects had fairly good sleep quality 109 (72.7%) and (27.3%) had fairly bad sleep quality and rest of them had no history of very good and bad sleep quality level.

A predictive correlational research study on Descriptors of Insomnia among Patients with Heart Failure conducted by Janya Chimluang RN, Yupin Aungsuroch, Chanokporn Jitpanya. 340 heart failure patients followed-up at heart clinics, Research instrument included demographic questionnaire, state-trait anxiety inventory questionnaire, Center for Epidemiologic Studies Depression Scale, dyspnea questionnaire, Berlin Questionnaire, hygiene awareness and practice scale, and dysfunctional beliefs and attitudes about sleep and insomnia severity index. Thirty-two percent of heart failure patients had insomnia. Eighty-one patients had moderate insomnia (23.8%), and 8 patients had severe insomnia (8.2%). Most heart failure patients had insomnia of mixed types (73.40%), including difficulty falling asleep, difficulty staying asleep, and waking up too early. [11]

The third objective of the study was to find the correlation between fatigue and related factors among patients with heart failure. These objective focused on the relationship between fatigue and related factors among patient with heart failure.

Finding of correlating between score for physical fatigue with anxiety shows a positive mild correlation coefficient (r = 0.165) and was found to be statistically significant with p value = 0.043 because p value is <0.05 which represents as physical fatigue increases the score for anxiety also increases. In the case of general fatigue with depression shows a positive mild correlation coefficient (r = 0.359) and was found to be statistically significant with p value = 0.001 because p value is <0.05 which represents as general fatigue increases the score for depression also increases and mental fatigue with depression shows a positive mild correlation coefficient (r = 0.275) and was found to be statistically significant with p value = 0.001 because p value is <0.05 which represents as mental fatigue increases the score for depression also increases.

Conclusion and Acknowledgement

From the study findings it was crystal clear about assess the fatigue and its related factors among patient with heart failure. Emotional aspects of quality of life is significantly correlated with general fatigue, physical fatigue and reduced motivation. General Fatigue level increases the score for emotional dimension of Quality of life increases which in turn implies the decrease of emotional aspect of Quality of life. On correlating physical fatigue score level with emotional dimension of quality of life score shows the physical Fatigue level increases the score for emotional dimension of Quality of life increases which in turn implies the decrease of emotional aspect of Quality of life. In the case of physical fatigue with anxiety shows physical fatigue increases the score for anxiety also increases. General fatigue and mental fatigue with depression shows general and mental fatigue increases the score for depression also increases.

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Reference

1. J. T, M, S., and V., R., "Assessment of the lifestyle related risk factors for cardiovascular diseases among adolescents", Indian Journal of Public Health Research & Development, vol. 7, no. 2, pp. 97-102, 2016.
2. Heidenreich, P. A., Spertus, J. A., Jones, P. G., Weintraub, W. S., Rumsfeld, J. S., Rathore, S. S., ... & Conard, M. W. (2006). Health status identifies heart failure outpatients at risk for hospitalization or death. Journal of the American College of Cardiology, 47(4), 752-756.
3. Podrid, P. J., & Myerburg, R. J. (2005). Epidemiology and stratification of risk for sudden cardiac death. Clinical Cardiology: An International Indexed and Peer-Reviewed Journal for Advances in the Treatment of Cardiovascular Disease, 28(S1), 3-11.
4. . Príncipe-Rodríguez, K., Strohl, K. P., Hadziefendic, S., & Piña, I. L. (2005). Sleep symptoms and clinical markers of illness in patients with heart failure. Sleep and Breathing, 9(3), 127-133.
5. Sreeja, M. S., & George, L. K. (2016). Assessment of Compliance and Factors Influencing Therapeutic Regimen among Patients with Heart Failure in a Tertiary Care Hospital, Kochi, Kerala, India. International Journal of Nursing Education, 8(2), 94-98.
6. Huffman, M. D., & Prabhakaran, D. (2010). Heart failure: epidemiology and prevention in India. The National medical journal of India, 23(5), 283.
7. Williams, B. A. (2017). The clinical epidemiology of fatigue in newly diagnosed heart failure. BMC cardiovascular disorders, 17(1), 122.
8. Varghese, T. P., Panayappan, L., Krishnakumar, K., & George, L. (2015). Journal Of Harmonized Research (JOHR). Journal Of Harmonized Research in Medical & Health Sci, 2(1), 01-05.
9. Harikrishnan, S., Sanjay, G., Anees, T., Viswanathan, S., Vijayaraghavan, G., Bahuleyan, C. G., ... & Rao, A. C. (2015). Clinical presentation, management, in-hospital and 90-day outcomes of heart failure patients in Trivandrum, Kerala, India: the Trivandrum Heart Failure Registry. European journal of heart failure, 17(8), 794-800.
10. Hägglund L, Boman K, Olofsson M, Brulin C. Fatigue and health-related quality of life in elderly patients with and without heart failure in primary healthcare. European Journal of Cardiovascular Nursing. (2007) Sep;6(3):208-15.
11. Janya Chimluang, R. N., Yupin Aungsuroch, R. N., & Chanokporn Jitpanya, R. N. (2017). Descriptors of insomnia among patients with heart failure. J Med Assoc Thai, 100(4), 403-9.

Full-Length Article

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Nursing Faculty's Perceived Value of Certified Nurse Educator (CNE®)/ Certified Nurse Educator Novice (CNE®n) Credentialing

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Abstract

Aim This study sought tomeasure nursing faculty's perceptions regarding the value of obtaining the CNE®/ CNE®n specialty certification. There is limited research surrounding efforts to improve perceived extrinsic and intrinsic values of certification and even less documentation on identifying a link between student learning outcomes and instruction by CNE®/CNE®n faculty.

Methods Participants were recruited from a private college located in X, where only 16% of the 58 full and part-time academic nurse educators possess the Certified Nurse Educator® (CNE®)/Certified Nurse Educator® Novice (CNE®n) specialty certification.An online PVCT-12 survey was conducted pre- and post-CNE preparatory course to investigate changes in extrinsic and intrinsic perceived values of obtaining certification. Participants were also surveyed post-prep course to determine intent and timeframe for testing.

Results: The study increasedthe number of full and part time academic nurse faculty with theCNE®/ CNE®ncertification from 16% to 24%. There was also anincrease in the perceived value of the certification, more notably in the extrinsic value category.

Conclusion: Understanding these perceptions and motivators for certification can guideinstitutions in supporting faculty to increase their credentialed nurse educators. This study should be repeated with a larger population of nursing faculty across multiple academic institutions to produce more generalizable results. Future research should focus on identifying a link between improved student learning outcomes and instruction by CNE®/CNE®n faculty to further increase the extrinsic value of certification.

Keywords: Certified Nurse Educator, CNE, Nursing Faculty Certification, Nurse Faculty

Introduction

The National League for Nursing (NLN) has offered the academic nurse educator certification since 2005 and the academic novice nurse educator certification pilot exam for certification since 2021. The National Commission for Certifying Agencies (NCCA) granted accreditation to the NLN's CNE® Program for demonstrating compliance with the

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NCCA Standards for the Accreditation of Certification Programs.Nurse educator certification is considered a marker of teaching expertise; however, there is limited research to support its direct relationship with student learning outcomes. Improved student learning outcomes are measured by NCLEX pass rates, student satisfaction scores, and one-year employment rates, but there is no documented linkage to certification of faculty. Future efforts to link student learning outcomes with CNE® competencies may demonstrate improved student graduate transitions and improved patient outcomes.[1]An established link between improved student learning outcomes and instruction by CNE®/CNE®n faculty would show a tangible extrinsic benefit to holding specialty certification.This study focuses on benefits of certification with previously documented measurable intrinsic and extrinsic value.

Improved Faculty Learning Outcomes

Most prior studies focused upon learning outcomes of the faculty as measured by candidate exam pass scores and the perceived intrinsic and extrinsic values of pursuing CNE® certification.[2-5] Improved faculty learning outcomes can be measured by faculty demonstration of competency in the full scope of the certification test blueprint that assesses facilitating learning and learner development and socialization; assessment and evaluation strategies;curriculum design and evaluation of program outcomes; pursuit of continuous quality improvement; and engagement in scholarship, service, and leadership.[6]It is expected that certified faculty will use these advanced competencies in their course development, student evaluation, and teaching methods.

Improved Faculty Critical Thinking

One goal of certification is to "recognize the academic nurse educator's specialized knowledge, skills, and abilities".[6]Passing the certified nurse educator exam demonstrates faculty's critical thinking skills and mastery of the full scope of the NLN Core Competencies.[7]The 2022CNE® exam pass ratewas 64%, which may validate the hesitancy of some faculty to purse certification.[8]An academic institution that promotes certification with extrinsic values supports continuing education of faculty and their ongoing development of critical thinking skills that will then be reflected in teaching practices.

Improved Patient Care

Biel et al. (2014) conducted a synthesis of eight research articles to examine the impact of nursing certification on patient outcomes.[9] Although the study was not focused on nurse educator specialty certification, they found that results were mixed either having a positive impact or no relationship. Nurse educators guide students preparing for nursing practiceat both prelicensure and postlicensure levels. Certified nurse educators have the potential to impact improved outcomesin patient health, safety, and quality care through their educational offerings to nursing students.[1]

The Value of Certification

Certification in any field is a mark of professionalism and distinction. For academic nurse educators, it establishes nursing education as a specialty area of practice and creates a means for faculty to demonstrate their expertise in their role. It communicates to students, peers, and the academic and health care communities that the highest standards of excellence are being met. By becoming credentialed as a certified nurse educator, the nurse educator serves as a leader and role model. The National League for Nursing (NLN) endorses the concept of voluntary, periodic certification for all academic nurse educators meeting educational and practice requirements.[10]

In addition to the CNE® credential, the NLN recently introduced the Certified Nurse Educator Novice (CNE®n) credential that is tailored to nurse faculty who are within the first of three years of practice as an academic nurse educator. This permits additional opportunity for credentialing of a new cohort of faculty, who have the intention of demonstrating their mastery of novice core competencies in nursing education. Additionally, seeking certification encourages new nurse faculty to increase skill in foundational aspects of teaching practice and increases retention in the role of the nurse educator.

Review of the Literature

Specialty certification provides the framework for life-long, continuing nursing education. "Advancing the field of credentialing of nurses and

the organizations in which they work will require evidence generated through interdisciplinary and interprofessional research".[11]Nurses report extrinsic barriers to certification as the lack of time to prepare for certification, the cost of the certification examination, and the lack of institutional support and reward. Studies have also shown that less experienced faculty were more apt to consider taking the CNE® exam, whereas more experienced faculty were less likely to consider certification.[2,4,5] Nurses do identify more with the intrinsic rewards of certification, such as faculty who are at the rank of assistant or associate professor may pursue specialty certification to meet rank promotion or tenure portfolio requirements. A school of nursing that values nurse educator certification might increase the perception of extrinsic value by offering support such as providing exam preparation through offering a preparation review course, reduction in workload during certification preparation time, reimbursement for the examination fee, recognition of faculty who attain CNE® certification, and a salary differential for certified nurse educators. Institutional efforts to make nurse educator certification more visible and valued by the college may change nurses' perception of the extrinsic value of certification.[3]

Purpose

A religious-based, private college located in New England employed 58 full-time and half-time nursing faculty during the spring 2022 term. These faculty are located in the United States, and they teach in both the institutions online and ground based campuses. A spring 2022 needs assessment survey revealed that nine out of 58 faculty reported they held specialty certification as Certified Nurse Educators (CNE®) or Certified Clinical Nurse Educators (CNE®cl). This represents only 16% of nursing faculty holding this specialty certification. The goal of the project was to increase the percentage of CNE® educators at this academic setting.

The benefit of faculty participation in thisprojectwas enhanced nurse educator education with the potential of achieving CNE®/CNE®n certification. Achieving certification may have perceived intrinsic and/or extrinsic value and may create a means for faculty to demonstrate their expertise in the role of nurse educator. This CNE®/CNE®n certification project addresses the college's strategic plan initiatives of cultivating character;improving student outcomes;and increasing itsvisibility and recognition locally, nationally, and internationally. Identification of perceived value may give evidence for the college to support endeavors of faculty certification.

It is anticipated that by providing an eight-week CNE®/CNE®n*Certification Preparation Course*, nursing faculty's perceived value of certification will increase, and they will be better prepared to sit for the CNE®/ CNE®n certification examination.

Theoretical Model

The project used the Needleman's Expanded Conceptual Model for Credentialing Research to justify the inquiry of certification in nursing education. The Expanded Conceptual Model includes three pathways: (1) Invisible Architecture, (2) Work Organization, and (3) Nursing Performance. This project investigated the nursing performance pathway of the framework (#3)by exploring how credentialed nurses may leverage their special capabilities to improve their performance as nurses.[11]

EBP Framework

The Context, Input, Process, and Product (CIPP) model was chosen to guide the steps of this project. It is a decision-oriented model that is based upon core values and addresses Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation and useful in planing for the future of a program by evaluating its sustainability.[12]

Methodology

In March 2022, 58 full-time and half-time faculty were surveyed regarding CNE® and CNE®cl credentialing status. Of the 58 surveyed, there were 23 responses (40%). Eight faculty reported CNE®credentialing, and one faculty reported CNE®cl credentialing.The nine current CNE® credentialed faculty were acknowledged on Certified Nurses Day, March 19th, 2022, by The Dean of the chool of Nursing via personal email with a recognition of their CNE® certification,which included an emailed Starbucks gift card.

With theobjective of increasing the number of CNE® certified faculty to 20%, the certification project was introduced during the April 2022 Nursing Faculty Meeting and again at the April 2022 Online Nursing Faculty meeting. The PI recorded the names of 14interested faculty on an Excel spreadsheet (12 CNE® and 2CNE®n).

This 2-phase projectaimed to utilize online surveys to assess nursing faculty's perceptions on the value of attaining CNE®/CNE®n specialty certification and then support interested nursing faculty in achieving certification by means of a CNE®/CNE®nprep course. This was accomplished by addressing one of the perceived extrinsic values of certification through demonstrating organizational support. Sustainability of the project outcome is five-year certification for CNE® and three-year certification for CNE®n, awarded to those faculty who choose to take and successfully pass the certification exam after the educational intervention.

Phase I:

Twenty-threenursing faculty participants completed both a demographic survey and the Perceived Value of Certification Tool-12 (PVCT-12).

Phase II

Fourteen (14) graduate nursing faculty participant volunteers were invited to participate in Phase II of the project. Interested parties completed informed consent and took part inthe *Certification Preparation Course*, aself-paced, per learner needs, which was conducted over eight weeks and commenced during the Summer 2022 term. At the close of the eight-week *Certification Preparation Course*, participants received a follow-up PVCT-12 to assess any changes in perceived value of certification and received a qualitative question that documented if they had an intention to sit for the CNE®/CNE®n certification exam on or before June 30,2023.

Design

This projectwas a quantitative, one group pre-/post-test study.

Recruitment

Potential participants were graduate full-time and half-time faculty, teaching in either the on-ground or online nursing campus programs, during Spring 2022 term. They were recruited by the PI directly through the school of nursing (SON) at which they were currently teaching. Faculty were notified with a flyer emailed to their college-issued email accounts, as well as recruited during a Zoom presentation at two end-of-term SON meetings. There were no incentives offered to Phase I participants, and faculty received no grades or course credits for participation in the Phase II educational offering. However, Phase II participants were offered an optional incentive to participate in the form of reimbursement for a successfully passed CNE® or CNE®n exam prior to June 30, 2023. Reimbursement of exam fee demonstrated to the participants the extrinsic value of organizational support for certification. No penalties would be assessed to any participants who chose to withdraw from the project at any time.

See APPENDIX D for Eligibility Criteria[13]

Setting

The project was conducted at areligious-based, private college located in XXX; however, participating faculty, employed by the college, were located throughout the United States.

Measurement

1. Demographic Survey (Appendix A)

A series of nine multiple choice questions were used to gather demographic data regarding the research participants. Areas assessed included age, gender, racial/ethnic identification, highest degree earned, years of experience in nursing education, faculty rank, faculty teaching location, current CNE®/CNE®n certification, and certification in another nursing specialty. Anticipated time to complete the survey wasfive minutes.

2. PVCT-12 (Appendix B)

The Perceived Value of Certification Tool-Revised (PVCT-12) is a 12 item self-report instrument designed by the Competency and Credentialing Institute to elicit nurses' perceptions of the intrinsic and extrinsic value of specialty nursing certification.[14] Respondents are asked to report the extent to which they agree or disagree with each statement about how specialty certification benefits nurses using a 4-point Likert scale ranging from strongly disagree

(1) to strongly agree (4). The 12-item PVCT can be divided into two subscales: intrinsic value (6 items) and extrinsic value (6 items). Intrinsic value statements focus on benefits and motivators related to obtaining a certification that are internal to the individual whereas extrinsic value statements involve benefits and motivators related to obtaining a certification that are external to the individual or defined by others. The 12-item PVCT exhibits a stable factor structure, measurement model fit (RMSEA = 0.07, CFI = 0.97), and adequate reliability (intrinsic α = .74 – .83; extrinsic α = .83 – .86) across a variety of nursing credentialing organizations, certified nurses, and non-certified nurses, evidencing its construct and concurrent validity.[5,14]

This project used a modified version of the original 18-item toolto determine the perceived value of certification among perioperative nurses. This modified PVCT-12, developed in 2003 by the Competency & Credentialing Institute (CCI), improves upon the original PVCT with 12 newly drafted items that capture a broader range of respondents' opinions, as they relate to their perceptions of certification in more than 20 nursing specialties. The PVCT-12 omits the *no opinion* option (which was included in the 18-item PVCT) from the response categories, yielding a 4-point response scale ranging from *strongly disagree* to *strongly agree*. PVCT-12 embodies a two-factor structure, with 6 items measuring the Intrinsic factor and 6 items measuring the Extrinsic factor(CCI, n.d., para. 9). Permission to use the tool was obtained from the Competency & Credentialing Institute (Appendix C).[15] See Appendix B and Table 1 for a full list of intrinsic versus extrinsic value statements used in the survey.

3. Post-survey PVCT-12

Following the educational intervention, anintention to sit for certification exam follow up survey question was administered. Data revealed any changes in value of certification following the prep course and documented intention to sit for exam over the next year.

Data Analysis

A web-based program from CCIwas used to collect demographic/PVCT-12 data. The demographic data collected was analyzed using descriptive analyses to characterize the sample.

Pre-/Post survey data: Average Likert Scale ratings were calculated and organized into a table to allow comparisons between Pre-/Post survey results. Descriptive statistics were used to compare certified and non-certified nurse educators on the individual items of the PVCT-12 during Phase I and any change in perceived value of certification following the educational intervention during Phase II. Results were further broken down into sub-groups to highlight any differences in perceived certification benefits with intrinsic versus extrinsic value.

Intention to sit for the certification exam within the following year was collected at the close of the *Certification PreparationCourse.*

Ethical Considerations

The PI secured approved IRB through the college. The IRB #20212022-88 was determined to be expedited. Informed consent was provided on the home-screen of the electronic survey sent via CCI where participants were given an overview of the research and could decide to opt out of the project. The weekly sessions were optional and voluntary during the 8-week *Certification Preparation Course*; researchers reminded participants of the ongoing informed consent at the start of each 60-minute review session.

Data Storage

Data was stored on college-issued computers, which are password protected. Further, another layer of password protected exists with the data residing in the college's OneDrive,to which only the PI and research teamhad access. De-identified participant data was electronic only. Participants were issued an identifying code to be used throughout the project so that pre- and post- survey results can be paired for purposes of data analysis.

Results

Phase I Demographics

The pre-prep course survey was sent to all SON full-time and part-time faculty as an invitation to participate in this study. Only 3 out of 23 respondents completed the demographics section of the survey. The majority make-up of these respondents was as follows: 65+ in age (67%), male (50%), white (100%),

Southern US residing (67%), Doctorate degree (100%), 8-14 years of teaching experience (67%), Associate Professor (67%), additional specialty certifications (67%).

Phase I Perceived Value of Certification Tool-12 Pre-Results

Four out of 23 pre-survey respondents fully completed the Likert-Scale rating section (perceived value statements). Overall, there were 19 partial responses, 3 completed, and one survey response disqualified (Table 1 Results). Of the 12 statements, only 6 received an average Likert-Scale rating between 3 and 4 indicating Agreement/Strong Agreement with 50% of statements. Of these, 5/6 intrinsic value statements received a score above 3.0 while only 1 extrinsic value statement score was above 3.0. This suggests that prior to completing the preparatory course, faculty perceived the benefits of becoming a CNE as having mainly intrinsic value, and little to no extrinsic value.

Phase II Demographics

Post-Survey did not include demographics questions.

Phase II Perceived Value of Certification Tool-12 Post-Survey Results

The post-prep course survey was sent to the 14 SON faculty who participated in the prep course. Results from 12 out of 14 participants were fully recorded (85.7% response rate) for the post-survey(Table 1). From pre- to post-survey, average Likert-Scale ratings increased for 10 out of 12 statements, indicating an increase in perceived value of CNE certification benefits. Of these, 6/6 extrinsic value statements show score increases, while 4/6 intrinsic value statements had increased scores. Overall, 9/12 statements received an average Likert-Scale rating between 3 and 4 indicating Agreement/Strong Agreement with extrinsic/intrinsic value with 75% of statements. These results indicate that after taking the preparatory course, faculty grew to believe that CNE certification had extrinsic value and not just intrinsic value.

Phase II outcomes:

In the Post-Preparatory Course Survey, 11/14 (78.6%) participants indicated that they intended to sit for the CNE®/CNE®n certification exam before June 30th, 2023.

Fiveout of the 14faculty received CNE certification.

At the study conclusion in June 2023, the overall percentage of CNE® certified faculty increased from 16% (9/58) in 2022 to 24% (14/59) in 2023, which was slightly more than the project's envisioned minimum outcome of 20%.

Additionally, Full-time and half-time faculty were surveyed in February 2023 to determine any increase in CNE® certification over the past year. Twenty-two of 59recipients responded (37%). The data revealed that as of February 2023, nine faculty indicated that they were CNE® certified. There was no change from the 2022 survey; one previously certified faculty left full-time employment and one faculty obtained certification because of the study's Phase II intervention.

Table 1. Average Likert-Scale (4-point scale) rating for level of agreement with statements from "Nursing Faculty's Perceived Value of Certified Nurse Educator (CNE®)/Certified Nurse Educator Novice (CNE®n) Credentialing: A Pilot Study" Pre and Post Course Survey. Statements are divided into two subscales: those with intrinsic value vs. those with extrinsic value. Average Likert-Scale rating increases from Pre to Post Survey are in bold.

INTRINSIC VALUE			EXTRINSIC VALUE		
Statement	**Average Rating Pre-Survey**	**Post-Survey**	**Statement**	**Average Rating Pre-Survey**	**Post-Survey**
Nurses that have obtained certification feel a strong sense of accomplishment.	3.25/4	3.92/4	Obtaining certification shows that a nurse is committed to the nursing profession.	3.25/4	3.5/4

Continue......

Certification validates specialized clinical knowledge.	3.25/4	3.75/4	Employers tend to favor hiring certified nurses over non-certified nurses.	2.25/4	3.17/4
Nurses that have obtained certification receive greater professional recognition from peers than non-certified nurses.	2.5/4	3.17/4	Other medical professionals are more likely to listen to a certified nurse than a non-certified one.	2.75/4	3.17/4
Certified Nurses have more confidence in their abilities than non-certified nurses.	3.0/4	3.08/4	Consumers are more confident in certified nurses than non-certified nurses.	2.75/4	3.08/4
Obtaining Certification is one of the most challenging aspects of the nursing profession.	3.25/4	3.08/4	Certified nurses generally make more money that non-certified nurses.	2.25/4	2.75/4
In my field of practice, I find that certified nurses are more competent than nurses who are not certified.	3.0/4	2.92/4	Certified nurses are given more professional autonomy than non-certified nurses.	2.5/4	2.58/4

Discussion

Interpretation of Results

Fourteen faculty members remained engaged throughout the Phase II eight-week *CNE® Preparation Course* offered via the college's learning management system during summer 2022. During the eight weeks, faculty were guided in CNE® test blueprint knowledge self-assessments and alsoadditionally participated in weekly Zoom facilitated synchronous opportunities to discuss challenging concepts. Following the eight-week course, the participants completed the post PVCT-12. Perceived value of certification scores was statistically significant four out of six intrinsic value statements and six out of six extrinsic value statement (Table 1).

Following the preparation course, faculty were sent monthly, motivational email reminders to schedule and sit for the exam by June 30, 2023,to receive exam fee reimbursement ($400.00) for a successful passing score.Fourteen participants expressed the intention of taking the exam by June 30,2023. Anecdotal comments from the five participants who passed the exam were: "It was the motivation I needed to get it done"; "Thank you for all your help","I am over the moon!"; "I successfully passed the CNE today on my first attempt!!!; and "Time to celebrate!".Comments from those participants who chose not to take the exam were "faculty workload", "completing a DNP program", and "leave time away from the classroom". Some faculty stated hesitancy to take the exam with aposted64% pass rate in 2022.[8]

Implications for Nursing Education

Institutional

Academic institutions canadvance nurse educator certification by supporting the extrinsic values of nurse education certification initially through reimbursement of the cost of certification, allocating devoted time for studying, and promoting employer recognition of certification. One outcome of the study was that the project site promoted the awareness and value of nurse educator certification and was successful in increasing the number of certified faculty.Since the conclusion of the preparatory course, additional faculty, excluded from those 14 who volunteered in Phase II, have expressed an interest in preparing to sit for the CNE®/CNE®n as well.

The assumptions from Needleman'stheory support the implications for nursing education:improves organizational culture, improves job satisfaction, empowerment, and confidence, improves recruitment and retention, employability, and job prospects, recognizes validation of knowledge in the specialty, provides professional support, and shapes future practice.[14]

The NLN also offers annual recognition to organizations that exemplify the pursuit of excellence and the advancement of certifications through the Certification Star Award.[10]This project was awarded the 2023 NLN award, in recognition of having "made a significant difference or substantial impact on nursing education, embraced nurse education through adoption and/or promotion of certification, and helped to sustain certifications and excellence in education".[10]Academic institutions are encouraged to advance nurse educatorcertification and to recognize those faculty annually on March 19th,Certified Nurses Day.

Conclusions

This study showed an increase in the perception value of the CNE®/CNE®n specialty certification credential after participants completed the self-directed preparatory course. Specific factors to note include those participants who took the exam but did not pass and competing factors such as prioritizing completing a DNP program, teaching workload balance, andleave time away from the classroom. Some faculty are reluctant to take the exam when it is posted that there was a **64% Pass Rate** on the CNE® in 2022.[7,8]This study should be repeated with a larger population size, potentially recruiting nurse educators from numerous academic institutions around the country, to allow for more generalizable results. To further increase the perceived value of CNE®/CNE®n specialty certification, it will also be vital to study the relationships between instruction delivered by certified nurse educators and improved student learning outcomes. As NCLEX first-time past rates have been deemed indicative of student success, future research could compare these pass rates at various institutions to determine if pass rates changes significantly when there is a higher percentage of CNE®/CNE®n faculty.

Limitations

The current study had several limitations. First, the faculty response rate was low. The survey was aimed at graduate academic nurse faculty and therefore undergraduate academic nurse educators were excluded from invitation. The invitation was announced via the SON meeting with a flyer sent via email. Some of the SONfaculty work on the ground campus in classroom, or in clinical settings remote to the ground campus or online campus access. Not all faculty attended the online nursing faculty meeting where the study was announced. The response rate may have been improved with the undergraduate faculty participation and additional distribution aspects and follow-up calls for participation to alert faculty to the email flyer.Additionally, the SON employs many adjunct faculty. Inclusion of these faculty could have increased the response rates and volunteer participationrate for Phase II. Lastly, the SON offers a Doctorate level degree with a specialization in Nursing Education. Including a preparatory course within the degree course offerings might alsoincrease the number ofcertified nurse educator graduates who will be entering the workforce; a new nurse educator elective course was developed and offered to students as an outcome of this project.

Funding Statement: Regis College awarded the PI a college-funded grant in the amount of $5200.00 that would permit the reimbursement of a successfully passed CNE® or CNE®n exam prior to June 30, 2023.

Footnotes*:* The authors have declared no conflict of interest.

References

1. Lindell, D. F., Hagler, D., & Poindexter, K. (2020). A national, qualitative study of the motivators and outcomes of nurse educator certification. Nursing Education Perspective, 41(6). doi: 10.1097/01. NEP.0000000000000687
2. Barbé T. (2015). Preliminary psychometric analysis of the Modified Perceived Value of Certification Tool for the Nurse Educator. Nurs Educ Perspect. 2015 Jul-Aug;36(4):244-8. doi: 10.5480/14-1429. PMID: 26328293
3. Barbé T., & Kimble L. P. (2018). A factor analysis of the perceived value of certification tool for nurse educators: Evidence for construct validity. Nurs Educ

Perspect. 2018 May/Jun;39(3): E2-E6. doi: 10.1097/01.NEP.0000000000000300

4. Niebuhr, B., & Biel, M. (2007). The value of specialty nursing certification. Nurs Outlook. Jul-Aug;55(4):176-81. doi:10.1016/j.outlook.2007.02.002
5. Van Wicklin, S. A., Maio, S., Homme, C., &Stobinski, J. X. (2022). Reintroducing the PVCT: A revised measure of the perceived value of certification among registered nurses, Perioperative Care and Operating Room Management, Volume 26, 2022, 100246, https://doi.org/10.1016/j.pcorm.2022.100246
6. National League for Nursing. (2022a). Certified Nurse Educator Novice (CNE®n) 2022 Candidate Handbook. https://www.nln.org/docs/default-source/default-document-library/cnen-handbook-2022_pilot.pdf?sfvrsn=d3c986db_3
7. National League for Nursing. (n.d.a). NLN core competencies for academic nurse educators.https://www.nln.org/education/nursing-education-competencies/core-competencies-for-academic-nurse-educators
8. National League for Nursing. (n.d.b.). Certification for nurse educators.https://www.nln.org/awards-recognition/certification-for-nurse-educators-overview
9. Biel, M., Grief, L., Patry, L. Ponto, J. & Shirley, M. (2014). The relationship between nursing certification and patient outcomes: A review of the literature. American Board of Nursing Specialties. https://www.nursingcertification.org/resources/Documents/research/certification-outcomes.pdf
10. National League for Nursing. (November, 2022). Certification sentinel.https://www.nln.org/certification/Certification-for-Nurse-Educators/certification-sentinel
11. Needleman, J., R. S. Dittus, P. Pitman, J. Spetz, and R. Newhouse. 2014. Nurse Credentialing Research Frameworks and Perspectives for Assessing a Research Agenda. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/201408d
12. Stufflebeam, D. L. (2003). The CIPP model for evaluation. In: Kellaghan T., Stufflebeam D.L. (eds) International Handbook of Educational Evaluation. Kluwer International Handbooks of Education, vol 9. Springer, Dordrecht. https://doi.org/10.1007/978-94-010-0309-4_4
13. National League for Nursing. (2022b). Certified Nurse Educator Novice (CNE®) 2022 Candidate Handbook. https://www.nln.org/docs/default-source/default-document-library/cne-handbook-2022.pdf?sfvrsn=4a11c534_3
14. Leveling, M. (2019). U.S. Trademark Application/Registration No. 5742507
15. Competency & Credentialing Institute (CCI). (n.d.). Perceived value of certification tool. https://cc-researchfoundation.org/about/pvct/

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Importance of Professional Values in Nursing Practice: Nurses Perspective

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Abstract

Topic: Descriptive cross-sectional study on the Importance of professional values in Nursing Practice: Nurses Perspective

Objectives of the study: To investigate the importance of professional values in nursing practice from nurses' perspectives

Background: Professional values are vital components in nursing practice and nursing professionals need to be aware of these values as code of ethics to provide high-quality patient care. Nurses, as the largest health care group, have well-known and important professional values. The use of these values in nursing practice increased the quality of patients care, nurses' occupational satisfaction, their retention in nursing and commitment to the organization.

Methods: The present descriptive cross-sectional study was conducted from June to September 2023.The study was conducted among the nursing officers working in All India Institute of Medical Sciences, New Delhi.

Result: Results showed that the mean total attitude score was 121.35±11.80 which denotes high importance of professional values among nurses. Protect health and safety of the patient was given the highest importance and participate in peer review was given the least importance.

Conclusion: The nurse educators and administrator needs to develop continuous educational programs to improve nurses' awareness and understanding of the importance of professional values and improve the quality of care.

Key words: Professional values, Nurses, Nursing practice

Introduction

Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles. (ICN, 2002)[1].

Clinical nursing is considered as the heart of a nurse's professional and the nurse must be competence enough to care for all types of patient[2]. However, Nursing is not only caring for the sick, injured or old age people but with the expanding role

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of nurses in today's society it also involves a lot more than this. The professional responsibilities of a nurse include autonomy and accountability, caregiver, advocate, educator, communicator and also manager.

Nursing is deeply rooted with professional values and ethics and it is one of the most trusted professions. The principles in nursing includes preserving and promoting of human dignity, integrity, altruism, and providing justice that serve as a framework for standards, professional practice, and evaluation. Professional values are also mentioned in code of ethics and every newly registered nurse must follow and adhere to the code of ethics and code of professional conduct[3].According to the International Council of Nurses, caring, activism, professionalism, trust, and justice are also included in the core nursing professional values[4].

According to Houle 1980, Nursing is a profession which has the characteristics which includes Capacity to solve problems, Continued seeking of self-enhancement by its members, Formal training, Legal reinforcement of professional standards, Ethical practice, Role distinctions that differentiate professional work from that of other vocations and permit autonomous practice and Service to society[5]. To sum it up, Nurses is conscientious in actions, knowledgeable in the subject, and responsible to self and others.

Weis and Schank defined professional values as standards for action that are accepted by professional groups and individuals and are used to evaluate the integrity of the individual or organization. Professional values are rooted in personal values, which are influenced by family, culture, environment, religion, and ethnicity therefore professional values are necessary to reinforce individuals' the professional identity and performance[6].

Professional values are important guidelines that is used to enhance and motivate the professional nurses[7] and also to evaluate the behavior and integrity of the Nurses[8].

Material and Methods

Setting:

The present descriptive cross-sectional study was conducted from June to September 2023. The study was conducted among the nursing officers working in All India Institute of Medical Sciences, New Delhi.

Sample/participants

The target population included all nurses employed at various departments of All India Institute of Medical Sciences, New Delhi. Using the sample size formula, convenient sampling technique was used to collect the information from 207 nursing officers working in All India Institute of Medical Sciences, New Delhi. Inclusion Criteria for the study are Nurses working in AIIMS, New Delhi, Nurses who are involved in direct care of the patient, Nurses who have more than 6 months of clinical experience and Nurses who are willing to participate and sign informed written consent.

Measurement tool and data collection:

Data was collected using a two-section questionnaire. The first section consist of participants' demographic characteristics including age, gender, religion, marital status, educational qualification ,designation, type of employment, working experience and participation in professional ethical training.

The NPVS-R is a psychometrically sound instrument for measuring professional nurses' values and enhancing professional socialization. The Nurses Professional Values Scale--Revised (NPVS-R) is an instrument derived from the American Nurses Association Code of Ethics for Nurses designed to measure nurses' professional values[9]. The NPVS-R includes 26 items with a Likert-scale format in five dimensions: 1) trust: 5 items, 2) justice: 3 items, 3) professionalism: 4 items, 4) activism: 5 items, and 5) caring: 9 items.

The participants specified the importance of each item on a Likert 5-point scale ranging from 1 to 5 with 1 = not important, 2 = somewhat important, 3 = important, 4 = very important, and 5 = the most important. The possible range of scores is 26 to 130. In this study, the scores below 43, scores between 43 and 86, and those above 86 were considered low importance, moderate, and high importance, respectively. A higher score indicates that professional values are very important, and that nurses are more oriented toward stronger professional values.

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The questionnaire was administered to 207 nursing officers working in different wards after explaining how to fill the questionnaire as well as defining the research objectives. They were asked to choose their own degree of agreement or disagreement of each statement or adjective from their personal experience. To achieve the same perception of the questionnaire's items and eliminate any kind of ambiguity concerning answering the questions for all the nurses, the researcher provided the participants with necessary explanations and then collected the questionnaires with maintaining confidentiality.

The Cronbach's alphas was used to measure the validity of the tool and the reliability of the tool (r=0.86) will be established through test-retest method among 20 nurses.

Statistical analysis

Data were analyzed using SPSS version 26 using descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics chisquare. Level of significance was considered $P < 0.05$.

Results of the Study

Table 1: Total score range of the Professional values in nursing practice

	Mean ±SD	Minimum	Maximum
Total attitude score	121.35 SD±11.80	75	130

Results showed that the mean total attitude score was 121.35±11.80 which denotes high importance of professional values among nurses.

Table 2: Association of demographic variables with professional values total score category using Chi square test.

Variables	N (%)	Chi square value	Df	P value
Age				
20-30	99 (47.8 %)			
31-40	82 (39.6%)	4.066	4	.397
41-50	26 (12.6%)			
Gender				
Male	51 (24.6%)	22.179	2	.000
Female	156 (75.4%)			
Religion				
Christian	57 (27.5 %)			
Hindu	138 (66.7%)	6.029	8	.644
sikh	1 (0.5%)			
Muslim	6 (2.9%)			
Others	5 (2.4%)			

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Marital				
Married	116 (56%)	3.626	2	.163
Unmarried	91 (44%)			
Educational qualification				
Diploma	50 (24.2%)			
Graduate	137 (66.2%)	2.914	6	.820
Postgraduate	18 (8.7%)			
Doctorate	2 (1%)			
Designation				
Nursing officer	177 (85.5%)	2.310	2	.315
Senior Nursing Officer	30 (14.5%)			
Type of job				
Contractual	46 (22.2%)	7.728	2	.021
Permanent	161 (77.8%)			
Working experience				
1-5 years	50 (24.2%)			
6-10 years	51 (24.6%)	7.087	8	.527
11-15 years	31 (15%)			
16-20 years	42 (20.3%)			
>20 years	33 (15.9%)			
Any training				
Yes	97 (46.9%)	4.829	2	.089
No	110 (53.1%)			

Table 3: NPVS-3 statements shows the item rank and mean scores of nursing professional values

Dimension	Items	Rank	Mean	SD
Trust	Engage in ongoing self-evaluation	15	4.22	0.660
	Engage in consultation/collaboration to provide optimal care and meet patient needs	17	4.17	0.686
	Seek additional education to update knowledge and skills to provide best care	8	4.34	0.699
	Accept responsibility and accountability for own practice	5	4.49	0.547
	maintain competency in area of practice	9	4.33	0.674
Justice	Protect health and safety of the patient	1	4.65	0.526
	Promote equitable access to nursing and healthcare	14	4.25	0.753
	Assume responsibility for meeting health needs of diverse populations	16	4.18	0.684

Continue.......

Professionalism	Participate in peer review	20	4.09	0.761
	Establish standards as a guide for practice	7	4.37	0.677
	Promote and maintain standards where planned learning activities for students take place	9	4.33	0.646
	Initiate actions to improve environments of practice	14	4.25	0.686
Activism	Participate in public policy decisions affecting distribution of resources	6	4.38	0.586
	Advance the profession through active involvement in health-related activities	8	4.34	0.609
	Recognize the role of professional nursing associations in shaping health policy	13	4.26	0.695
	Participate in nursing research and/or implement research findings appropriate to practice	14	4.25	0.720
	Participate in activities of professional nursing associations	12	4.27	0.684
Caring	Protect moral and legal rights of patients	2	4.64	0.565
	Refuse to participate in care if in ethical opposition to own professional values	19	4.13	0.829
	Act as a patient advocate	11	4.28	0.722
	Provide care without bias or prejudice to patients and populations	4	4.50	0.667
	Safeguard patient's right to privacy	2	4.64	0.548
	Confront practitioners with questionable or inappropriate practice	18	4.14	0.783
	Protect rights of participants in research	7	4.37	0.683
	Practice guided by principles of fidelity and respect for person	10	4.32	0.701
	Maintain confidentiality of patient	3	4.56	0.643

Table 2: A total of 207 nurses have completed the NPVS-3 questionnaire. Majority (57.8%) of the Nurses were between age group of 20 to 30 years, 39.6% were of 31 to 40 years and 12.6% were between 41-50 years.

The majority (75.4%) of the participants were female whereas only 24.6% were male nurse.

Majority (66.7%) of the participants belongs to Hindu, 27.5 % Christian, 2.9% Muslim, 2.4% others and only 0.5% Sikh.

More than half of the participants 56% were married and 44% were unmarried. Majority 66.2% of the participants were graduate who had Bachelor's degree in nursing and 1% had doctorate degree in nursing.

Majority (85.5%) of the Nurses who participated in the study were Nursing Officers , and most of the participants 24.6% have 6 to 10 years of experience in caring for the patient. In addition, 77.8% were permanent employees of the hospital. Majority 53.1% of the participant had participated in professional ethical training courses.

The professional value score was associated with the gender and types of employment of the nursing officers (P=>.001), whereas professional value scores was independent of age, religion, marital status, educational qualification, designation, working experience and any professional value training the nursing officers had undergone.

Table 3 in NPVS-3 statements shows the item rank and mean scores of nursing professional values. The high mean score of the professional values of the nursing students indicated high awareness and perception of the importance of professional values

from the students' perspective. The most important values as identified by higher mean scores and were given a rank accordingly. Based on the mean score, the most important values from the nurses perspective were "Protect health and safety of the patient" 4.65 ± 0.526 from justice dimension, "Protect moral and legal rights of patients" 4.64 ± 0.565, "Safeguard patient's right to privacy" 4.64±0.548, "Maintain confidentiality of patient" 4.56 ±0.643 from caring dimension whereas "Participate in peer review" 4.09 ± 0.761 from professionalism dimension gained the lowest importance as the mean score was lesser.

Discussion

The aimed of the present study was to investigate the importance of professional values from nurse's perspective. The fundamental responsibility of nurses is to provide safe care, justice and cultivate trust through our care. The present study reported the highest score in domain of justice "Protecting the health and safety of the patient" (mean score of 4.65 ±0.526 SD) .

Caring is the heart and core of nurses professional values. Findings of this study conclude that nurses have high professional values in caring domains too. Vijayalakshmi Poreddi also reported that nurses hold high professional and ethical values which were prioritized from the nurses perspective as Caring[10].

The other domains in which the nurses have high regards include "Safeguard patient's right to privacy", "Protect moral and legal rights of patients", "Maintain confidentiality of patient", "Provide care without bias or prejudice to patients and populations".

On the other hand, the item under professionalism domain "Participate in peer review" received the lowest rating. The same findings were also reported by poorchangizi[11].

Similar Study conducted in Iran[12]concluded that participating in peer review is the duties of the managers and performance evaluation is conducted by the nurse managers and the staff nurse are not involved in peer review or evaluation. The same organization pattern is also followed in AIIMS hospital. Hence the mangers also should take the opinion of the staff nurse while performing a peer review. It is also highly recommended that to promote the nursing profession, nurses should be actively involved in policymaking.

The other low rated items include "Refuse to participate in care if in ethical opposition to own professional values", "Confront practitioners with questionable or inappropriate practice", "Engage in consultation/collaboration to provide optimal care and meet patient needs", "Assume responsibility for meeting health needs of diverse populations". Similar findings were reported by Rabia S Allari that nursing issues outside nurse client relationship such as participate in peer review, refuse to participate in care if in ethical opposition to own professional values, confront practitioners with questionable or inappropriate practice were perceived as less important by the nurses. Therefore there is an urgent need to create awareness by organizing seminars and conference among the Nurses to review the importance of the less valued domain in the present study finding are also equally important in the nursing profession[13].

The nurse educators and administrators should develop continuous educational programs to improve nurses' awareness and understanding of the importance of professional values and thereby improve the quality of care. All the domains in the professional values are equally important.

In this study there was a significant relationship between the gender and score of professional values. The differences could be due to male and female nurse ratio. The recruitment of male nurse is only 20% and female is 80%. Female have more of caring and empathetic nature and attitude while males are portrayed as less emotional and more cognitive[14].

There is also a significant differences in the types of employment. Since majority of the Nurses were permanent employee of the institute, they have more responsibilities and accountability towards their patient.

Dissimilar to other study, the present study does not have any significant differences in terms of working experience, (poorchangizi et al[11].

It is also in contrast to Clarks study where the score of professional values were enhanced with the increased in nurse's experience[15].

Leduc and kotzer also demonstrated that there were no significant differences between the working experience and professional values[16]. Surprisingly, unlike many studies, the present study reported that there were also no significant differences between the score between nurses who has participated in professional ethical training on the professional value as compared to not participated nurses.

Conclusion

The professional values related to direct nursing care is given higher rank and more importance as compared to non clinical duties. The nurses should be given awareness about the importance of the non clinical care so that the overall professional values are valued and practice in daily care of the patient and thereby improve the overall quality care of the patient. There is also a need to allow the nurses to be actively involved in policymaking. The nurse educators and administrators also need to develop continuous educational programs to improve nurses' awareness and understanding of the importance of professional values and improve the quality of care.

Ethical Clearance: Ethical clearance was obtained from Institute Ethical Committee of AIIMS, New Delhi.

Conflict of interest: Nil

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References

1. Sharma Suresh k. Potter and Perry Fundamental of Nursing. 2nd south asia edition. Elsevier. p 41.
2. Chongloi N, Thomas P, Hansaram, Ara M, Deepak KK. Attitudes of undergraduate nursing students toward Objective Structure Practical Examination: An Exploratory study. Int J Nurs Sci. 2016 Dec 10;4(1):68-72. doi: 10.1016/j.ijnss.2016.12.003. PMID: 31406721; PMCID: PMC6626067.
3. Woods M. Nursing ethics education: are we really delivering the good (s)? Nurs Ethics .2005; 12: 5-18.
4. Astorino TA. A survey of professional values in graduating student nurses of traditional and accelerated baccalaureate nursing programs. Indiana University of Pennsylvania, ProQuest Dissertations Publishing 2006.
5. https://www.currentnursing.com/nursing_management/nursing_standards.html
6. Weis D, Schank MJ. Development and psychometric evaluation of the nurses professional values scale-revised. J Nurs Meas. 2009;17(3):221–31.m
7. Hariharan S, Jonnalagadda R, Walrond E, Moseley H. Knowledge, attitudes and practice of healthcare ethics and law among doctors and nurses in Barbados. 2006; BMC Med ethics 7: E7 .
8. Bang KS, Kang JH, Jun MH, Kim HS, Son HM, et al. Professional values in Korean undergraduate nursing students. Nurse Educ Today. 2011; 31: 72-75.
9. Weis D, Schank MJ. Development and psychometric evaluation of the Nurses Professional Values Scale--Revised. J Nurs Meas. 2009;17(3):221-31. doi: 10.1891/1061-3749.17.3.221. Erratum in: J Nurs Meas. 2010;18(1):70-2. PMID: 20069950.
10. Poreddi V, Narayanan A, Thankachan A, Joy B, Awungshi C, Reddy SS. Professional and ethical values in Nursing practice: An Indian Perspective. Invest Educ Enferm. 2021; Jun;39(2):e12. doi: 10.17533/udea.iee.v39n2e12. PMID: 34214289; PMCID: PMC8253520.
11. Poorchangizi, B., Borhani, F., Abbaszadeh, A. et al. The importance of professional values from nursing students' perspective. BMC Nurs. 2019; 18, 26. https://doi.org/10.1186/s12912-019-0351-1
12. Shahriari M, Mohammadi E, Abbaszadeh A, Bahrami M, Fooladi M. Perceived ethical values by Iranian nurses. Nurs Ethics. 2013;19(1):30–44. [PubMed] [Google Scholar]
13. Allari RS, Ismaile S, Househ M. Professional Values Among Female Nursing Students in Saudi Arabia. Stud Health Technol Inform. 2017; 238:231-234. PMID: 28679931.
14. (Christov-Moore L, Simpson EA, Coudé G, Grigaityte K, Iacoboni M, Ferrari PF. Empathy: gender effects in brain and behavior. Neurosci Biobehav Rev. 2014 Oct; 46 Pt 4(Pt 4):604-27. doi: 10.1016/j.neubiorev.2014.09.001. Epub 2014 Sep 16. PMID: 25236781; PMCID: PMC5110041).
15. Clark DK. Professional values: a study of education and experience in nursing students and nurses. (Phd Thesis). Nursing Capella University. 2009. http://gradworks.proquest.com/ 3372808.pdf. Accessed 20 May 2016.
16. LeDuc K, Kotzer AM. Bridging the gap: A comparison of the professional nursing values of students, new graduates, and seasoned professionals. Nurs Educ Perspect. 2009; Sep-Oct;30(5):279-84. PMID: 19824236.

Original Research Article

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Factors Related to Nurse's Response Time in Management of Upper GI Bleeding among Chronic Liver Disease Patients

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Abstract

Background: In emergency care, the most important thing to note is the speed of nurses in responding or acting on the first patient who enters the emergency room. This speed is often referred to as response time. Nurse response time is always a measure of the service quality of a hospital or health center. Response times depend on the speed available as well as the quality of assistance to save lives and prevent infirmity. **Objectives:** Patients visiting to the hospital should be treated promptly and that leads to improvement in the quality of services and patient safety. The study aimed to determine the factors related to the response time of nurses in management of upper GI bleeding among chronic liver disease patients at Institute of Liver and Biliary Sciences, New Delhi, India.

Methods: Carrying out the research is from February to March 2022. Analytical survey design with a cross-sectional approach. The research subjects were 20 nurses. measuring tools, namely questionnaires. analysis used bivariate analysis used the Chi-Square Test.

Results: This shows that there is a relationship between education and response time with a value of p-value = .008, knowledge and response time with a value of p-value = .003.

Conclusion: The level of knowledge and clinical experience determines Nurses to make prompt decision and ability to provide assessment and nursing actions. As the Nurses getting higher education levels and experience also increasing, on average they remain engaged in their work for longer time, so they are more productive and nurses have attended more training to improve their skills.

Keywords: Response time; Management of upper GI bleeding; Factors; Emergency room; Nurses.

Introduction

Upper gastrointestinal bleeding (UGIB) is potentially life-threatening abdominal emergency that remains a common cause of hospitalization and is defined as haemorrhage that involves the mouth to the duodenum proximal to the ligament of treitz(Tielleman et al., 2015)[1].

One of the factors that influence the success

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of medical treatment for emergency patients is the speed of providing adequate assistance to emergency patients. Emergency patient care plays a very important role. As the front door of the hospital, the emergency department must be able to provide fast and precise assistance for patient safety. What is meant by emergency services is a part of medical services needed by a patient immediately to save his life. The health Unit that organizes the emergency services is called by the name of the ER (Maatilu, Vitrise, et al., 2014)[2].

In emergency management, there is a philosophy, namely Time-Saving it's Live Saving. This means that all actions taken during an emergency must be truly effective and efficient. This reminds us that patients can lose their lives in a matter of minutes. Stopping breathing for 2-3 minutes in humans can result in fatal death (Purba, Dewi E., et al., 2015)[3].

In emergency care, the most important thing to pay attention to is the speed of nurses in responding or acting on patients for the first time they enter the emergency room installation room. This speed is often referred to as the response time. The response time of the nurse is always a measure of the quality of service in a hospital.

The response time of health workers concluded that 67.5% of nurses were less responsive to their duties in the emergency field and felt that their burden was heavier than officers in other workrooms/units, 80.0% of nurses were less responsive to their duties because of the facilities and supporting facilities available at the medium category because there are still facilities and equipment whose quantity and quality should not be by standards, 77.5% of nurses are not responsive to emergencies due to the lack of quality service procedure standards. Response time or timeliness given to patients who come to the ER requires standards according to their competence and abilities so that they can guarantee an emergency treatment with a fast response time and proper handling (Naser, Rima W. A. M., et al., 2014)[4].

In a previous study the response time of nurses in handling emergency patients at the IGD of Prof. Dr. RD Kandou Manado, the results showed that most nurses had a response time of > 5 minutes as many as 17 (56.7%). Statistical analysis showed no association between education (p = .0084), knowledge (p = 1.000) with response time nurses (Maatilu, Vitrise, et al., 2014)[2].

Materials and Methods

Study Design: This research method used quantitative research with an analytic survey design with a cross-sectional approach aimed at Identification of the relationship between age, gender, marital status, education, level of knowledge and working experience in emergency department with response times from nurses in management of upper GI bleeding among chronic liver disease patients.

Setting: This research was conducted at the Institute of Liver and Biliary Sciences, New Delhi, India.

Research Subject: The population in this study were all nurses in the emergency room of Institute of Liver and Biliary Sciences, New Delhi, India. The sampling technique used in this study was to use a total sampling of 20 samples.

Instruments: This research data is primary data which was directly obtained from respondents, data was collected using observation checklist to directly assess how the response time of nurses in management of upper GI bleeding among chronic liver disease patients, as well as a questionnaire given to nurses as respondents, and the questionnaire was filled in by the respondent himself after receiving an explanation from researchers. The instruments used in this research were questionnaires related to age, gender, marital status, education, level of knowledge and working experience in emergency department. Direct observations made by researchers by the help of observation checklist. This checklist consisted of items including: Primary Assessment, Resuscitation and stabilization, History collection and health assessment, Supportive Treatment, and Transfer Out (to GI bleed Ward /Endoscopy Room/ICU). The response time was measured in minutes by the researcher by using observation checklist.

Validity: In order to measure the content validity index, criteria to evaluate the tool 1, 2 were submitted toseven experts from the field of Medical Surgical Nursing and Hepatologists. The experts were requested to review and verify these items for

relevance, representativeness, comprehensiveness, clarity, ambiguity and simplicity. Comments and suggestions were incorporated and suggested modifications for the items were made to prepare the final draft of the tools. CVI index ranged between 0.85 to 0.95.

Reliability: In order to establish the reliability of Observation checklist, inter-rater reliability was calculated. Observation of nurses' response time was simultaneously done by the investigator and emergency room sister in-charge of PSRI Hospital on the nursing teams attending to three chronic liver patients visiting emergency room with upper GI bleeding. The inter-rater reliability of Observation Checklist was found to be 1.

Pilot study: The pilot study was applied on three nurses (10%) of the study sample to test the applicability of tools, arrangement of items, and to estimate the time needed for each tool and for testing the feasibility of research process.

Data Analysis: All collected data were organized, categorized, tabulated, entered, and analyzed by using computer SPSS, (Statistical Package for Social Sciences), soft-ware program version 20. In this study, researchers used the following analysis: **Univariate Analysis:** Descriptive analysis was used to determine the distribution and percentage of each variable. **Bivariate Analysis:** To see the relationships between independent and dependent variables using statistic Chi-Square, with a significance value of p-value $< .05$ means that if p-value $< .05$.

Ethical Consideration: An official permission was obtained from the Institutional Ethics Committee, Institute of Liver and Biliary Sciences before conducting the study. The clinical trial, NCT05207410, was registered with ClinicalTrials.gov, and the protocol receives the ethical approval from the Institutional Review Board Services (IRB): F15(2/2.25)/2017/HO(M)/ILBS, College of Nursing Ethics Committee, Institute of Liver and Biliary Sciences, New Delhi. Additional written consent was obtained from the nurses and they were assured that the information would be used for research purpose only (confidential).

Results

The research was conducted in the emergency room of Institute of Liver and Biliary Sciences, New Delhi, India Year 2022, these results were obtained through the distribution of questionnaires to the respondents, a nurse who works in the emergency room.

Univariate Analysis: Age, gender, marital status, education, level of knowledge working experience in emergency department, and Response Time

Based on the research results, it can be seen that the characteristics of the respondents according to the age, gender, marital status, education, level of knowledge, working experience in emergency department, and Response Time can be seen in the table 1:

Table 1. Distribution of Nurses by the age, gender, marital status, education, working experience in emergency department, and Response Time in the Emergency Room.

Characteristic of Nurses	Frequency (f)	Percentage (%)
Age in years		
<30	01	05
31-40	10	50
41-50	09	45
Total	20	100
Gender		
Male	14	70
Female	06	30
Total	20	100
Marital Status		
Single	02	10
Married	18	90
Total	20	100
Education		
Diploma in General Nursing and Midwifery	13	65
Bachelor of Science in Nursing	07	35
Total	20	100
Level of knowledge		
Good	14	70

Continue.........

Less	06	30
Total	20	100
Working Experience in Emergency Room		
3 months – 1 years	01	05
>1 years	19	95
Total	20	100
Response Time		
<5 minutes	16	80
>5 minutes	04	20
Total	20	100

Sources: Primary Data of Questionnaire, 2022.

The table 1 shows that 1 (5.0%) nurse were less than 30 years, 10 (50.0%) were in the age group of 31-40 years and the remaining 9 (45.0%) nurses were in the age group of 41-50 years. Fourteen (70.0%) nurses were males, the remaining six (30.0%) were females. Most of the nurses i.e., 18 (90.0%) were married and 2 (10.0%) were single marital status.

The table 1 shows that the education level of Emergency Room nurses are Diploma in General Nursing and Midwifery, namely as many as 13 (65.0 %), and Bachelor of Science in Nursing are 07 (35.0%).

The table 1 shows that the respondents have a good level of knowledge, namely 04 (20.0 %). And those who have less knowledge are 16 (80.0 %). In providing emergency service assistance, officers must have 3 elements of readiness, including the readiness of knowledge and skills because they are closely related to direct rescue efforts for patients (Maatilu, Vitrise, et al., 2014)[2].

The table 1 shows that the working experience in the Emergency Room is more than 1 years, namely as many as 19 people (95.0%). Meanwhile, those who were less than 3 months - 1 years old were also 1 people (05.0%).

The table 1 shows that most of the nurses in the Emergency Room have a response time of more than 5 minutes, with as many as 4 (20.0%) respondents. And those who have a response time <5 minutes are 16 (80.0%). This illustrates that the response time of nurses in the Emergency Room of Institute of Liver and Biliary Nurses is a little slow, which is more than 5 minutes. Response time (response time) of nurses in the management of emergency patients that is prolonged can reduce patient rescue efforts. Wilde, 2012 has proven the importance of response time even in patients other than those with heart disease. The response time mechanism, in addition to determining the extent of damage to internal organs, can also reduce the burden of financing[11].

Bivariate Analysis: Analysis of the relationship between nurse age, gender, marital status, education, level of knowledge, working experience in emergency department, and Response Time of nurses in management of upper GI bleeding among chronic liver disease patients in Emergency Roomcan be illustrated in the following table 2:

Table 2. The Relationship between Nurse age, gender, marital status, education, level of knowledge, working experience in emergency department, and Response Time of nurses in management of upper GI bleeding among chronic liver disease patients in Emergency Room.

Response Time					
Variables	**> 5 Minutes**		**< 5 Minutes**		**p-value**
	Frequency (f)	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**	
Age in years					
<30	01	05	00	00	.168
31-40	00	00	10	50	
41-50	03	15	06	30	
Gender					
Male	02	10	12	60	.090
Female	02	10	04	20	

Continue.........

Marital Status					
Single	00	00	02	10	.734
Married	04	20	14	70	
Education					
Diploma in General Nursing and Midwifery	04	20	09	45	.008
Bachelor of Science in Nursing	00	00	07	35	
Level of knowledge					
Good	03	15	11	55	.003
Less	05	25	01	05	
Working Experience in Emergency Room					
3 months – 1 years	00	00	01	05	.520
>1 years	04	20	15	75	

Sources: Primary Data of Questionnaire, 2022.

Based on the results of statistical tests, it showed a p-value of .008, which means that there is a significant relationship between nurse education and nurse response time in management of upper GI bleeding patients. In assessing the skills of a person, in this case, the response time of the nurse, this is the motivation of the nurse to practice the work skills obtained from their education. Many factors influence job performance, these factors include ability factors and motivation factors. Motivation is the willingness or desire within a person who encourages him to act (Jamal, et al., 2021)[5].

Meanwhile, research conducted by Wahida Wahida & Gusriani Gusriani, 2022 on factors related to the quality of nursing services states that there is a relationship between the level of nursing education and the quality of nursing services[6].

Based on the results of the chi-square analysis, it showed a p-value of .003, there is a significant relationship between the knowledge of nurses and the response time of nurses in management of upper GI bleeding patients.

The results of this study are in line with the research of Hasmoko, 2008, regarding the analysis of factors that affect the clinical performance of nurses based on the application of the hospital clinical performance management development system. It shows that knowledge affects the clinical performance of nurses[7].

Discussion

Education Relationship with Response Time

Based on the results of the study showed that the education level of Emergency Room nurses in Diploma in General Nursing and Midwifery was 13 (65.0%), and Bachelor of Science in Nursing were 07 (35.0%). This is not in line with the research of Ganida, Annissa Putri, 2017, whose statement is that the majority of nurses who serve in the IGD Deli Serdang Hospital have a D3 nursing education[8].

According to SITORUS, 2011 although Diploma III program graduates are also referred to as novice professional nurses who already have sufficient professional attitudes to master nursing knowledge and professional skills which include technical, intellectual, and interpersonal skills and are expected to be able to carry out professional nursing care based on care standards. nursing and nursing ethics[9]. However, nursing education must be developed in higher education so that it can produce graduates who have professional attitudes, knowledge, and skills to carry out their roles and functions as nurses.

The results of statistical tests showed that there is a significant relationship between nurse education and nurse response time in management of upper GI bleeding patients. In assessing a person's skills, in this case, the nurse's response time, could be influenced by other factors. This situation depends on the nurse's motivation to practice the work skills that are obtained from their education.

This is in line with the research of Maatilu, Vitrise, et al., 2014 on factors related to the response time of nurses in handling emergency patients in the ER at Prof. Dr. RD Kandau Manado, who said there was no relationship between nurse education and nurse response time in handling emergency patients[2].

The results of the researcher's findings are in line with Rondeau, 1992 theory which states that one's education has a high influence on employee performance[10]. According to Wahida Wahida & Gusriani Gusriani, 2022the level of education of an organization's employees also greatly affects the quality of an organization, the higher the employee's education, the higher the quality that will be produced[6].

The results of the researcher's findings are in line with Jamal, et al., 2021which states that there is a significant relationship between nurse education and nurse response time in handling emergency patients with a value of p-value = .013. [5]

Knowledge Relationship with Response Time

Based on the results of the study showed that the respondents had a good level of knowledge, namely as many as 14 (60.0%). The results of the chi-square analysis showed that there was a significant relationship between the knowledge of nurses and the response time of nurses in management of upper GI bleeding patients.

The results of the researcher's findings are in line with Jamal, et al., 2021which states that there is a significant relationship between knowledge of nurses and nurse response time in handling emergency patients with a value of p-value = .001[5].

The results of this study are in line with the research of Hasmoko (2008), regarding the analysis of knowledge factors that affect the clinical performance of nurses based on the application of the hospital clinical performance management development system, showing that knowledge affects the clinical performance of nurses[9].

Conclusions

The level of knowledge and clinical experience determines Nurses to make prompt decision and ability to provide assessment and nursing actions. As the Nurses getting higher education levels and experience also increasing, on average they remain engaged in their work for longer time, so they are more productive and more training can improve their clinical practice.

A lack of experience may hinder a clinician's capacity to reason, think, and make decisions that will enable them to deliver safe, high-quality treatment. Continuous learning and performance review are essential to a nurse's expert performance.

The high-performance expectation of nurses is dependent upon the nurses' continual learning, professional accountability, independent and interdependent decision making, and creative problem-solving abilities.

Owing to the topic's significance, it is imperative to encourage the creation of more research aimed at identifying the variables associated with response time. This will allow for a scientifically proven knowledge of what can be done to reduce it.

Contributions: "**Conceptualization**, Shashi Prakash.; **methodology**, Shashi Prakash.; **software**, Shashi Prakash. and Dr. Guresh; **validation**, Dr. Shasthry S M., Dr. Ankur Jindal., Dr. Abhijeet Ranjan., D. L. Suhasini Agrahari., Vijay VR., Tarika Sharma. and Sarita Ahwal.; **formal analysis,** Shashi Prakash.; **investigation,** Shashi Prakash.; **data curation,** Shashi Prakash., Madhavi Verma., Dr. Shasthry S M.; **writing—original draft preparation,** Shashi Prakash.; **writing—review and editing,** Shashi Prakash.; **supervision,** Madhavi Verma. and Dr. Shasthry S M.; **project administration,** Shashi Prakash.; **Final approval:** Shashi Prakash., Madhavi Verma. and Dr. Shasthry S M.

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Appendix 1. Observation Checklist

Observation checklist to assess the response time of nurses regarding management of upper GI bleeding

Instructions:

The purpose of this section is to assess the response time of Nurses related to management of Upper GI bleeding. The observer completes by placing a tick (√) in the appropriate space and in Time and Response Time write duration in minutes.

S. No.	Nurses' Practice	Done correct / Complete	Done incorrect / Incomplete	Not Done	N/A	Time	Response Time
I	**Receive the patient**						
II	**Primary Assessment**						
1.	Assesses for patency of Airway						
2.	Assesses Breathing: resp. rate, accessory muscle use, air entry, SpO_2						
3.	Check's pulse						
4.	Checks BP						
5.	Checks for the Temperature						
6.	Identifies emergency signs and symptoms (hypotension, bradycardia, tachycardia, dyspnoea, weak and thready pulse. Shock, altered level of consciousness) and documents						
7.	Assesses GCS						
III	**Resuscitation/Stabilisation**						
8.	Establishes two large bore IV cannula						
9.	Collect blood specimen						
10.	Arranges blood for grouping and crossmatching						
11.	Arranges fresh frozen plasma if bleeding coagulopathies						
12.	Infuses I/V fluids as prescribed						
13.	Initiates continuous cardiac monitoring						
14.	Initiate's oxygen therapy						
IV	**History collection & health assessment**						
15.	Asks for if patient has previous hospitalization and past major illness.						
16.	Vital sign monitoring 15-minutes or 2 hourly.						

17.	Gathers appropriate patient history						
	Alcohol intake						
	Complementary alternative medicine						
	Antitubercular drugs						
	Mental confusion						
	Pain abdomen						
	Gall bladder stones						
	Any known medical history like, cirrhosis, Hepatitis, CLD, peptic ulcer disease, Ascites, malena, hematochezia, bleeding coagulopathies.						
18.	Assesses and documents vomitus for: Bright red or coffee colour ground granules						
	Amount of vomitus						
19.	Assesses and documents skin for icterus/cyanosis						
20.	Assesses and documents for presence of ecchymosis/ petechiae						
21.	Assesses bowel sounds						
22.	Assesses abdominal mass						
V	**Supportive Treatment**						
23.	Ensures Nil by Mouth (NBM)						
24.	Monitors vital signs two hourly (BP, HR, RR, T, SpO2)						
25.	Monitors neurological status GCS						
26.	Assesses pain						
27.	Maintains good oral hygiene						
28.	Monitor's hourly intake output						
29.	Insert nasogastric tube for decompression						
30.	Conduct lavage if prescribed (ensure left lateral position)						
31.	Checks blood glucose level						
32.	Takes 12 lead ECG tracing						

33.	Documents nursing interventions and condition of the patient					
VI	**Transfer out**					
34.	Ward ICU Endoscopy					

Scoring

- Total possible item is 34
- Total possible score is 34

Therefore, the scoring would be

Percentage of Total score

34-Not applicable

Minimum possible score is zero.

References

1. Tielleman T, Bujanda D, Cryer B. Epidemiology and Risk Factors for Upper Gastrointestinal Bleeding. Gastrointestinal Endoscopy Clinics of North America. 2015 Jul;25(3):415–28.https://doi.org/10.1016/j.giec.2015.02.010
2. Maatilu V, Mulyadi N, Malara R. Faktor-faktor Yang BerhubunganDengan Response TIME Perawat Pada PenangananPasienGawatDarurat Di IgdRsup Prof. Dr. R. D. Kandou Manado. JurnalKeperawatan UNSRAT [Internet]. 2014 [cited 2024 Jan 27];2(2):112801. Available from: https://www.neliti.com/publications/112801/faktor-faktor- yang-berhubungan-dengan-response-time- perawat-pada-penanganan-pasi#cite
3. Purba DE, Kumaat L, Mulyadi N. Hubungan Response TIME DenganKepuasanKeluargaPasienGawatDarurat Pada Triase Merah DiIgdRsup Prof. Dr. R. D. Kandou Manado. JurnalKeperawatan UNSRAT [Internet]. 2015 [cited 2024 Jan 27];3(2):110925. Available from: https://www.neliti.com/publications/110925/hubungan-response-time-dengan-kepuasan-keluarga-pasien-gawat-darurat-pada-triase
4. Naser RWAM, Muliady M, Malara R. Hubungan Faktor-faktorEksternalDengan Response TIME Perawat Dalam PenangananPasienGawatDarurat Di IgdRsup Prof. Dr. R. D. Kandou Manado. JurnalKeperawatan UNSRAT [Internet]. 2015 [cited 2024 Jan 27];3(2):105999. Available from: https://www.neliti.com/publications/105999/hubungan-faktor-faktor-eksternal-dengan-response-time -perawat-dalam-penanganan-p
5. Jamal, Desak Nyoman Suartini, Anas Budi. FACTORS RELATED TO NURSE'S RESPONSE TIME IN HANDLING OF EMERGENCY PATIENTS. Nurse & Health. 2021 Dec 28;10(2):321–9.https://doi.org/10.36720/nhjk.v10i2.245
6. Wahida Wahida, GusrianiGusriani. FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN KANKER PAYUDARA DI RSUP DR. WAHIDIN SUDIROHUSODO MAKASSAR. JurnalIlmiahKedokteran dan Kesehatan. 2022 Sep 30;1(3):131–9.https://doi.org/10.55606/klinik.v1i3.1316
7. Hasmoko EV. ANALISIS FAKTOR-FAKTOR YANG MEMPENGARUHI KINERJA KLINIS PERAWAT BERDASARKAN PENERAPAN SISTEM PENGEMBANGAN MANAJEMEN KINERJA KLINIS (SPMKK) DI RUANG RAWAT INAP RUMAH SAKIT PANTI WILASA CITARUM SEMARANG TAHUN 2008 (Analysis of the Factors Influencing Nurseâ's Clinical Work Performance Based on Implementing the Management Development System of Clinical Work Performance at Inpatient Room of Panti WilasaCitarum Hospital, Semarang) [Internet]. eprints.undip.ac.id. 2008 [cited 2024 Jan 27]. Available from: http://eprints.undip.ac.id/17376/
8. Ganida, Annissa Putri. (2017). Gambaran Pendidikan, Pelatihan Dan Lama KerjaTerhadapPengetahuanPerawat di IGD RSUD Deli Serdang Tahun 2017. Usu.ac.id. http://repositori.usu.ac.id/handle/123456789/2731
9. SITORUS R. Manajemenkeperawatan :manajemenkeperawatan di ruangrawat [Internet]. onesearch.id. 2011. Available from: https://onesearch.id/Record/IOS3318.INLIS000000000000921/Details
10. Rondeau A. James L. Gibson, John M. Ivancevich and James H. Donnelly Jr., Organizations: Behavior, Structure, Processes. Relations industrielles. 1992;47(1):166.https://doi.org/10.7202/050754ar.
11. Wilde ET. DO EMERGENCY MEDICAL SYSTEM RESPONSE TIMES MATTER FOR HEALTH OUTCOMES? Health Economics. 2012 Jun 14;22(7):790–806.https://doi.org/10.1002/hec.2851.

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Assess the Level of Parental Stress and Coping Strategies among Mothers Attending Postnatal Areas of Gmch, Sector-32, Chandigarh: A Cross Sectional Study

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Abstract

A Cross-sectional study to assess the level of Parental stress and coping strategies among Mothers attending Postnatal Areas of GMCH Sector-32, Chandigarh was carried out in full compliance with ethical standards provided by the Research and Ethical committee of GMCH-32, Chandigarh. The approval was taken to conduct research from the committee of the institution. The objectives of the study were to assess the level of Parental stress among Mothers attending Postnatal Areas of GMCH Sector-32, Chandigarh, to assess the coping strategies of Mothers attending Postnatal Areas of GMCH Sector-32, Chandigarh, To find out the association of Parental stress with selected socio-demographic variables. Data was collected by using parental stress scale and self-efficacy scale from 100 study subjects from Postnatal Areas (labour room, postnatal ward and immunization).The sampling technique used was convenience sampling .

The study concluded that 55% of the mothers were suffering from moderate stress, 19% were having severe stress and 26% mothers were having mild stress.16% mothers were having low level coping, 60% were having medium level coping and 24% mothers had high level of coping. Thus moderate amount of stress and medium level of coping were found to be more in Postnatal mothers. Association between parental stress and gravida of mother was found to be significant with p value =0.05 .

Keywords: Parental stress, Coping strategies and Postnatal areas

Introduction

Parenting stress is defined as a series of processes that lead to a series of unpleasant Psychological and Physical reactions in order to adapt to the requirements of the Parenting role. This process is often in the form of negative feelings and experiences about oneself. These negative emotions stem directly from the role of Parenting. However, the definition of Parenting stress involves a wider range of dynamic and complex processes, including communication with the child and his behaviors, Parental role requirements, Parenting resources, Parental responses to responsibilities and demands, the quality of parental communication with the child and other family members, and communication with other individuals and institutions outside the home. The process of stress is related to coping skills, and successful adaptation to the requirements of the Parenting role.[1]

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Hayes, S. A and watson S.L conducted a study in (2012) on the impact of parenting stress; A meta-analysis of studies comparing the experience of parenting stress in parents of children with or without Autism spectrum disorder on 13 July 2012. Comparisons between families of children with Autism Spectrum Disorder (ASD) versus families of Typically Developing (TD) children resulted in a large effect size. Findings of this meta-analysis suggest that parents of children with ASD experience more parenting stress than those children who have TD or another disability.[2]

Also, Soumya P. and Preethi B.L. (2019), conducted a study on inter-gender and intra-gender differences of parenting stress among mothers of children with special needs and normal children. Present study showed that the parents of special children had significantly higher parenting stress levels as compared to the parents of normal children and mothers of children with special need were more stressed than the mothers of normal children.[3]

In addition to that, Nithiya S, Farseena K.P and Sannet Thomas on 2021 conducted a study on stress among parents across their parenting role (gender). 60 participants equally 30 males and 30 females were selected for the studty. The study was explained to the participants through online and their willingness to participate in the study was ascertained. Parental Stress Scale of 18 items were used to collect the data from the participants . Findings of this study suggest that fathers have highier level of parental stress as compared to that of mothers.[4]

Methods

This research employed a quantitative method with a cross-sectional design. This research was conducted in Government Medical College and Hospital sector 32 Chandigarh. The sampling technique used in this study was convenience sampling .Inclusion Criteria was (1) Postnatal mothers below 6 weeks of postpartum (2) those who were willing to participate (3) able to understand English / Hindi/ Punjabi. (4) without any medical and obstetric complications. The interviews lasted between 10-25 minutes and were recorded.

Parental Stress Scale and Coping Self Efficacy Scale was used to examine the data in this study

PARENTAL STRESS SCALE

This scale consists of 18 items used to assess parental stress among mothers.

Instructions

Please provide your agreement or disagreement to each item on scale of 1 to 5. If you strongly agree to the statement use 5, agree to the statement use 4, uncertain use 3, if you do not agree to a statement use 2 and if you strongly do not agree use 1.

Items having * sign have reverse score

Scoring key

Total items=18

Minimum score= 18

Maximum score= 90

S. No.	Level of stress	Measuring range
1	Mild	0-30
2	Moderate	30-60
3	Severe	60-90

Scoring

To compute the parental stress score, items 1, 2, 5, 6, 7, 8, 17, and 18 should be reverse scored as follows: (1=5) (2=4) (3=3) (4=2) (5=1). The item scores are then summed.

Scoring the tool:

We want a low score to signify a low level of stress, and a high score to signify a high level of stress

- Overall possible scores on the scale range from 18 – 90.
- The higher the score, the higher the measured level of Parental stress.

Coping self-efficacy scale

This scale consists of 26 items used to assess coping strategies among mothers.

The coping self-efficacy scale has three sub scales which are given below

Item numbers	Subscale	No. of items
3,5,6,7,8,20	Problem-focused coping	6
10,12,15,19	Emotion-focused coping	4
4,16,17	Social-support coping	3

Instruction

When things are not going well for you, or when you are having problems, how confident or certain are you

that you can do the following:

0 = cannot do at all

5 = moderately certain can do

10 = certain can do

For each of the following items, write a number from 0 - 10, using the scale above

Scoring key

Total items = 26

Minimum score =

Maximum score = 260

S. No.	Coping level	Score range
1	Low	0-60
2	Medium	60-160
3	High	160-260

Results

The results in this study showed the level of parental stress and coping level of

Postnatal mothers as depicted in below figures

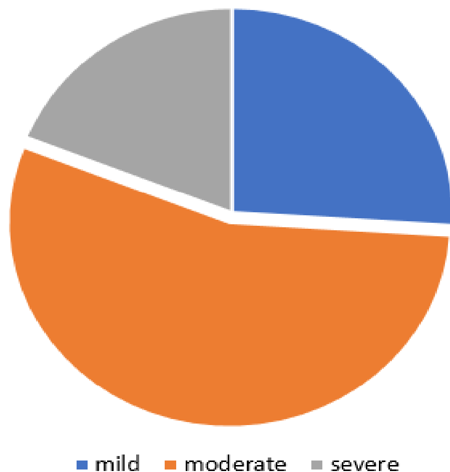

Figure 1-Level of Parental stress among Postnatal Mothers (Mild-26%, Moderate-55% and severe-19%)

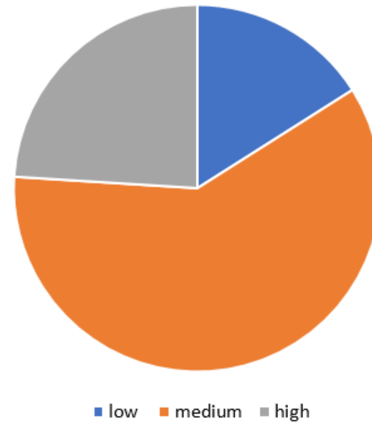

Figure 2 depicts highest coping level among mothers is at medium level(60) followed by high level(24) and low level(16).

Coping level among Mothers (low-16%, Medium-60% and high-24%)

Association between parental stress and gravida of mother was calculated. The chi-square value 23.259 corresponding to the probability of 0.05 was found significant.

No association was found between Parental stress and the selected socio-demographic variables i.e. age of the mother, employment, education and income.

Discussion

The results showed that 55% of the mothers are suffering from moderate stress, 19% are having severe stress and 26% mothers are having mild stress.16% mothers are having low level coping, 60%are having medium level coping and 24% mothers have high level of coping

Similarly D. Shanthakumari in august 2017 conducted a study to assess the level of stress and coping strategies among mothers of autistic

children at selected settings .The design adopted was Descriptive research design in a selected setting .The sample size was 100. The sample was selected by means of purposive sampling technique. The level of stress among mothers with autistic children was assessed by Parental stress scale, the level of coping was assessed by COPE inventory. The results showed that 59% of the mothers suffering from moderate stress, 41% are having severe stress.54% are having Inadequate coping skills, 46% are having moderately adequate coping skills , correlation was done between stress and coping skills where r value is -0.70.There was a negative correlation between stress and coping skills that shows there is significant relationship between stress and coping strategies.[5]

Conclusion

Moderate amount of stress and medium level of coping were found more in Postnatal mothers.

Association between parental stress and gravida of mother was calculated. The chi-square value 23.259 corresponding to the probability of 0.05 was found significant.No association was found between Parental stress and the selected socio -demographic variables i.e. age of the mother, employment, education and income.

Need of study

Parenting stress is associated with lower emotional well-being in parents. That is, parents who report more daily struggle in parenting and/or more major life events describe themselves as having less life satisfaction and more negative mood and emotional distress. There is some evidence that stress from daily difficulties relates more strongly than does stress from major life events, but stress from each of these sources contributes to lower emotional well-being. In addition to the negative impact on their own emotional well-being, parents with high stress also report a less positive outlook on parenting and less satisfaction in the parental role. Furthermore, they tend to experience less pleasure and enjoyment of their children. For some parents, high levels of parenting stress contribute to psychological disorders, such as depression and anxiety. For example, mothers with higher parenting stress from low-birth-weight or medically ill infants are at higher risk for developing postpartum depression.

Parental stress tends to spill over into child rearing. It can contribute to parents being less responsive and affectionate toward their children. This decline in the quality of parenting may lead to a variety of negative childrens outcomes, such as feelings of rejection,lowered self esteem, disruptive and aggressive behaviors social withdrawal Mothers who experience stress tend to be more agressive, frustrated and annoyed and often experience insomnia (lack of sleep) that lead to the negative impact on their health So there is a need to conduct a study on parental stress so that we can help the mothers to tackle the adverse effects of stress and help them to fully enjoy the responsibilities of parenthood

Recommendations:

1. Findings can be utilized on large scale to generalize the result for general population.
2. Similar study can be conducted for a longer duration of time for better results.
3. Multiple settings and age groups can be included.

Research Limitations

1. The study is delimited to selected settings (i.e. postnatal ward, vaccination area and labour room).
2. The study is restricted to a sample size of 100 only.

Ethical Considerations

The study was approved by the Research Ethics committee of GMCH Sector 32 Chandigarh with reference number (GMCH/CON/2023/618)

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References

1. Oriji Farideh M. Defining concept of parental stress in psychology stress in psychology. Ijashss[internet]. 2020 dec 7[cited 2021 May 4]. Available from: https://www.ijashss.com/article_130066_ba22bdebee6c86f7d2cc923ba33c999f.pdf
2. Hayes S.A and Watson S.L. A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. Research gate[internet]. 2012

july [cited 2012 sep]. Available from: https://www.researchgate.net/publication/ 229081474_The_Impact_of_Parenting_Stress_A_Meta-analysis_of_Studies_Comparing_the_Experience_of_Parenting_Stress_in_Parents_of_Children_With_and_Without_Autism_Spectrum_Disorder

3. Soumya P., Preethi B.L. Inter-gender and intra-gender differences of parenting stress among mothers of children with special needs and normal children. International Journal of Physiology, 7(4), 229–232. Ijop.net[internet]. Cited on 2019 Nov 21. Available from: https://doi.org/10.37506/ijop.v7i4.97

4. Nithya S.. Farseena K.P. & Thomas S. (2021). Parental stress among parents across their parenting role. International Journal of Indian Psychology, 9(1), 611-615. DIP:18.01.061/20210901, DOI:10.25215/0901.061. Available from: https://ijip.in/articles/parental-stress-among- parents-across-their-parenting-role/

5. D Shanthakumari. A study to assess level of stress and coping strategies among mothers autistic children. Repository-tnmgrmu[internet] DOI:10.1007/s10803-012-1604-y. Available from: http://repository-tnmgrmu.ac.in/18943/1/300515419shanthakumari.pdf

6. Emily J Hickey, Sigan L Hartley and Lauren Papp.Psychological Well-Being and Parent-Child Relationship Quality in Relation to Child Autism: An Actor-Partner Modeling Approach. Research Gate[internet]. Cited 2019 Mar. Available from:https://www.researchgate.net/publication/331592569_Psychological_Well-Being_and_Parent-Child_Relationship_ Quality_in_Relation_to_Child_Autism_An_ Actor-Partner_Modeling_Approach

7. Sharma K.S. Nursing research and statistics 2nd edition.

8. Spinelli M, Lionetti F, Pastore M and Fasolo M (2020) Parents' Stress and Children's Psychological Problems in Families Facing the COVID-19 Outbreak in Italy. Front. Psychol. 2020 Apr 28 [cited 2020 Jul 3]. Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01713/full

9. Swati Arora, Dr Neelam Pandey. Effective Coping Strategies for Stress in Parents of Autistic Children: A Training Module. Int J Indian Psychol [Internet]. 2016 Mar 25 [cited 2023 Mar 19];3(2). Available from: https://doi.org/10.25215/0302.062

10. Patil Sangeeta.Level of Stress and Coping Strategies Seen Among Parents of Neonates. Ijsr[internet]. Cited 2014 Apr 4. Available from: https://www.ijsr.net/archive/v3i4/MDIwMTMxNTEy.pdf

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Model Development of Telemedicine for Hypertension Patients in a Rural Primary Healthcare Center in Thailand: A Qualitative Study

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Abstract

Background: Hypertension services were disrupted by the COVID-19 pandemic. Telemedicine was heavily used to overcome this disruption. The aims of this study were to describe a typical hypertension service and recommendations for telemedicine development for hypertension patients in a rural, Sub-District-level, primary healthcare center.

Methods: A qualitative case study was utilized. In-depth interviews were conducted with healthcare staff at a rural primary healthcare center in April 2023. The interview process was continued until data saturation had been achieved. Data from the interviews were assessed via the triangulation method. Analytic induction was used to analyze the data.

Conclusion: The total number of participants was 10 persons (3 male and 7 female). The median age was 42 years old (min. 32, max. 58). The qualitative results revealed that participants believed that telemedicine provided adequate hypertension services. The patients' data was sent from the primary healthcare center to the secondary hospital (Provincial level) via the internet system. Communications between the patients and doctors at the provincial hospital were executed via video calls. All services were performed and completed at the primary healthcare center. The use of telemedicine by Sub-District healthcare hospitals could mitigate the limitations of traditional care, such as the lack of physicians, delays in treatment, and limited medical equipment. The engagement of stakeholders was the key factor in the success and sustainability of the program.

Keywords: Telemedicine, hypertension patients, rural, primary healthcare

Introduction

Hypertension or high blood pressure is a non-communicable disease (NCD) that has an immense global impact. Estimates suggest that globally, around 1.28 billion adults aged between 30 and 79 years have hypertension. Hypertension has received increasing research attention because it is a major cause of death worldwide.[1] In terms of attributable deaths, hypertension was the global leading metabolic risk factor for NCD-related deaths, accounting for 19% of global deaths.[2] Hypertension is one of the global targets for non-communicable diseases.[1] One study addressed the effects of lowering blood pressure onmotility.[3] To control their blood pressure,

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hypertension patients should adapt their lifestyles, check their blood pressure, receive hypertension services, and take medication regularly.[1, 4]Many countries reported that the COVID-19 pandemic disrupted hypertension services, thereby imperiling hypertension patients who need regular and long-term services.[5]

To resolve this problem, telemedicine was widely used to overcome disruptions caused by COVID-19.[5] Telemedicine is defined as "health care services delivery by any health care professionals which use information and communication technologies (ICT) to exchange information for prevention, diagnosis, treatment, education and research, focusing on the health of individuals and their communities."[6] Normally, telemedicine services use the internet to connect patients and health care professionals. These services operate through a closed-loop model known as the internet of medical things (IoMT). Patient data such as that regarding blood pressure, pulse, temperature, or oxygen saturation can be collected using medical devices and can then be sent to health care professionals using wired or wireless technologies.[7] The benefits of telemedicine include improving access to care, enhancing health outcomes, and diminishing geographical barriers.[8] Several studies have confirmed that telemedicine increases healthcare access and enhances care for NCDs patients.[7-12] However, there are some limitations related to broadband access, reimbursement methods, medical errors, patient safety, patient privacy, and licensing.[8, 13] Moreover, one study revealed barriers restricting the use of telemedicine among rural older people.[14]

Normally, telemedicine directly connects patients and doctors. Due to the barriers of telemedicine, some patients cannot use this technology. Telemedicine centers may help to resolve this. In Thailand, there are primary healthcare centers in every Sub-District called Sub-District health-promoting hospitals.[15] Patients can travel to these hospitals more easily than to provincial hospitals. The establishment of telemedicine may help patients receive continuous services. However, few studies have examined telemedicine in the context of primary health care in Thailand.[16] Therefore, the aim of this study was to describe typical hypertension services and to develop telemedicine for hypertension patients in a Sub-District primary healthcare center.

Methods

The qualitative case study was conducted between April 1st and 30th in 2023 to describe a typical hypertension service and to develop telemedicine for hypertension patients in a Sub-District health-promoting hospital. The study area was Huaisakae Sub-District in Muang District, Phetchabun Province, Thailand. The participants were healthcare staff members. The inclusion criteria required all participants to be healthcare staff who were responsible for hypertension services at Huaisakae Sub-District's health-promoting hospital. Healthcare staff who were not willing to participate in the study were excluded. Purposive sampling was applied to select the staff members who played a pivotal role in this service. The snowball technique was used after interviewing the first key person to find other participants.

In-depth interviews were conducted in private rooms with each individual person. The interview time was around 15 to 30 minutes per person. During the interviews, the conversations were recorded in audio files using an audio recorder. Consent was received before starting the recording. The interviews used the semi-structured questionnaires. The topic of discussion included the usual process of hypertension services, the stakeholders related to hypertension services, limitations related to typical hypertension services, and the new telemedicine program for hypertension services.

The interview process was continued until data saturation had been achieved. Data from the interviews were assessedvia the triangulation method. The data was saturated by interviewing all healthcare staff who were responsible for hypertension services. Analytic induction was used to analyze the data.

Results

Between April 1st and 30th of 2023, in-depth interviews were performed with all healthcare staff who were responsible for hypertension services in Huaisakae Sub-District's health promoting hospital in Muang District, Phetchabun Province, Thailand. The total number of participants was 10 persons,

including 3 males and 7 females. The median age of participants was 42 years old (min. 32, max. 58). They were 3 family doctors, 4 nurses, 2 public health officers, and 1 pharmacist.

Typical hypertension services in Huaisakae Sub-District's health-promoting hospital

Huaisakae Sub-District's health-promoting hospital was defined as a primary healthcare facility providing healthcare services to residents of Huaisakae Sub-District. The healthcare staff of this hospital include 2 nurses and 2 public health officers. Hypertension services were provided by nurses. A typical hypertension service at Huaisakae Sub-District's health-promoting hospital was illustrated in Figure 1. New hypertension cases will be sought at the Sub-District hospital. For the first visit, hypertension patients will report their medical history and will receive physical examinations. The patients' data will be recorded and sent to a family doctor. In this visit, patients will be advised to implement lifestyle modifications for hypertension and will schedule an appointment for a follow-up at a future visit. For the second visit, the patient will receive a medication prescribed by the family doctor. Normally, the duration between the first and second visits will be 1 to 2 weeks. For the third visit, patients' blood pressure will be re-assessed. The patients will be divided into controlled and uncontrolled hypertension patients. The controlled hypertension patients will continuously receive a medication and hypertension services at the Sub-District hospital. Uncontrolled hypertension patients will receive the same medication that they received at their prior visit. The data of this patient will be sent to a family doctor. There will be three choices in this case: 1. The doctor will adjust the medication and prescibe a medication at the Sub-District hospital. 2. They will refer the patient to the next level of the Sub-District health promoting hospital, which will have more medical equipment, called the "Node". 3. They will refer the patient to the provincial hospital.

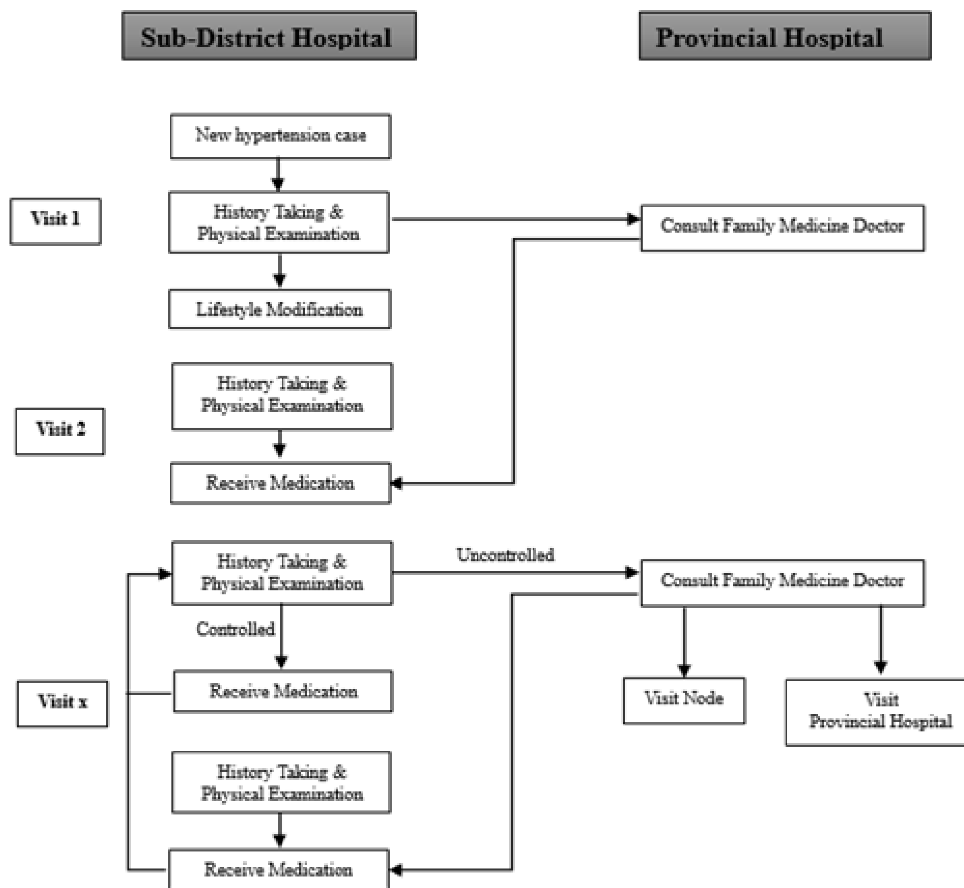

Figure 1: Typical hypertension services at Huaisakae Sub-District's health promoting hospital, Huaisakae Sub-District, Muang District, Phetchabun Province, Thailand.

The consulting system in this Sub-District hospital is an asynchronous system. Healthcare staff must record a patient's data using a form. The form is then sent to the family doctor who is responsible for the Sub-District hospital via mail or e-mail. Normally, thedoctor will respond within 1 to 2 weeks. However, emergency cases can be handled by telephone.

The laboratory system for the patients who need to be investigated, such as annual checkups for hypertension patients, is operated monthly. The patient must go to Node for specimen collection. A logistic system will transport specimens from Node to the provincial hospital. The laboratory results will be reported in the hospital information system of the provincial hospital on the same date. However, the results will be sent to the Sub-District hospital in the subsequent week.

The limitations of usual hypertension services at Huaisakae Sub-District's health-promoting hospital are threefold: 1. no full-time doctors; 2. limited medical equipment; and 3. delayed treatment.

The development of telemedicine at Huaisakae Sub-District's health-promoting hospital

Due to the limitations of typical services, telemedicine was developed, as presented in Figure 2. In case patients need to have laboratory examinations, patient must visit the Sub-District hospital for their first visit to collect specimens such as blood and urine. Normally, the collection day is the Friday of the week prior to seeing the doctor. The doctor can directly view the laboratory results in the hospital information system of the provincial hospital. At their second visit, the patient will receive a hypertension service that is the same as the usual service. The patient needs to measure their vital signs, such as blood pressure, etc. Subsequently, the patient will be asked about the history of their symptoms by the healthcare staff. The patient's data will be recorded in a form and sent to the provincial hospital using the internet system. The doctor and patient can then communicate with each other via video call. This step is the same as the patient going to see the doctor in the outpatient department of the provincial hospital. Next, the doctor will prescribe medication to patient. In the case of medications on the medication list of the Sub-District hospital, the medication will be prescribed on the same day. However, if the medication is not on the medication list, the prescription will be sent to the pharmacy department for preparation. The medication will be sent from the provincial hospital to the Sub-District hospital via the logistics system. The healthcare staff of the Sub-District hospital will check the medication before providing a prescription during visit 3.

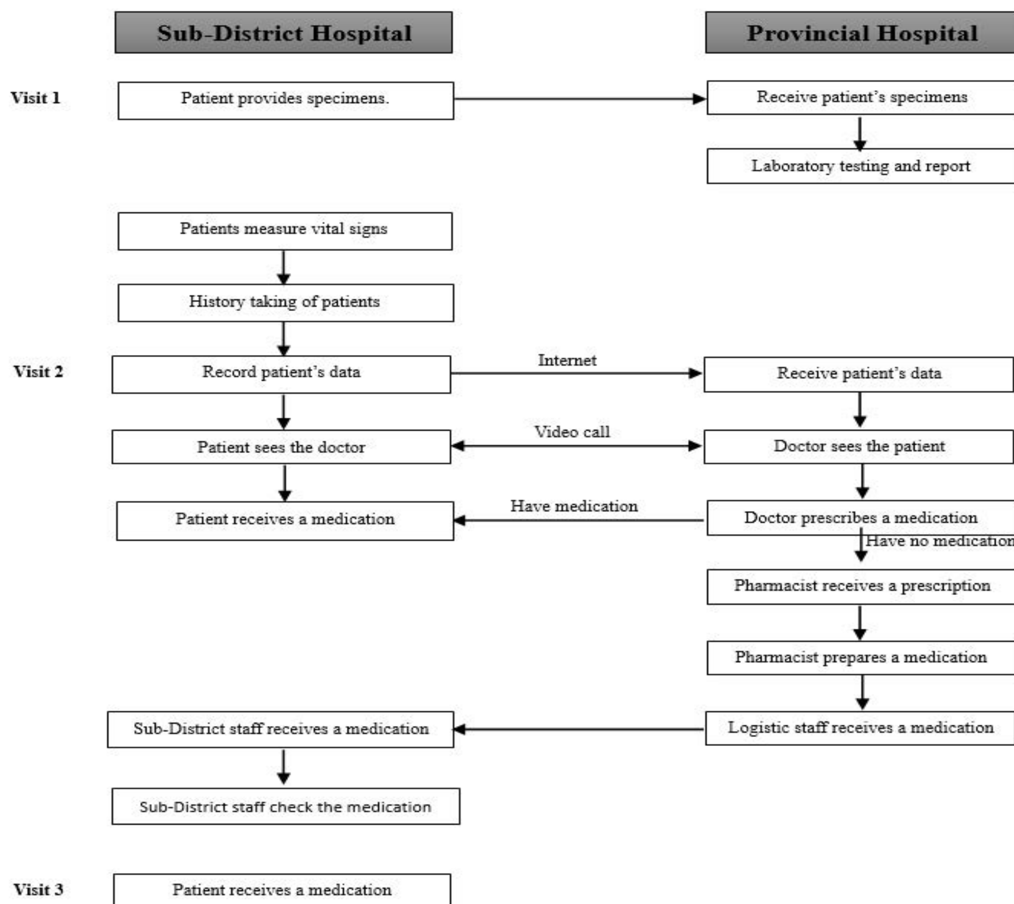

Figure 2: Telemedicine system at Huaisakae Sub-District';s health-promoting hospital, Huaisakae Sub-District, Muang District, Phetchabun Province, Thailand.

Discussion

Following 1970, the Ministry of Public Health in Thailand focused on primary health care by increasing geographic access. They established health centers in every Sub-District called “Sub-District health promoting hospitals.” Sub-District health-promoting hospitals were in rural areas of provinces. The staff of these hospitals were non-medical doctors, such as nurses and public health officers. The main function of these hospitals were health promotion and disease prevention. Moreover, they offered a basic treatment and rehabilitation for the residents in their areas.[17]Due to the shortage of medical doctors in rural areas, nurses were authorized to treat the patients in rural primary healthcare centers. The role of nurses involves diagnosis and treatment of acute and stable chronic diseases.[18]The results of this study revealed the typical practices involved in hypertension services at Sub-District health-promoting hospitals. As same in other rural areas, hypertension services in this particular Sub-District hospital were operated by nurses. However, some studies have demonstrated the effectiveness of primary healthcare nurses in improving health outcomes and saving treatment costs.[19]Some limitations were reported in this study.

In their role as nurse practitioners in primary health care in Thailand, nurses can treat stable chronic diseases, such as controlled hypertension.[18] In uncontrolled cases, nurses must consult family doctor who is responsible for the Sub-District hospital. The duration of this process is around 1 to 2 weeks after the patient visits the Sub-District hospital. Patients may receive a delay treatment. The development of telemedicine programs may reduce this problem. Moreover, one study found that telemedicine can reduce the waiting time until consultation and the waiting time to reach a doctor.[20]

Another limitation of typical care in this study was the related to medication. The medical equipment in the Sub-District hospital was less abundant than at Node and provincial hospitals. The patients who need to receive a medication that is not at the Sub-District hospital must go to the next level (Node) or to a provincial hospital. Thus, the important factor was transportation. The problem surfaced during the COVID-19 pandemic, when many countries locked down their transportation systems. According to WHO’s report, transportation lockdowns were one reason why NCD services were disrupted.[5] This problem can be solved by using telemedicine. A study about telemedicine found that telemedicine can reduce transportation and geographic barriers.[8]

According to the Department of Older Persons in Thailand, older people comprised 19% of the total population in 2021.[21] This study aimed to set up telemedicine at a Sub-District health-promoting hospital to reduce limitations affecting older people in rural areas via telemedicine.[14] Moreover, it has aimed to reduce technological barriers, such as the lack of devices and broadband internet.[8, 13]

The strength of this study was stakeholders’ engagement in developing telemedicine. The engagement of stakeholders was the key factor in aiding the success and sustainability of the program.[22] This telemedicine was developed using the local context. Therefore, it may help solve problems related to typical hypertension care. However, implementation in other areas may need to adapt to local contexts. Moreover, the effectiveness of this telemedicine was never assessed. A study about the effectiveness of this telemedicine may be necessary in the future.

Conclusion

Telemedicine in Sub-District health-promoting hospitals might help to reduce the limitations of usual care, such as the lack of physicians, delayed treatment, and limited medical equipment. The engagement of stakeholders was the key factor in ensuring the success and sustainability of the program. The effectiveness of telemedicine in Sub-District primary health care must be assessed in further studies.

Conflict of Interest: All authors disclose no conflict of interest.

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Informed Consent and Ethical Approval: This study was approved by the institutional ethical committee of Phetchabun Hospital, Thailand. The approval number was IEC-09-2566.

References

1. World Health Organization. Hypertension 2023 [updated 2023 Mar 16; cited 2023 Apr 25]. Available from: https://www.who.int/news-room/ fact-sheets/detail/hypertension.
2. GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016;388(10053):1659-724.
3. Ettehad D, Emdin CA, Kiran A, Anderson SG, Callender T, Emberson J, et al. Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis. The Lancet. 2016;387(10022):957-67.
4. World Health Organization. HYPERTENSION: ACT NOW! [cited 2023 May 4]. Available from: https://cdn.who.int/media/docs/ default-source/ documents/hypertension- infographic-005-web. pdf?sfvrsn=f0973d0c_2.
5. World Health Organization. The impact of the COVID-19 pandemic on noncommunicable disease resources and services: results of a rapid assessment [updated 2020 Sep 23; cited 2023 May 4]. Available from: https://www.who.int/ publications/i/ item/9789240010291.
6. World Health Organization. Telemedicine: Opportunities and developments in Member State: World Health Organization; [cited 2023 May 4]. Available from: https://www.afro.who.int/ publications/ telemedicine-opportunities-and-developments-member-state.
7. Omboni S, McManus RJ, Bosworth HB, Chappell LC, Green BB, Kario K, et al. Evidence and Recommendations on the Use of Telemedicine for the Management of Arterial Hypertension: An International Expert Position Paper. Hypertension. 2020;76(5):1368-83.
8. Barbosa W, Zhou K, Waddell E, Myers T, Dorsey ER. Improving Access to Care: Telemedicine Across Medical Domains. Annu Rev Public Health. 2021;42:463-81.
9. Hoffer-Hawlik M, Moran A, Zerihun L, Usseglio J, Cohn J, Gupta R. Telemedicine interventions for hypertension management in low- and middle-income countries: A scoping review. PLoS One. 2021;16(7):e0254222.
10. Hossain MM, Tasnim S, Sharma R, Sultana A, Shaik AF, Faizah F, et al. Digital interventions for people living with non-communicable diseases in India: A systematic review of intervention studies and recommendations for future research and development. Digit Health. 2019;5:2055207619896153.
11. Yatabe J, Yatabe MS, Okada R, Ichihara A. Efficacy of Telemedicine in Hypertension Care Through Home Blood Pressure Monitoring and Videoconferencing: Randomized Controlled Trial. JMIR Cardio. 2021;5(2):e27347.
12. Wang H, Yuan X, Wang J, Sun C, Wang G. Telemedicine maybe an effective solution for management of chronic disease during the COVID-19 epidemic. Prim Health Care Res Dev. 2021;22:e48.
13. Krishnan S. Telemedicine: Decreasing Barriers and Increasing Access to Healthcare 2017 [cited 2022 Nov 1]. Available from: https://www.healthcarevaluehub.org/ advocate-resources/publications/telemedicine-decreasing-barriers-and-increasing-access-healthcare.
14. Yodmai K. The barrier of using digital health in older people: a study in rural community, thailand. BMJ Evidence-Based Medicine. 2019;24(Suppl 1):A45-A.
15. World Health Organization. Regional Office for the Western P. The Kingdom of Thailand health system review. Manila: WHO Regional Office for the Western Pacific; 2015 2015.
16. Kulrattanamaneeporn S, Tuntideelert M, Kost GJ. Using Telemedicine With Point-of-Care Testing to Optimize Health Care Delivery in Thailand. Point of Care. 2006;5(4):160-3.
17. World Health Organization. PRIMASYS: Abridged case study from Thailand [updated 2017 June 11 cited 2013 May 10]. Available from: https://ahpsr.who.int/ publications/i/item/ primasys-abridged-case-study-from-thailand.

18. Hanucharurnkul S. Nurses in primary care and the nurse practitioner role in Thailand. Contemp Nurse. 2007;26(1):83-93.

19. Ruth M-M, Patricia H, Faith D, Kim R, Kelley K, Nancy C, et al. Cost-effectiveness of nurse practitioners in primary and specialised ambulatory care: systematic review. BMJ Open. 2015;5(6):e007167.

20. Pfeil JN, Rados DV, Roman R, Katz N, Nunes LN, Vigo Á, Harzheim E. A telemedicine strategy to reduce waiting lists and time to specialist care: A retrospective cohort study. Journal of Telemedicine and Telecare. 2020;29(1):10-7.

21. Department of Older Persons. Situation of the thai older persons 2021 2022 [cited 2023 May 10]. Available from: https://www.dop.go.th/ download/knowledge/ th1663828576-1747_1.pdf.

22. World Economic Forum. How stakeholder alignment on sustainability unlocks a competitive advantage 2022 [updated 2022 Fab 1; cited 2023 May 11]. Available from: https://www.weforum.org/agenda/2022/02/ how- to-strengthen-sustainability-by-engaging-with-stakeholders.

Original Article

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Using Multimodal Interaction in a Virtual Reality Thoracic Diagnostic Scenario

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Abstract

Background: Stethoscopes and mannequins are basic tools for medical practitioners to diagnose various problems. Restricted by space, resources, and time, these tools and common video training are sometimes inaccessible. These obstacles may be solved by immersive virtual reality (VR) that improves interaction and blurs the line between virtual and reality. Therefore, this study combines virtual and real interaction technologies to investigate the impact of multi-sensory interaction on learning outcomes in chest auscultation.

Methods: This study integrated VIVE Tracker technology to provide synchronized tactile stimulation in VR. University students in medical-related disciplines participated in the study. Interviews were conducted to understand how students perceived the effectiveness and usefulness of the thoracic auscultation VR.

Conclusion: Most students expressed that tactile stimulation gave realistic sensations and effectively reinforced the immersive effect. Simultaneously, it increased their interest and motivation in learning. The integration of synchronized tactile stimulation is a novel approach that expands the realm of interactivity beyond handheld controller manipulation and creates a platform to simulate medical-related scenarios to learn complex knowledge and skills.

Keywords: virtual reality, healthcare education, serious games, interactive learning, multi-sensory integration.

Introduction

This study aimed to develop a virtual reality (VR) system incorporating tactile stimulation to train medical students to detect and diagnose cardiac problems. The traditional training methods utilize 2D videos or drawings to explain the concepts and structures of stethoscopes, which are otherwise vague, invisible, and abstract to students. Moreover, stethoscope training requires many patients for practice. Cardiac sounds and mannequins are often used as substitutes; however, practice is restricted by these inconvenient and costly resources. Authentic VR could compensate for such restrictions. Previous studies showed that VR effectively contextualizes healthcare instruction and enhances students' skills.[1,2,3] Students prefer VR because it reduces external distractions such as noises and irrelevant environmental cues.[4,5]

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Furthermore, VR creates an immersive learning environment to engage students. Specifically, modern VR uses 3D scene creation tools such as Unity and Unreal Engine. These tools create lifelike visuals, including vivid lighting and textures with intricate object details. Through VR, students can immerse themselves in realistic medical scenarios, giving an engaging and focused learning experience.

In PC-based VR systems, users often hold controllers to manipulate virtual objects, such as grasping, rotating, and moving an item. This intuitive control method allows users to interact naturally with virtual objects. Moreover, devices, including cameras, infrared sensors, accelerometers, and gyroscopes, have been designed to track a user's position, gesture, and movement. These tracked actions can be synchronized with the agent so that the user experiences full-body ownership of the agent. The precise tracking increases authenticity and extends the control of users from hands to full body in VR.

Nevertheless, the potential of tracking devices in VR have not been fully realized. In fact, the majority of VR involves only auditory and visual senses. This study used trackers to stimulate a tactile sense. For example, the virtual and real stethoscopes are synchronized by attaching a tracker to a real-world stethoscope. Users can touch a real stethoscope and interact with the virtual stethoscope, providing a realistic and immersive simulation for medical students to practice auscultation skills. This approach enables previously untouchable virtual objects to become tangible. The integration of tactile sensations in virtual environments can enhance the feeling of presence and immersion in the virtual world[6,7,8,9] and thus is the focus of the current study.

The tracker technology enables students to experience both full-body movements and interactions in a virtual environment. They can move around and interact with patient models as they would in a real clinical setting. They would hear different lung and heart sounds when placing the stethoscope on various chest positions. These features provide a comprehensive and effective learning experience in medical education, as students can practice and refine their diagnostic and treatment skills in a safe and controlled environment.

A few studies have attempted to incorporate tracking devices into VR (e.g., Salagean et al.[10]; Škola et al.[11]). However, the designs might not be friendly to users. For example, Salagean et al.[10] had a complex experimental setup involving 77 markers, making the overall wearing experience considerably difficult for participants. Therefore, the current study looked for an easy-to-use and affordable solution using VIVE Trackers. The study examined if the auscultation VR training system could help students learn independently and effectively.

Materials and Methods

Development of a VR Learning System

This study conducted in September 2022 at the Nursing Department of Asia Eastern University of Science and Technology, involved 40 undergraduate students. The thoracic auscultation learning system built a virtual clinic scene using the Unity game engine, 3ds Max, and an HMD (HTC VIVE PRO STARTER KIT, 1440 x 1600 image resolution per eye, a large 110° field of view, and an ultra-smooth 90 Hz refresh rate). Eight VIVE Trackers were attached to the user's left and right hands, left and right feet, abdomen, table, chair, and stethoscope to enable them to interact with the virtual environment. Virtual settings and objects were created with a 1:1 size ratio between the virtual and physical worlds. Along with the movements of the stethoscope, the simulated sounds of a patient's heart and lungs were played through the headphones of the HMD.

Operating Procedures for the Thoracic Auscultation Learning System

- The researcher informed the subject of the learning objectives and how to use the VR learning system.
- The subject wore the VIVE Trackers on their hands (Figure 1), feet, and abdomen, as well as a HMD. Trackers were calibrated. The subject then started learning while sitting on a chair.

Fig. 1: Scenes of Real (a) and Virtual (b) Hand

- The subject entered the system to begin the interactive experience. A voice instructed the subject to raise their arms and select the operation exercise option from the menu (Figure 2).

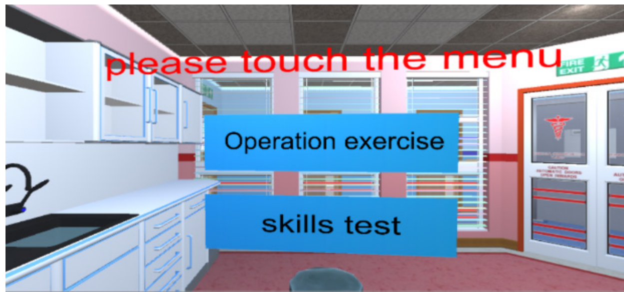

Fig. 2: System Start Menu

- During the operation exercise, the system showed dynamic arrows to prompt and guide the subject through the exercise steps.
- The subject practiced auscultation procedures on virtual patients in 20 distinct scenarios, each featuring different symptoms. Each scenario lasted approximately 3-5 minutes. When the stethoscope was brought close to the patient's chest (Fig. 3), they heard the lung or heart sound.

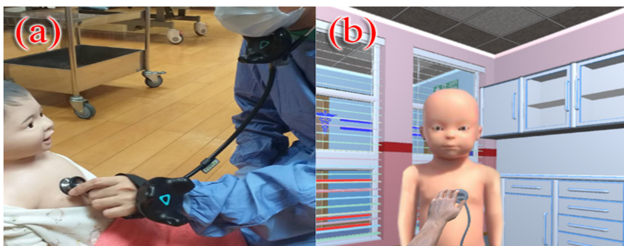

Fig. 3: Scenes of Real (a)and Virtual (b) Stethoscope

- After completing the operation exercises, the subject returned to the menu to take a skills test comprising 20 questions. The questions were in random order. This examination assessed their ability to identify various thoracic diseases based on the sounds they heard from the HMD. In order to provide the subject with a more immersive experience during the auscultation test, they would see patients of different ages (Figure 4)and genders.

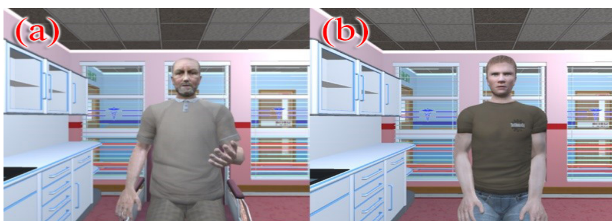

Fig.4: Scenes of Older (a) and Younger (b) Patients

- When the subject had answered all the questions, the score was displayed on the screen along with the questions the subject answered incorrectly. The subject could decide whether to review them.
- The subject had the option to repeat the skills test or exit the system.
- Trackers and HMD were removed.

Data Collection and Analysis

After all subjects completed the experiments, the focus group research method was employed to collect individual perspectives on the VR thoracic auscultation system. The subjects were divided into eight groups of five for the focus group discussions. During these discussions, we asked participants about their opinions regarding the use of VR in thoracic auscultation learning and their feedback on its benefits or drawbacks. Content analysis was applied to process the data and synthesize the key points into overarching themes.

Results

The results of the focus group discussion indicated that the students generally reported a positive impact from the system. They pointed out that the VR learning environment enhanced their learning interest, improved their learning focus, reduced learning stress, and fostered a more proactive willingness to communicate with patients. Furthermore, they provided recommendations for the design of the VR auscultation system. The following are some of the points the students raised in their group discussion.

VR Enhanced Learning Interest and Focus

Students' feedback revealed that operating a virtual human body in a VR environment provides a unique experience. They developed a sense of ownership over the virtual body, enabling them to immerse themselves in simulated clinical scenarios: "I felt as if I was in a clinic, operating the stethoscope like a nurse, and observing the patient's condition. This immersion sensation helped me focus more on learning auscultation skills" and "I fully immersed myself in the diagnostic scenario, and felt like a nurse responsible for performing the correct diagnosis for the patient, which piqued my interest in auscultation."

The ability to interact directly with the virtual world using their hands enhanced their interest in learning auscultation skills. This experience gave them a greater sense of control and involvement:”In VR, being able to use my hands directly felt very cool. I could perform various actions like a nurse, and this made the process of practicing auscultation much more fun.”

VR Could Alleviate Stress but Trigger Uneasiness

Students’ feedback revealed that the VR learning environment effectively provided a space with less social comparison and anxiety, thus helping reduce students’ stress:

I often felt nervous and worried about making mistakes when practicing in front of my classmates. However, in VR, I couldn’t see anyone else, and it boosted my confidence during practice.

I like this method of practice. I don’t have to worry about others progressing too quickly, and I can control my own learning pace.

In a low-pressure learning environment, students found it easier to absorb knowledge: “Because there were no time constraints, I could focus on diagnosing patients, so it was quite relaxed during practice.” However, VR could also trigger feelings of unease in students: “I found the patients in VR looked quite scary. Their expressions appeared very rigid and being stared at by them created a lot of stress.” The students expected to have normal eye contact with the virtual patients.

VR Cultivated Communication Willingness

The VR learning environment facilitated students’ engagement in conversations with virtual characters. Within this immersive setting, students honed their communication skills through interactions in various virtual patient scenarios, each presenting unique responses and challenges that static mannequins could not simulate. Therefore, students were willing to speak up, which enhanced their communication skills:

I felt like a nurse.The patients responded to my questions. This increased my willingness to communicate and assist patients.

VR feels real, and being asked to speak made me quite nervous. But it prompted me to reflect on my daily interactions with people.This experience made me realize the importance of communication.

Through interactions with virtual characters in a variety of test scenarios, this VR system enhanced my listening and diagnostic skills. It also alleviated my apprehension about speaking with patients.

VR Interactive Devices on Palms Were Uncomfortable

Student feedback revealed that how they wore VR devices could result in potential drawbacks, providing valuable insights into immersive learning. One student said: “Because the devices fixed on my hands made me feel uncomfortable, and using these devices during operations seemed somewhat unnatural, it distracted me from the VR environment. “However, the complaint was only about the hands. Hands are more sensitive than feet or the abdomen and so may induce a stronger unnatural feeling.

Discussion

As VR technology has advanced and has incorporated more sensory interaction features, students have become more immersed in the learning context.[12,13] This study added tactile sensations to virtual stethoscopes to enhance the immersiveness, which in turn further cultivated students’ interest in chest auscultation. Our findings show the positive impact of tactile experiences in VR on student interest and focus.

Both this study and that of Moffitt et al.[14] suggest that VR alleviates anxiety due to social comparisons. Students can practice independently without worrying about their peers’ learning speed. Specifically, VR could reduce the concerns of students who prioritize self-presentation or lack self-confidence. Gammage et al.[15] pointed out that such students often worry about receiving negative evaluations from others. In general, they learn in a more relaxed manner.

This study’s multisensory experiences included not only stethoscope content but also the body movements and facial expressions of virtual patients. For nursing students, a patient’s body language and facial expressions are crucial in non-verbal communication. Therefore, if virtual

characters display rigid facial expressions, it could lead to feelings of isolation and discomfort, thereby increasing stress, especially in situations that require intense concentration on learning.[16] Likewise, the students emphasized the gaze of virtual characters. Improving eye communication with virtual characters, particularly the dynamic changes in gaze, helped reduce uneasiness in VR.

For medical students, effective communication with patients is an essential skill. Tactile feedback from virtual objects, such as medical tools, closely mirrors real-world experiences, creating a more immersive and realistic training environment.[17,18] The virtual environment provided opportunities to practice clear, accurate, and empathetic communication.

Conclusion

This research synchronized virtual and real-world objects for students to construct tangible learning memories through accurate tactile stimulation. The integration of visual, tactile, and auditory senses enriched the contextual learning experience in the virtual environment. Tactile feedback effectively drew students' attention to the learning content. This innovative approach promotes active participation and overcomes their nervousness. VR provides opportunities to practice conversations with virtual patients, thereby improving their communication skills.

Conflict of Interest: The authors declare that they have no conflicts of interest.

Source of Funding: This research received no specific funding.

Informed Consent and Ethical Approval: This study was approved by the Research Ethics Committee of National Taiwan University, Taipei, Taiwan, with the registered number 202211EM013. As it is a regular teaching activity, we only used the developed teaching aids as a precursor test.

References

1. Hsieh MC, Lin YH. VR and AR applications in medical practice and education. The Journal of Nursing. 2017;64(6):12-18.https://10.6224/JN.000078
2. Matthews S, Wood K, Quevedo AJU, Jaimes N, Dubrowski A, Kapralos B, Alam F, Rojas D. Work-in-Progress–A preliminary eye tracking and HMD orientation comparison to determine focus on a cardiac auscultation training environment. In: Proceedings of the 7th International Conference of the Immersive Learning Research Network (ILRN); 2021; Eureka, CA, USA.https://10.23919/iLRN52045.2021.9459383
3. Yeh HF. Virtual reality skills training trends in nurse practitioner education. The Journal of Nursing. 2021;68(5):13-17. https://10.6224/JN.202110_68(5)
4. Chang YM, Lai CL. Exploring the experiences of nursing students in using immersive virtual reality to learn nursing skills. Nurse Education Today. 2021;97. https://10.1016/j.nedt.2020.104670
5. Hara CYN, Goes FDSN, Camargo CRAA, Fonseca LMM, Aredes NDA. Design and evaluation of a 3D serious game for communication learning in nursing education. Nurse Education Today. 2021;100. https://10.1016/j.nedt.2021.104846
6. Bagher MM, Bagher P, Bagher J, Bagher P, Klippel A. Move the object or move the user: The role of interaction techniques on embodied learning in VR. Frontiers in Virtual Reality. 2021;2. https://10.3389/frvir.2021.695312
7. Hannans JA, Nevins CM, Jordan K. See it, hear it, feel it: Embodying a patient experience through immersive virtual reality. Information and Learning Science. 2021;122(7-8):565-583. https://10.1108/ILS-10-2020-0233
8. Moon J, Jeong M, Oh S, Laine T, Seo J. Data collection framework for context-aware virtual reality application development in Unity: Case of avatar embodiment. Sensors. 2022;22(12).https://10.3390/s22124623
9. Pratviel Y, Bouni A, Veronique DA, Larrue F, Arsac LM. Avatar embodiment in VR: Are there individual susceptibilities to visuo-tactile or cardio-visual stimulations? Frontiers in Virtual Reality. 2022;3. https://10.3389/frvir.2022.954808
10. Salagean A, Crellin E, Parsons M, Cosker D, Fraser DS. Meeting your virtual twin: Effects of photorealism and personalization on embodiment, self-identification and perception of self-avatars in virtual reality. In: Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23); 2023. p. 1-16. https://10.1145/3544548.3581182
11. Škola F, Tinková S, Liarokapis F. Progressive training for motor imagery brain-computer interfaces using gamification and virtual reality embodiment. Frontiers in Human Neuroscience. 2019;13. https://10.3389/fnhum.2019.00329

12. Ao D, Wu W, Guo X. Immersion and intersectionality - Virtual reality in cross cultural art exhibition courses. In: Rau PLP, editor. Cross-Cultural Design. HCII 2023. Lecture Notes in Computer Science, vol. 14024. Springer; 2023. https://10.1007/978-3-031-35946-0_16

13. Bowman DA, McMahan RP. Virtual reality: How much immersion is enough? Computer. 2007;40(7):36-43. https://10.1109/MC.2007.257

14. Moffitt RL. A psychosocial investigation of exercise preferences in real and virtual environments. Psychology of Sport and Exercise. 2023; 70:102530. https://10.1016/j.psychsport.2023.102530

15. Gammage KL, Lamarche L, Drouin B. Self-presentational efficacy: Does it moderate the relationship between social physique anxiety and physical activity in university students? International Journal of Sport and Exercise Psychology. 2014;12(4):357-367. https://10.1080/1612197X.2014.932824

16. Dirin A, Laine T. The influence of virtual character design on emotional engagement in immersive virtual reality: The case of feelings of being. Electronics. 2023;12(10). https://10.3390/electronics12102321

17. Gani A, Pickering O, Ellis C, Sabri O, Pucher P. Impact of haptic feedback on surgical training outcomes: A randomised controlled trial of haptic versus non-haptic immersive virtual reality training. Annals of Medicine and Surgery. 2022;83. https://10.1016/j.amsu.2022.104734

18. Kanakamedala CA, Dankert FJ, Parola R, Egol AK, Aggarwal KV, Lajam MC. Haptic feedback during virtual reality training significantly improves first-year orthopedic resident performance at tibia drilling: A randomized trial. Current Orthopaedic Practice.2023;34(5):251-256. https://10.1097/BCO.0000000000001223

An Original Article

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Effectiveness of the Application of VR Technology in Basic Nursing Education for the Acquisition of Parenting Skills in Japan

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Abstract

Background: Through virtual reality (VR) technology, one can be guided through physical actions while viewing images that are equivalent to an actual environment. Because VR environments ensure safety and provide a repetitive learning environment, educational methods that use VR technology are being developed for nursing education.

Purpose: To create a parenting skills program that utilizes VR technology and compare participants' degree of independence in their parenting skills before and after the program.

Methods: The researcher filmed with a digital camera using a 360-degree lens, edited the filmed video into a 5-minute program, and created a VR parenting skills program. Participants' degree of parenting independence and subjective evaluation of sickness due to the use of VR were assessed before and after the VR parenting skills program.

Results: About a third of the participants had experienced caring for a newborn and had little experience bathing them. In FY2021, the VR parenting skills program was improved in FY2020, and when comparing before and after the VR parenting skills program, participants' level of independence in their parenting skills increased. Simulator sickness questionnaires scores before and after viewing VR did not differ significantly.

Conclusion: After viewing the program, participants' degree of independence in their nursing skills increased. In addition, because VR technology has little effect on the body, we believe this is an effective educational method for learning nursing skills.

Keywords: Virtual reality; Parenting Skills; Educational Methods; Nursing

Background

Virtual Reality (VR) is defined as "The use of computer technology to create an interactive three-dimensional world in which the objects have a sense of spatial presence," and "a computer-generated three-dimensional environment that gives an immersion effect" [1]. VR is a general term for technologies that work on human sensory organs to create an artificial environment that feels like reality. The three elements

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of VR are "three-dimensional spatiality," "real-time interactivity," and "self-projection," equivalent to a human in a real environment[2]. Images that are equivalent to the actual environment can be viewed through VR technology. The body's movements can then be guided while viewing these reality-like images. Rapid advances in VR technology have led to its widespread use in various fields in recent years. In medicine, it is used to teach surgical procedures and other techniques. The potential of VR as a new technique for simulation education[3] and the development of inexpensive VR[4]have been discussed, and educational methods for applying VR technology are being considered. The use of VR technology is gaining attention in nursing education. The effectiveness of VR technology in nursing education has been studied, and it has been reported that the use of VR technology is effective in improving students' knowledge[5]. Virtual gaming simulations have also become experiential learning opportunities for nursing students to learn and adapt to new knowledge[6]. However, no technology acquisition or satisfaction was observed with the use of VR technology[5], indicating that there are many challenges in using VR technology for educational purposes. There is currently a paucity of quality-published literature on the application and integration of immersive virtual reality into nursing and midwifery tertiary education[7], and high-quality research results regarding the use of VR technology for education are needed.

Programs utilizing VR technology allow participants to wear VR goggles and view images from their smartphones. This learning environment allows students to study at home without time or location constraints. This environment is a safe place to learn and allows for repetitive practice. The advantage of VR is that it can be used effectively even when learning takes place mainly at home, partly because of the influence of the coronavirus disease 2019 (COVID-19) pandemic in recent years. VR can be used with just Wi-Fi and VR goggles installed on a smartphone at a low cost. It is expected that the application of VR technology in nursing education will continue to develop along with the development of VR technology in the future, and it is important to build a foundation for this application. Publicizing the results of programs that apply VR technology will lead to an expansion of VR technology in nursing education.

Therefore, in this study, we created a childcare technology program that applied VR technology to maternal nursing education in basic nursing education in Japan and examined its usefulness.

Objective

To create a parenting technology program applying VR technology to maternal nursing education for basic nursing education in Japan and comparing participants' degree of independence in their parenting before and after they attend the parenting skills program.

Methods

This study used a quasi-experimental study design to compare parenting skills before and after viewing a parenting skills program using VR technology. The study was from June 2020 to October 2021. Third-year nursing students at University A participated in this study. In FY2020, a parenting skills program applying VR technology was developed, and its effectiveness was verified. In FY2021, the program content was modified, and its usefulness was verified. In FY2022, the program content was modified, and its usefulness was verified. Students were asked to complete lectures on maternal nursing in basic nursing education and view the program during their maternal nursing practice period (two weeks). On the first day of maternal nursing practice, the principal investigator used time outside the practice to explain the purpose of the study and that there would be no disadvantages, such as effects on academic performance, for not participating in the study. Participants were then recruited. The survey items assessed the participants' attributes. The evaluation of parenting skills consisted of five items each for the four categories: a) holding the newborn, b) bottle feeding newborns, c) clothing and diaper changing for newborns, and d) bathing the newborn. Each item was rated on a 3-point scale from "cannot do it alone," "can do it with help," to "can do it alone." The subjective evaluation of sickness caused by using VR was based on 16 items from the Simulator Sickness Questionnaire (SSQ) created by Kennedy (1993)[8-10].

Survey forms were created using Google Forms. The survey form URL or QR code was presented to the participants in writing, and they were asked to access, answer, and submit a Google Form via the survey form URL or QR code using their smartphones. The parenting skills program was filmed using a digital camera (GoPro MAX) with a 360-degree lens; each program was filmed for approximately 10 minutes. The parenting skills program was set into four programs: a) holding the newborn, b) bottle feeding newborns, c) clothing and diaper changing for newborns, and d) bathing the newborn. The researcher filmed the program's participants using a digital camera fixed to their foreheads. The filmed footage was edited to create the VR parenting skills program. The program was made available exclusively on YouTube so that it could be viewed anytime from a smartphone. The participants were given special VR goggles to attach to their smartphones. They were asked to attach their smartphones to dedicated VR goggles in their homes or other places with a Wi-Fi signal, view the images on their smartphones, and watch videos in their free time to check their parenting skills.

The collected quantitative data were statistically analyzed using SPSS Ver. 29.0. Descriptive statistics and a comparative analysis of survey items were conducted before and after viewing the VR parenting skills program.

Ethical considerations

This study was conducted with the participants' free and voluntary cooperation. Informed consent of the participants was obtained. This study was approved by the Kagawa Prefectural University of Health Sciences Ethical Review Committee (Approval No.315(July 27, 2020)).

Results

We created a parenting skills program that utilizes VR technology and examined its effectiveness. In FY2020, we created a VR parenting skills program and compared the level of independence in parenting skills before and after viewing the VR. Next, we improved the parenting skills program in FY2020 and compared the level of independence in parenting skills before and after the VR program in FY2021.

The first 22/69 and second 22/69 are eligible for 2020, and the first 66/68 and second 60/68 are eligible for 2021. About 30-40% of the participants had experience caring for newborns and little experience bathing them (Table 1).

Table 1. Experience caring for newborns

	experience caring for newborns(%)	holding the newborn(%)	bottle-feeding of newborns(%)	clothing and diaper changing for newborns(%)	bathing the newborn(%)
FY2020	31.8	27.3	18.2	4.5	4.5
FY2021	39.4	37.9	25.8	21.2	9.1

A VR parenting skills program was created for FY2020, and participants' parenting skills were compared before and after viewing the program. Participants' parenting skills were found to be significantly higher after viewing the program, particularly the parenting skills of holding a baby (p=0.035), bottle feeding a baby (p=0.001), and bathing a baby (p=0.035). The SSQ scores before and after viewing VR did not differ significantly (Table 2).

Table 2. Comparison of parenting skills independence before and after viewing the VR parenting skills program, FY2020

	before viewing the VR parenting skills program	after viewing the VR parenting skills program	p-value
holding the newborn	11	14	0.035
bottle-feeding of newborns	13	15	-
clothing and diaper changing for newborns	9	13	0.001
bathing the newborn	13.5	15	0.035
Simulator Sickness Questionnaire (SSQ)	3	4	0.763
Median test was used for comparisons before and after VR parenting skills program viewing.			

In FY2021, the parenting skills program was modified and compared before and after VR viewing, and the parenting skills of holding a baby (p = 0.001), bottle feeding a baby (p = 0.003), clothing and changing a baby's diaper (p = 0.001), and bathing a baby (p =0.001) were found to be significantly higher. The SSQ scores before and after viewing VR did not differ significantly (Table 3).

Table 3. Comparison of parenting skills independence before and after viewing the VR parenting skills program, FY2021

	before viewing the VR parenting skills program	after viewing the VR parenting skills program	p-value
holding the newborn	10	12	0.001
bottle-feeding of newborns	9	10	0.003
clothing and diaper changing for newborns	11	12	0.001
bathing the newborn	9	10	0.001
Simulator Sickness Questionnaire (SSQ)	2.5	3	0.872
Median test was used for comparisons before and after VR parenting skills program viewing.			

Discussion

We created a parenting skills program using VR technology and tested its effectiveness. Parenting skills were selected as the program in which VR technology was applied. In Japan, the number of births is decreasing owing to the low birth rate, and there are fewer opportunities for nursing care of newborns in nursing practice. Therefore, we created a parenting skills program to help students acquire parenting skills during the nursing care of newborns. In addition, due to the COVID-19 pandemic in 2020, nursing students could not conduct on-site training in Japan. Given these factors, there is an urgent need to develop parenting skills programs that apply VR technology.

In this study, 70% of the nursing students had no experience caring for newborns, and their level of independence in their parenting skills was low before viewing the VR parenting skills program. However, after viewing the VR parenting skills program, their degree of independence in their parenting skills increased significantly, and we believe that this led to their acquisition of parenting skills. The parenting skills program consisted of four parts: holding the baby, changing clothes and diapers, feeding the baby with a bottle, and bathing the baby. Each program's video was edited to be 5-10 minutes long. VR videos were made available through limited access to YouTube by placing a smartphone on the goggles for the VR, wearing the goggles, and watching the video. Students could view the videos repeatedly anytime they were in a Wi-Fi environment, and we believe that using VR technology enhanced their interest and motivation to view the videos as if they were games. As immersive virtual reality has

been reported to provide accessible and repeatable learning opportunities in a fail-safe environment [7], we believe that the use of VR technology provided repeatable learning opportunities, which led to the mastery of the technology. Virtual reality simulation has also been shown to provide nursing students with new learning strategies to acquire clinical skills, improve knowledge acquisition, increase confidence, self-efficacy, and satisfaction, and decrease anxiety levels[11]. Thus, virtual reality simulation was effective in improving skills, increasing knowledge acquisition, confidence, and self-efficacy, and decreasing anxiety levels. We believe that virtual reality simulations allow students to work individually and learn according to their abilities, thus enabling them to feel that they have mastered their skills. During on-site training, nursing students encounter people who are targets of nursing care. Anxiety, nervousness, and anticipation increased in nursing students before the on-site training. Therefore, we assume that by incorporating virtual reality simulations of nursing skills on campus before on-site training, nursing students will be able to undergo on-site training more confidently.

The physical effects of VR were evaluated using the Simulator Sickness Questionnaire (SSQ), a subjective evaluation method for simulator or VE (virtual environment) sickness. The results were evaluated before and after VR viewing, and no significant differences were found in either FY2020 or FY2021, indicating that viewing the VR parenting skills program had no physical effect on the body. Therefore, the application of VR technology is considered a safe educational method, and there is a possibility of using VR technology to teach/ learn nursing skills. Most virtual reality simulation studies[11-13] were conducted in developed countries and targeted nursing students. The advantages of virtual worlds were that they are time-cost-effective compared to mannequin-based simulations and face-to- face lectures. These two disadvantages are technical problems and a lack of realism. It was reported that the three learning outcomes (skill-based, cognitive, and affective) were most effective in improving cognitive outcomes such as theoretical knowledge[14]. Thus, virtual worlds are predicted to expand as an alternative or complementary method for teaching theoretical knowledge in nursing education. However, it is necessary to produce high-quality virtual worlds because more realistic virtual worlds enhance immersive experiences. In addition, as the need for continuous face-to-face feedback is a challenge in implementing virtual reality (literature), virtual worlds alone do not translate into practice in on-site training, and virtual reality simulations must be followed by actual simulations. We also need to be able to provide real-life simulation after the virtual reality simulation. We also conduct simulation education[15]in maternal nursing parallel to a childcare skills program using VR technology. It is challenging to continue examining educational methods in maternal nursing.

This study incorporated a parenting skills program that applied VR technology; in FY2021, all parenting skills scores increased, and the level of independence in parenting skills increased. However, because the results of this study were based on self-assessment, an objective clinical competency test should be conducted after viewing the VR to confirm the acquisition of skills, which is a future challenge.

Conclusion

We created a program applying VR technology to maternal nursing education in basic nursing education in Japan and compared the degree of independence in parenting skills before and after viewing the program. About a third of the participants had experienced caring for a newborn and had little experience bathing them. In FY2021, the VR parenting skills program was improved in FY2020, and when comparing before and after the VR parenting skills program, participants' level of independence in their parenting skills increased. Simulator sickness questionnaires scores before and after viewing VR did not differ significantly. After viewing the program, participants' degree of independence in their nursing skills increased. In addition, because VR technology has little effect on the body, we believe this is an effective educational method for learning nursing skills.

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References

1. Lopreiato J, Dayna Downing et al .*Healthcare Simulation Dictionary, Second Edition(2.1)*: Agency for Healthcare Research and Quality;2020.https://doi.org/10.23970/simulationv2
2. TachiS, Sato M, Hirose M. *Virtual Reality Studies*:Japan: Corona Publishing; 2011. *(In Japanese)*
3. Jessica W, Donovan J, Rohan W. Consideration of using virtual reality for teaching neonatal resuscitation to midwifery students.*Nurse education in practice*.2018; 31: 126-129.DOI: https://doi.org/10.1016/j.nepr.2018.05.016
4. Hauze SW, Hoyt HH, Frazee JP, Greiner PA, Marshall JM. Enhancing nursing education through affordable and realistic holographic mixed reality: the virtual standardized patient for clinical simulation. *Biomedical Visualisation*: 2019; 1: 1-13.
5. Chen FQ, Leng YF, Ge JF, Wang DW, Li C, Chen B, Sun ZL. Effectiveness of virtual reality in nursing education: Meta-analysis. *Journal of medical Internet research*:2020; 22(9): e18290.
6. Verkuyl M, Hughes M. Virtual gaming simulation in nursing education: A mixed-methods study. *Clinical Simulation in Nursing*: 2019; 29: 9-14.DOI: https://doi.org/10.1016/j.ecns.2019.02.001.
7. Fealy S, Jones D, Hutton A, Graham K, McNeill L, Sweet L, Hazelton M. The integration of immersive virtual reality in tertiary nursing and midwifery education: A scoping review. *Nurse education today* :2019; 79: 14-19. DOI: https://doi.org/10.1016/j.nedt.2019.05.002.
8. Kennedy RS, Lane NE, Berbaum KS, Lilienthal MG. Simulator sickness questionnaire: An enhanced method for quantifying simulator sickness. *The international journal of aviation psychology*:1993; 3(3): 203-220.
9. Hsin LJ, Chao YP, Chuang HH, Kuo TB, Yang CC, Huang CG et al. Mild simulator sickness can alter heart rate variability, mental workload, and learning outcomes in a 360° virtual reality application for medical education: a post hoc analysis of a randomized controlled trial. *Virtual Reality* :2023; 27(4): 3345-3361. DOI: 10.1007/s10055-022-00688-6
10. Hirayanagi K. A present state and perspective of studies onmotion sickness, *The Japanese Journal of Ergonomics*: 2006; 42(3): 200-211. (In Japanese) DOI: https://doi.org/10.5100/jje.42.200
11. Samar TJ, Burçin I. The effectiveness of virtual reality simulation as learning strategy in the acquisition of medical skills in nursing education: a systematic review.*Ir J Med Sci*: 2022; 191(3):1407-1426. DOI: https://doi.org/10.1007/s11845-021-02695-z.
12. Padilha JM, Machado PP, Ribeiro A, Ramos J, Costa P. Clinical virtual simulation in nursing education: randomized controlled trial. *Journal of medical Internet research*: 2019; 21(3): e11529.
13. Pottle J. Virtual reality and the transformation of medical education. *Future healthcare journal*: 2019; 6(3): 181.
14. Shorey S, Ng ED. The use of virtual reality simulation among nursing students and registered nurses: A systematic review. *Nurse education today*: 2021; 98: 104662. DOI: https://doi.org/10.1016/j.nedt.2020.104662.
15. Kido K, Uemura Y. The proposal of an instructional design model for maternity nursing in Japan -Simulation-based education for improving clinical judgement.*Int J of Nursing Education*: 2021; 13(4): 20-29.

Research Paper

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Nurses' Knowledge of Hypertension in Sudan Heart Center, Khartoum (2021): A Cross-Sectional Study

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Abstract

Background: Hypertension is a prevalent chronic health issue associated with significant health hazards, ranking as a major contributor to mortality in both developed and developing nations.

Aim of the Study: To study Nurses' Knowledge of Hypertension in Sudan Heart Center, Khartoum, 2021.

Method: A hospital-based study with a descriptive cross-sectional design was carried out at Sudan Heart Center between January and May 2021. It involved 40 nurses; the information was gathered through the administration of a structured questionnaire. The data was processed using the SPSS program version (23).

Results: The socio-demographic characteristics of the respondents indicated that 60.0% were between 20-25 years old, 35.0% were between 26-30 years old, 5.0% were over 30 years old, while the information indicated that 70.0% were female and 30.0% were male, out of the participants, 90.0% had obtained a bachelor's degree, while 10.0% had achieved a master's degree in terms of their educational level, 45.0% had less than one-year' experience, 10.0% had more than 5 years' experience, the total knowledge of hypertension is 45.0% of the respondents have poor knowledge, 37.0% of them have fair knowledge, and(17.0%) have good knowledge.

Conclusions: The study reflect clear outlook about nurse's knowledge regarding hypertension the overall nurses examine by questionnaire the result show good level of knowledge(17.5%), poor level of knowledge(45.0%), and fair knowledge is(37.5%).

Keyword: Patients, Knowledge, hypertension, Sudan heart center.

Introduction

Hypertension is a widely prevalent chronic condition and a significant health concern in both developed and developing nations, representing

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a prominent cause of mortality[1]. The presence of hypertension can elevate the risk of developing these cardiovascular conditions by two to three times, in conjunction with factors like obesity, sedentary lifestyles, and individual risk factors[2, 3].

Hypertension is a significant global health issue due to its high prevalence, severe complications, and inadequate control. It affects more than one billion individuals worldwide, with approximately seven million annual deaths directly attributed to the disease [4].In the lower-income countries of Europe and Central Asia, hypertension has been responsible for over one-third of all fatalities. [6].

Approximately 31% of adults residing in the United States are affected by hypertension. Among them, African-Americans have the highest prevalence rate, reaching 37% [7].

Hypertension is a global health crisis that affects an astonishing one billion individuals and is the primary factor contributing to worldwide deaths. As per the World Health Statistics report of 2012, approximately 29.2% of males and 24.8% of females are estimated to be affected by hypertension[8, 9].

Nurses who are actively engaged in the care of hypertension patients play a vital role in mitigating the risk factors linked to cardiovascular disease. Nurses have the duty to provide patients with information and guidance regarding changes they can make in their lifestyle [10, 11].

Nurses regularly monitor patients' blood pressure levels, both in clinical settings and during home visits. Nurses administer antihypertensive medications as prescribed by physicians[12, 13]. Nurses provide guidance on adopting a healthy lifestyle to manage hypertension. They conduct health screenings, perform risk assessments, and promote early detection and intervention [14, 15].

Research significance: Nurses play a crucial role in managing and educating patients about hypertension. By studying a nurse's knowledge about hypertension, you can assess their ability to provide appropriate care, including accurate assessment, monitoring, medication administration, and lifestyle modifications.

Research question

What is the level of knowledge among nurses regarding the definition, classification, risk factors associated with hypertension and pathophysiology, complications of hypertension?

Methodology

Study Design, Sitting and Sampling

A hospital-based study with a descriptive cross sectional design was carried out at Sudan Heart Center. It has done during the period, which extended from JANUARY to May 2021. A convenience sampling approach was used to determine the final sample size of 40 nurses based on specific inclusion and exclusion criteria.

Data Tool and Method

After conducting a comprehensive literature review, a team of research has formulated a standardized closed-ended questionnaire. The questionnaire consists of several sections, including Section (A) (1-5), which focuses on personal information such as gender, age, education level, experiences, and marital status. Section (B) (1-20): regarding, it hypertension include (definition, risk factor, prevention, sign and symptom, cause, complication and DASH Diet[16].

Data Processing and Statistical Analysis

Statistical Package for the Social Sciences (SPSS 24.0), was utilized for data analysis. Descriptive statistics were employed, including frequencies and percentages for categorical variables, as well as means and standard deviations for numerical variables. An analysis of variance (ANOVA) test was conducted to explore the association between knowledge and demographic characteristics, with a significance level of 0.05 (P-value) indicating statistical significance.

Ethics approval and consent to participate. (15/11/2020) - (G-245)

The research study obtained approval from the scientific committee board, and the general hospital manager granted necessary permissions and head nurse to carry out the investigation. The participants were provided with a clear explanation of the study's objectives, emphasizing that their information would be used solely for research purposes.

Results

Demographic data of the patients.

Table(1) noted that more than half (60%) of nurses were in the age group between 20 and 25 years old, and 70% of them are female. (90%) of nurses have bachelor in nursing. Regarding working experiences, the percentage of nurses with less than one year of experience is equal to those with experience ranging between 1-5 years by (45%), and finally, (70%) of nurses are single.

Nurse's knowledge about hypertension.

Figure(1) noted that the majority (45%) of nurses had poor knowledge, followed by (38%) who had fair knowledge, while (17%) had good knowledge about hypertension.

Association between the Education level of nurses and the total knowledge score about hypertension.

Table(2) shows that the results indicate that there is no significant statistical relationship between the overall knowledge score and the educational level of the nurses (p-value > 0.05).

Table(3) shows that is no a statistically significant association between total knowledge score and experiences of the nurses (p-value > 0.05).

Table 1: Distribution of patients according to demographic data

Demographic Data		F	%
Age group	20-25 years	24	60
	26-30 years	14	35
	More than 30 years	2	5
Sex	Male	12	30
	Female	28	70
Marital status	Single	28	70
	Married	12	30
Educational level	B.Sc. nursing	36	90
	M.Sc. nursing	4	10
	Ph.D. nursing	0	0
Working experiences	Less than 1 year	18	45
	1-5 years	18	45
	More than 5 years	4	10

Figure 1: Distribution of nurse's knowledge about hypertension.

Table 2: Association between Education level and total knowledge score about hypertension.

P.value=0.079		Overall knowledge			Total
		Good knowledge	Fair knowledge	Poor knowledge	
Education level	Bachelor B.Sc.	5	15	16	36
		12.5%	37.5%	40.0%	90.0%
	Master M.C.s	2	0	2	4
		5.0%	0.0%	5.0%	10.0%
Total		7	15	18	40
		17.5%	37.5%	45.0%	100.0%

Table 3: Association between experiences and total knowledge score about hypertension.

P_value=0.204		Overall knowledge			Total
		Good knowledge	Fair knowledge	Poor knowledge	
Experiences	Less than 1 year	1	9	8	18
		2.5%	22.5%	20.0%	45.0%
	1-5 years	4	5	9	18
		10.0%	12.5%	22.5%	45.0%
	More than 5 years	2	1	1	4
		5.0%	2.5%	2.5%	10.0%
Total		7	15	18	40
		17.5%	37.5%	45.0%	100.0%

Discussion

Hypertension is a global health concern affecting people of all ages and backgrounds. As of my knowledge cutoff in September 2021, hypertension is a prevalent condition worldwide[17].

Demographic Data of patients

In present study, a majority of nurses, specifically (60%), were in the age group between 20 and 25 years old, and 70% of them are female. (90%) of nurses have bachelor in nursing. Regarding working experiences, the percentage of nurses with less than one year of experience is equal to those with experience ranging between 1-5 years by (45%), and finally, (70%) of nurses are single.

This result agreement with study in Sri Ganga Nagar, India[22] who reported that the most of the staff nurses 48% were in the age group of 21 to 30 years, Maximum of the staff nurses 78% were females, highest number of 43% of staff nurses had less than 5 years of experience. However, it differed from the results of this study only when it stated that highest number 48% of staff nurses were married. In the study conducted in Dhaka Bangladesh[18], this study had resemblances to prior research, as it found that approximately 61.8% of the participants were aged 33 years and younger. A majority of the participants (61.7%) were female. The marital status of the nurses varied, with a significant portion (69.6%) of the participants reported as married, according to the study.

Nurses Knowledge about hypertension.

Hypertension, often referred to as the "silent killer" disease, remains asymptomatic until its damaging effects become evident [19].

The current study noted the distribution of nurse's knowledge regarding hypertension. The majority (45%) of nurses had poor knowledge, followed by (38%) who had fair knowledge, while (17%) had good knowledge about hypertension. These results are similar to the results of a study conducted in Yozg at province center Turkish[17], which indicated that the

percentages of participants with low, moderate, and high levels of knowledge about hypertension were 31.3%, 62.1%, and 6.6%, respectively. Referring to the study conducted in Dhaka Bangladesh[20], the findings of this study differed from the results presented here. Within this study, a notable majority of participants (92.2%) exhibited knowledge regarding normal BP measurements, and (81.7%) were informed about BP levels indicating prehypertension. Furthermore, 92.2% of participants possessed knowledge about the causes of hypertension, and 67.0% were aware of the risk factors associated with hypertension. In terms of specific management approaches, a notable portion of the participants (62.6%) acknowledged the importance of maintaining bed rest and elevating the head of the bed. Similarly, 60% of the respondents recognized the significance of monitoring and documenting blood pressure while the patient is at rest. Additionally, 62.6% of the participants demonstrated the ability to identify sudden hypotension, and 60% exhibited knowledge about monitoring electrolytes, BUN, and creatinine levels. When it came to assessing the patient's condition, a notable percentage (73%) of the respondents demonstrated awareness of the importance of observing blood circulation of the skin (moisture, color, temperature, and capillary refill time), while only 29.6% were knowledgeable about monitoring the patient's response to medications aimed at controlling blood pressure. Concerning the broad objectives of hypertension management, around 82.6% of the respondents acknowledged its purpose in preventing illness and death. However, only 39.1% possessed knowledge about the recommended dietary guidelines for individuals with hypertension. Moreover, 66.1% were aware of the importance of moderate salt restriction for hypertensive patients, while 87% recognized the significance of weight loss in managing hypotensive patients.

On the other hand, the study conducted in India[19] who showed a noticeable difference from the results of this study mentioned among the staff nurses surveyed, a substantial majority of 47% exhibited a high level of knowledge when it came to managing and preventing complications associated with hypertension. Furthermore, 24% possessed an average level of knowledge, 19% demonstrated good knowledge, and 10% had limited knowledge in this particular domain.

In the present study, the distribution of knowledge among nurses regarding hypertension was observed, and the relationship between nurses' education level and their overall knowledge was examined. However, no statistically significant association was found between the total knowledge score and the education level of the nurses (p-value > 0.05). The results highlighted by this study were similar to the study conducted in Yozgat province center Turkish[17]; the study findings revealed a positive association between knowledge level and the proportion of individuals with controlled blood pressure. However, this relationship was not statistically significant ($p > 0.05$). However, at the same time, it was similar to the study that was conducted in Mulago Hospital's medical outpatient clinic Republic of Uganda[21], and the results of that study were similar to another study, as a notable disparity was observed in the proportion of nurses who attained satisfactory scores on the knowledge pre-post interventions test following the implementation of educational interventions. Prior to the interventions, the average test scores were 62.8%, while after the interventions, they increased to 82.9%. A paired sample t-test demonstrated a significant 32% increase in knowledge ($P > 0.009$).

Lastly, this study investigates the correlation between nurses' experiences and their overall knowledge. However, no statistically significant relationship was observed between the total knowledge score and the nurses' experiences (p-value > 0.05).

Conclusion

According to findings of the study concluded the following. The study reflect clear picture about nurses knowledge regarding hypertension the overall nurses examine by questionnaire the result show, 60.0% of the respondents were between 20-25 years old, 35.0% were between 26-30 years old, and 5.0% were over 30 years old. While this study revealed that 70.0% were female and 30.0% Males. Regarding educational level, 90.0% hold a bachelor's degree, 10.0% hold a master's degree. In experience years related results showed that, 45.0% have less than one year of experience, 10.0% have more than 5 years of experience. Overall, the total knowledge about hypertension is 45.0% of the responders have weak knowledge, 37.0% of them

have good knowledge. While only 17.0% have good knowledge. The current study showed that bachelor had higher knowledge score than other did, however this observation has no significant.

Recommendations

Enhancing reading materials on hypertension to gain knowledge about prevention. More studies about the guidelines of hypertension. Receive training for guidelines of hypertension. Further studies required to be conducted to evaluate nurses' knowledge and practice in different Health setting regarding hypertension.

Funding

No financial assistance or grants were provided for this study.

Conflict of interest

There are no conflicts of interest concerning any part or stage during the data collection stage or until the completion of the research requirements for this study. There were some obstacles regarding the response of some nurses when collecting data.

Institutional Review Board Statement

All statements regarding approval to conduct the study, in addition to statements regarding data collection, are available to the co - responding author.

Availability of data and materials

The data is accessible, and the corresponding author can furnish it upon receiving a reasonable request.

References

1. Cappuccio, Francesco Paolo, and Michelle Avril Miller. "Cardiovascular disease and hypertension in sub-Saharan Africa: burden, risk and interventions." Internal and emergency medicine 11 (2016): 299-305.
2. Buang, Nurul Fatin Binti, Nor Azlina A. Rahman, and Mainul Haque. "Knowledge, attitude and practice regarding hypertension among residents in a housing area in Selangor, Malaysia." Medicine and pharmacy reports 92.2 (2019): 145.
3. Ravichandran, Vigneshwaran, et al. "Knowledge and Prevalence of Hypertension and its Associated Risk Factors among the People in Thiruvallur Districts." Annals of the Romanian Society for Cell Biology (2021): 2757-2767.
4. Fisher, Naomi DL, and Gregory Curfman. "Hypertension—a public health challenge of global proportions." Jama 320.17 (2018): 1757-1759.
5. Mohsen Ibrahim, M. "Hypertension in developing countries: a major challenge for the future." Current hypertension reports 20 (2018): 1-10.
6. Cozier, Yvette C., et al. "Religious and spiritual coping and risk of incident hypertension in the Black Women's Health Study." Annals of Behavioral Medicine 52.12 (2018): 989-998.
7. Nikparvar, Marzieh, et al. "Prevalence, awareness, treatment, and control of hypertension in Hormozgan Province, Iran." International Cardiovascular Research Journal 13.3 (2019).
8. Hartley, Adam, et al. "Trends in mortality from ischemic heart disease and cerebrovascular disease in Europe: 1980 to 2009." Circulation 133.20 (2016): 1916-1926.
9. Himmelfarb, Cheryl R. Dennison, Yvonne Commodore-Mensah, and Martha N. Hill. "Expanding the role of nurses to improve hypertension care and control globally." Annals of Global Health 82.2 (2016): 243-253.
10. Lambrinou, Ekaterini, Tina B. Hansen, and Joline WJ Beulens. "Lifestyle factors, self-management and patient empowerment in diabetes care." European journal of preventive cardiology 26.2_suppl (2019): 55-63.
11. Aloo, Christopher. "Non-Pharmacological Methods for Managing Hypertension: An Analysis of Lifestyle Changes and Patient Education." (2018).
12. Muntner, Paul, et al. "Measurement of blood pressure in humans: a scientific statement from the American Heart Association." Hypertension 73.5 (2019): e35-e66.
13. Lloyd-Jones, Donald M., et al. "Use of risk assessment tools to guide decision-making in the primary prevention of atherosclerotic cardiovascular disease: a special report from the American Heart Association and American College of Cardiology." Circulation 139.25 (2019): e1162-e1177.
14. Sassen, Barbara. Nursing: Health education and improving patient self-management. Springer International Publishing, 2018.
15. Rasjö Wrååk, G., et al. "Nurse-led empowerment strategies for patients with hypertension: a questionnaire survey." International nursing review 62.2 (2015): 187-195.

16. Al-Ahdal, Saddam Ahmed, and H. M. A. Abdullah. “Effect of quality of life in rehabilitation patients following cardiac surgery at Sudan heart center, Khartoum, Sudan.” Journal of Cardiovascular Disease Research 11.4 (2020): 235-241.

17. Begum, Shima, et al. “Nurses’ knowledge regarding nursing care and management of hypertensive patients in a selected hospital in Dhaka city.” International Journal of Research in Medical Sciences 7.5 (2019): 1914.

18. MacGregor, Graham A., and Michael Stowasser. Fast Facts: Hypertension. Karger Medical and Scientific Publishers, 2016.

19. Kilic, Mahmut, Tuğba Uzunçakmak, and Huseyin Ede. “The effect of knowledge about hypertension on the control of high blood pressure.” International Journal of the Cardiovascular Academy 2.1 (2016): 27-32.

20. Kaur, Sukhwinder, and Sumanjeet Kaur. “Descriptive Study to Assess the Knowledge of Staff Nurses Regarding Forensic Psychiatry at Selected Hospitals, Amritsar.” (2019).

21. Katende, Godfrey, Sara Groves, and Kathleen Becker. “Hypertension education intervention with Ugandan nurses working in hospital outpatient clinic: a pilot study.” Nursing research and practice 2014 (2014).

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Effects of Postgraduate Education on Nursing and Reflections in the Clinic Field : A Qualitative Research

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Abstract

Background: Nurses improve themselves with various trainings according to the developing era and patient needs. Determining the effects of postgraduate education in the clinical field opens new horizons for improving the quality of patient care.

Aim: To determine the opinions of the participants about the effects of postgraduate education in nursing and the reflection of these effects on the clinic field and patient care by the nurse specialist.

Methods: This is a phenomenological descriptive qualitative study which was data gathered through in-depth interviews with nurses, physicians, and patients. For content analysis, the data were subjected to thematic analysis.

Results: The data obtained from the views of the participants about the effects of postgraduate education in nursing and its reflections on the clinic were combined under 4 main themes and 20 sub-codes.

Conclusions: It was concluded that postgraduate education has effects on nursing roles, individual development, other professional development, increasing its professional value and scientific power, and these effects are reflected positively in clinical field.

Keywords: Nursing, Postgraduate education, Nurse Specialists, Qualitative research.

Introduction

Education is the most significant resource for nurses to maintain their effectiveness in the health care system and to contribute to professional and individual development. Postgraduate education is particularly important for increasing and supporting the individual and professional power of nurses[5]. The increase in the individual and psychological power of nurses directly affects their professional power[8]. Nurses desire for individual development, organizational support and nursing competencies and communication skills need to be developed[16].

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Postgraduate education provides many benefits like increasing income level and quality of life, providing many options when choosing a job, priority, employment opportunities, prestigious status, and effective solutions for the progress of country, etc. The individual benefits of postgraduate education include increasing self-confidence and autonomy, increasing critical thinking skills, being more successful at interpersonal relations, being open to development and learning, job satisfaction, and ensuring continuous development[4].According to the American Nurses Association (ANA), nurses can achieve higher education and training levels thanks to graduate education that supports their academic progress after graduation[2]. Nurses who have master's and doctorate degrees gain a deep professional knowledge of their field, can reflect their expertise in their attitudes and skills, adopt an evidence-based approach in nursing practice, have advanced critical thinking skills, can conduct research from the beginning to end and publish this research, and produce scientific solutions to current professional problems[6].

Nurses are experts who aim to increase the quality of care in the clinical field by making evidence-based practices, who can achieve these goals, who are expected to have a high level of knowledge and skills, and who aim to implement professional philosophy and practices[16].

The increase in the number of nurses who are experts in the clinical field directly contributes to the strengthening of the nursing profession. If practicing nurses can reflect their gains in the clinical field, a significant increase in the quality of nursing services will be achieved.

Methods

The aim was to determine the views of the participants on the effects of postgraduate education in nursing and the reflection of these effects on the clinical field. This is a phenomenological qualitative study based on exploration. The research was carried out with 19 specialist nurses, 13 physicians working with the same nurses, and 13 patients receiving care from the same nurses. In terms of the reliability and validity of the research results, it was important to include these three groups, who are affected by the reflection of postgraduate education in the clinical field. This technique is known as the data-driven triangulation technique in literature. In the sample selection to provide maximum diversity, postgraduate nurses of different ages and working years, specializing in different nursing fields, working in different units, nurses with doctoral students or nurses who completed their doctorate were included in the study.

The data for the study was collected between July and December 2021 with face-to-face individual interviews. Before the interview, informed consent was obtained from the participants. The interview was terminated when data saturation was reached.

The research was carried out using a Nurse Information Form, Physician Information Form, Patient Information Form and Semi-structured Interview Questionnaires prepared for each participant group (nurse, physician, patient).

Coding was done according to the Miles-Huberman model. The Miles-Huberman model combines the data collected in qualitative research into common categories, reduces the number of codes and visualizes them[10]. The MAXQDA Analytics Pro 2020 software was used to support the process. The initial number of codes generated was 2235. Data were grouped under 4 main themes and 20 sub-themes (Table 1). The opinions of all participants were taken into consideration, no one was excluded.

Findings

Descriptive Characteristics of the Participants

Specialist Nurses: The average age was 35.37±1.3 years (min: 26, max: 43). Years of employment as a nurse were 13.32±1.3 on average (min: 3 max: 22). The average working time as a nurse specialist was 6.63±0.9 years (min: 1 max: 17). Physicians: The average duration of working with a nurse specialist was 3.46±0.4 years (min:1 max: 6). Patients: The mean hospital stay was 13.3±2.9 days (min: 3 max: 30).

Effects of Postgraduate Education in Nursing and Reflections in the Clinic - Themes

The data obtained from the views of the participants about the effects of postgraduate education on nursing and its reflections in the clinic

were collected under 4 main themes and 20 sub-codes (Table 1).

Table 1: Effects of Postgraduate Education in Nursing– Themes and Codes

THEMES	CODES
Effect on Professional Empowerment	• Effect on professional image • Effect on scientific power • Effect on increasing the value of the profession
Effect on Nursing Roles	• Therapeutic and nursing role • Educator role • Manager role • Researcher role • Autonomous and responsibility using • Counselor role • Decision maker role • Patient rights advocacy role
Effect on the Individual Development of Nurses	• Self-knowledge • Communication skills • Self-confidence • Increase in respect and reliability • Resilience and patience
Other Professional Effects	• Professionalization • Getting promoted • Financial contribution • Job satisfaction

THEME 1: Effect on Professional Empowerment

This theme was grouped under 3 sub-codes: the effect on professional image, the effect on scientific power and the effect of increasing the value of the profession (Table 1).

Participants stated that postgraduate education positively affected the professional image of nursing and provided an increase in professional prestige and reliability.

"It positively affects the perception of nursing in society. Because the approach of these nurses to patients is more professional and helpful. We trust them" (Physician 10)

"Educated people are better. When you are conscious and educated, it is always more professional to be close to the patient, to take care of them, to use the tools and to know the drugs." (Patient4)

Participants stated that graduate education positively affected the professional knowledge, attitudes and skills of nurses and deepened their perspectives. Thus, they stated that significant contributions were made to the scientific knowledge of nursing and the scientific power of the profession.

"When you learn science, you are already mature. The more you know your profession, the more mature you become. If you read more, learn more, your profession will not be just a job for you, it will turn into a field where you reflect your knowledge. … That's why it is necessary to do a job not only as a job, but also to do science. This is what happens when you get a graduate degree in nursing. You are not only commuting to work, but you are also adding science to it, you are adding knowledge. Postgraduate education increases both the professional and individual development of nurses and increases the quality of their work." (Physician4)

THEME 2: Effect on Nursing Roles

This theme is under the title of the effect of postgraduate education on advance nursing roles. It included 8 sub-codes of effect on the therapeutic and nursing role, effect on the educator role, effect on the manager role, effect on the researcher role, effect on the role of being autonomous and responsible, effect on the counselor role, effect on the decision maker role and effect on the patient rights advocacy role (Table 1).

Participants stated that practitioner nurses reflect their knowledge and skills in their therapeutic and advanced nursing roles. Particularly, some patients stated that the difference between private branch (stoma care, etc.) nurses was more pronounced.

"It is very beneficial for us that practitioner nurses reflect their knowledge in clinical practices and evaluate patients with a holistic approach." (Physician10)

"Simply, there is a device over there. While none of the nurses had any knowledge about the device, the practitioner nurse came and immediately explained

that this is how it happens, this is how it is used. Of course, it has more detailed extras, but what we see is that they are highly successful in their own field. A special branch nurse specializing in wound care, not a general nurse. I see that they are remarkably successful" (Patient13)

Most of the nurses stated that they continued to do research after completing their graduate education, while some stated that they wanted to do research, they did not have any problems in obtaining research permission from their institutions, but they could not do research due to workload and other reasons.

"There is no opportunity to do research because of the workload." (Nurse6) "The institution allows research that is non-invasive and does not require financial support. But they don't give permission for experimental research, or they say it must use a doctor's name." (Nurse11)

Most of the nurses stated that they carried out innovation studies and developed projects despite all the difficulties in their institutions. In addition, it was observed that the nurses were excited and experienced professional satisfaction while talking about their innovation and project work.

"… patients have a Gomco device that they use to prevent air leakage after thoracic surgery. This device is not available in many wards of the hospital, nor is it in our ward. This is how we solved it. We have developed a negative pressure apparatus system, and it works for patients. I will be developing this apparatus in the future." (Nurse4)

Participants stated that patients and their relatives received effective counseling from practitioner nurses.

"In the role of consultant, they are always sought after, asked questions and referred to…" (Physician 9) . "I benefited from the nurses' training and consultancy. Practitioner nurses do their best for patients." (Patient 7)

THEME 3: Effect on the Individual Development of Nurses

This theme included 5 sub-codes of self-knowledge, communication skills, self-confidence, increase in respect and reliability, and resilience and patience (Table 1).

Nurses stated that master's education, and especially doctoral education, had an impact on self-knowledge and awareness.

"Since I started my PhD, I am thinking differently. Bachelor's, Master's, and PhD. I think that I have become more mature and have different perspectives on each process" (Nurse8)

Participants stated that postgraduate education positively affected the communication skills of nurses, they were able to communicate more easily with practitioner nurses.

"They also communicate professionally with patients and their relatives. But it's not arrogant. They both use their authority and give the patient that confidence." (Physician9)

Participants stated that postgraduate education increased the self-confidence of nurses and they worked confidently.

"Yes, they are more confident, they know how to manage when there is a problem." (Physician11)

THEME 4: Other Professional Effects

This theme contained 4 sub-codes of professionalization, getting promoted, financial contribution, and job satisfaction(Table 1).

"It feels good in terms of job satisfaction. Additionally, getting promotion to support that situation as well. I see the same feeling in my other expert friends. You take the job with all you have you embrace it." (Nurse9)

Discussion

The number of student enrollments in postgraduate education in nursing has increased in the last 10 years all around the world[1]. It was predicted that the number of nurses with a graduate degree working in the clinic would increase in the future[1]. In this study, the average employment period for nurses who completed their postgraduate education in the clinical field was 6.63±0.9 years. The average duration of collaborating with nurses with postgraduate education was 3.46±0.4 years. In addition, when the participant nurses were asked about the reasons for their postgraduate education, they expressed gaining in-depth knowledge in the

field they worked in as the first reason. When all these findings are taken together, the number of specialist nurses working in the clinical field will increase. This foresight is gratifying for the need for specialists who can deliver increasingly complex nursing services with new hospital technology and automation.

Although nursing has a history of 100-150 years, it was accepted as an auxiliary profession until the 1980s and did not receive the respect and acceptance it deserves from society[15]. In this process, the fact that nursing was found to be unimportant or simple and not respected enough by society also had a negative effect on nurses, reducing their commitment to the profession and job satisfaction and causing them to leave the profession[7] .The perceptions of the participants in the study are that postgraduate education positively affects the professional image of nursing, gives the profession prestige and increases reliability. In addition, physicians observed that nurses with postgraduate education have developed professional knowledge, skills, experience, as well as professional attitudes, and patients stated that these nurses were deeply knowledgeable and successful. These findings can be interpreted as showing that postgraduate education positively affects the image of nurses and can prevent them from leaving the profession.

In the study, nurses stated that they reflected their knowledge and skills gained from postgraduate education in their therapeutic and advanced nursing roles. This data is positively supported considering the comments of most physicians and patients. Some of the patient participants stated that they could see the difference between practitioner nurses and other nurses in the care received from special branch nurses(like branch of stoma care…). The mean hospital stay of the participating patients was 13.3±2.9 days. It is thought that this period is sufficient for the patients to understand the difference between specialist nurses. On the other hand, the patients stated with a smile that they were satisfied with all the nurses, that all of them worked devotedly and provided good care. In the literature, as the education level of nurses increases[15], it was stated the quality of nursing care, patient satisfaction and the value of the profession increase. With these findings, it can be concluded that specialist nurses reflect the knowledge, skills and competencies of their specialties in the clinical field and patient care, and this situation positively affects teamwork and patient satisfaction.

The researcher role of nurses includes producing science-based knowledge, which is one of the main goals of postgraduate education. When the participant comments are analyzed, most of the practitioner nurses were very willing to do research in the clinic and continued to do scientific research[3] and projects despite the problems they experienced. Supporting nursing research is within the scope of structural strengthening of nursing.

Participants stated that specialist nurses reflect their managerial skills in the clinic. Studies show that leadership skills and emotional intelligence levels are higher among specialist nurses, and these skills are improved by academic study and education[14].The effective use of management skills by practitioner nurses in the clinical field is consistent with the literature data.

All participating nurses happily stated that postgraduate education had an impact on their individual development. The first and most important of these changes was in the field of communication skills. When the comments of the participants are analyzed, the success of the nurses in communicating with the patients and their relatives, the healthcare team and their colleagues increased, their professional approach was strengthened. Based on these findings, it can be said that postgraduate education influences strengthening the individual characteristics of nurses.

It is remarkable that the first answer given by the participating physicians to the question "How does it make you feel to work with a nurse specialist in the clinic?" was "**Trust**". Physicians stated that they were pleased to work with nurses with postgraduate education, and that this education increased their respect and confidence in the nurses[13]. It can be said that postgraduate education is effective in increasing the prestige and reliability of the nursing profession within the healthcare team. The patients evaluated receiving care from practitioner nurses in terms of service quality and stated that education increased the quality of service. According to McKillop's qualitative study (2012), participating nurses stated

that graduate education increases the level of reliability and respect in the clinic[9].

Decreased job satisfaction and dissatisfaction lead to a decrease in work efficiency, a decrease in workplace commitment, an increase in dismissals, and an increase in medical errors and patient complaints[12]. It is important for nurses to enjoy their profession for their own psychological health, public health, and institutional success[11]. Nurses who want to improve their knowledge by completing postgraduate education are nurses with high job satisfaction who love their jobs[3].Nurses participating in the study stated that postgraduate education caused an increase in their job satisfaction. The education level in nursing is one of the factors affecting job satisfaction. As the education level increases, the job satisfaction of nurses increases[7]. With the data obtained, it can be concluded that postgraduate education strengthens the job satisfaction and job commitment levels of nurses.

Conclusion

In the study, it was concluded that postgraduate education affects advance nursing roles, individual development and professional development, as well as improving the professional image of nursing, increasing its professional value and scientific development. These effects are positively reflected in the clinical field.

In line with these results, suggestions are made to strengthen the nursing profession and to facilitate the reflection of the expertise gained by nurses from postgraduate education and all other effects in the clinical field; to make investments for strengthening nursing and specialist nurses, to promotion and career planning, to research the obstacles to organizational support and produce solutions to eliminate these obstacles.

Limitations

Due to the Covid 19 pandemic, the patient and the researcher were able to conduct the interviews using a mask covering the face. The facial expressions of the participants, which are valuable in qualitative studies, may not have been fully evaluated.

Informed consent

The research is by Nagihan Sim Aygul. It is a doctorate thesis of Istanbul University-Cerrahpaşa Graduate Education Institute, Department of Nursing Education (Corresponding author; Emine Şenyuva). Istanbul.

- The article is the author's original work.
- The article has not been published before and is not being considered for publication journal.
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References

1. America Nurses Association, 2020-2021 Enrollment ve Graduations in Baccalaureate ve Graduate Programs in Nursing'. Date of access: 2023 https://www.aacnnursing.org/Store/product-info/productcd/IDSR_21ENROLLBACC
2. American Nurses Association. IOM Report on the Future of Nursing. Date of access: 2023 https://nap.nationalacademies.org/resource/12956/Future-of-Nursing-2010-Report-Brief.pdf
3. Berthelsen, C., Martinsen, B., & Vamosi, M. The positive impact over time of Master's level education on nurses' utilization of nursing research-related tasks in clinical practice – A longitudinal cohort study. Journal of Nursing Education and Practice, 2019:10(4), 1. https://doi.org/10.5430/jnep.v10n4p1

4. Brayer, A., & Marcinowicz, L. Job satisfaction of nurses with Master of Nursing degrees in Poland: Quantitative and qualitative analysis. BMC Health Services Research, 2018:18(1), 1–8. https://doi.org/10.1186/s12913-018-3053-6
5. Carroll K. Power with Presence: Connecting Theory and Knowledge to Nursing Practice. Nursing Science Quarterly. 2022;35(3):302-303. doi:10.1177/08943184221092436
6. Drury A, Sulosaari V, Sharp L, Ullgren H, Munter J, Oldenmenger W. The future of cancer nursing in Europe: Addressing professional issues in education, research, policy and practice, European Journal of Oncology Nursing, 2023:63, 102271, ISSN 1462-3889, https://doi.org/10.1016/j.ejon.2023.102271.
7. Kim, J., & Kwon, Y. Effects of Empowerment and Job Satisfaction on Nursing Performance of Clinical Nurses. Journal of the Korea Academia-Industrial Cooperation Society, 2020: 21(1), 112–120.https://tez.yok.gov.tr/UlusalTezMerkezi/tez Detay.jsp?id=W66VmRvq8Scj FikyyY5U2Q&no= Gsu4JqEyUCNGWLycLR9k7g
8. Kinsella, D. Fry, M. Zecchin, A. Motivational factors influencing nurses to undertake postgraduate hospital-based education,Nurse Education in Practice,2018:31,54-60,ISSN 1471-5953, https://doi.org/10.1016/j.nepr.2018.04.011
9. Mckillop, A., Aspinall, C., & Rgn, D. B. The impact of postgraduate education on registered nurses working in acute care. Nursing Praxis in New Zealand, 2012: 28(2), 25–30. https://www.researchgate.net/publication/231816092
10. Miles Matthew B., Huberman M. A., Saldana J. Qualitative Data Analysis A Methods Sourcebook. Thirth Edition.Arizona State University. 2014, ISBN 978-1-4522-5787-7.
11. Mota, A., & Fisher College, S. J. Structural Empowerment: A Qualitative Inquiry in to the Work Life of the Oncology Nurse. 2015: 1–124. https://fisherpub.sjf.edu/education_etd/214/
12. Perry, S. J., Richter, J. P., & Beauvais, B. The Effects of Nursing Satisfaction and Turnover Cognitions on Patient Attitudes and Outcomes: A Three-Level Multisource Study. Health Services Research, 2018: 53(6), 4943–4969.https://doi.org/10.1111/1475-6773.12997
13. Petges, N., & Sabio, C. Understanding the Enrollment Decisions of associate degree Nursing Students: A Qualitative Study. Teaching and Learning in Nursing, 2020: 15(1), 25–31. https://doi.org/10.1016/j.teln.2019.08.006
14. Prezerakos PE. Nurse Managers' Emotional Intelligence and Effective Leadership: A Review of the Current Evidence. Open Nurs J. 2018 May 31;12:86-92. doi: 10.2174/1874434601812010086. PMID: 29997711; PMCID: PMC5997858.
15. Sadeghnezhad, H., & Ghanei Allhosseini, M. Occupational Prestige from the Nurses Point of View. Journal of Holistic Nursing and Midwifery, 2020: 30(1), 45–52. https://doi.org/10.32598/jhnm.30.1.7
16. Wilson, M. Sleutel, M. Newcomb, P. Behan D, Walsh, J. Wells, N. Baldwin, K. Empowering Nurses With Evidence-Based Practice Environments: Surveying Magnet®, Pathway to Excellence®, and Non-Magnet Facilities in One Healthcare System. World-views on Evidence-based Nursing. 2015: 12, Issue 1, https://doi.org/10.1111/wvn.12077

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