Journal of Pharmaceutical Research International

28(1): 1-8, 2019; Article no.JPRI.49508
ISSN: 2456-9119
(Past name: British Journal of Pharmaceutical Research, Past ISSN: 2231-2919, NLM ID: 101631759)

Survey of Subjective Skills of Physical Examination of Children by Nurses and Related Factors in Children's Therapeutic Education Center in Rasht, Iran

Seyedeh Soghra Mirhoseini[1], Yasaman Yaghoubi[2*], Mahshid Mirzaei[2] and Ehsan Kazamnajad Lili[2]

[1]Guilan University of Medical Sciences, Rasht, Iran.
[2]Department of Nursing, Guilan University of Medical Sciences, Rasht, Iran.

Authors' contributions

This work was carried out in collaboration among all authors. Author SSM designed the study. Author YY wrote the protocol and wrote the first draft of the manuscript. Author MM managed the literature searches. Author EKL managed the analyses of the study. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2019/v28i130194
Editor(s):
(1) Dr. Jinyong Peng, College of Pharmacy, Dalian Medical University, Dalian, China.
Reviewers:
(1) Shigeki Matsubara, Jichi Medical University, Japan.
(2) Masoud Ghaffari, Benedictine University, USA.
Complete Peer review History: http://www.sdiarticle3.com/review-history/49508

Original Research Article

Received 15 March 2019
Accepted 05 June 2019
Published 20 June 2019

ABSTRACT

Background and Aim: Since mental skills of nurses are effective on the quality of their activities, this research was conducted with the aim of determining the mental skills of physical examinations of children by nurses and related agents at the Children's Medical Education Center in Rasht.
Methods: The current cross sectional study was performed on 127 female nurses working in pediatric wards of the 17th Shahrivar hospital in Rasht in 2018 by enumeration sampling method. A valid and reliable questionnaire comprised of two sections of demographic information and information for physical examination of children was used. Data were analyzed by SPSS software v.21. P value less than 0.05 was considered significant.
Results: The highest number of nurses (71.7%) had a moderate mental skills. There were a significant relationship between the mean of mental skills with the service ward (p <0.001), interest

**Corresponding author: E-mail: yasamanyaghobi@yahoo.com;*

in the current service ward (p = 0.031), and the history of retraining related to health status assessment (p = 0.034). While, there were not a significant relationship between the mean of mental skills with age (p = 0.847), total score at graduation date (p = 0.052), marital status (p = 0.812), number of children (p = 0.501), educational status (p = 0.797), employment status (p = 0.505), classification of clinical experience (p = 0.644), classification of work experience in the current ward (p = 0.127), shift work (p = 0.443), the degree of interest in the current field and job (p = 0.439).

Conclusion: The results of this study indicated that the nurses had moderate mental skills, which the mean of mental skills were related to the total score at the date of graduation, the name of the service ward, the level of interest in the current ward and the history of retraining related to health status assessment. Therefore, considering the factors affecting the mental skills, this skill can be increased, which should be considered in future researches.

Keywords: Mental skills; physical examinations; children; nurses.

1. INTRODUCTION

65% of hospital workforce is made by nurses and the quality of health services is highly dependent on their performance [1]. Achieving the necessary knowledge and skills are to examine the patients in the health system and collecting mental and objective information and taking care of the patient for the nursing process [2]. The nursing process consists of five stages; physical examination is the first step of implementation of the nursing process, which is essential and basic [3]. The physical examination involves the collection of information that is used to determine the diagnosis of the symptoms of the disease [4]. Physical examination has a significant role in identifying and determining the existence and potential complications of patients [5]. Accordingly, the nurse can gather information about the patient's health and based on the results judge the nursing interventions and evaluate the patient's care outcome [6]. American nursing universities consider physical examination as one of the essential ability components in the professional nursing education [7]. Continuous monitoring and evaluation of nurses' skills in physical examination are not only important, but also effective on the measurement method and how it is evaluated and lead to the quality of care [7].

Improving the quality of nursing practice is the most important factor that can accelerate the improvement of patients [8]. Many studies have been conducted on the necessity and importance of nurse's clinical competence and there is a great consensus that nurses with a high level of clinical competence play a major role in the care and treatment of patients. Nancy et al. consider strengthening clinical skills as an essential component in the training of medical students, especially nurses [9]. One of the skills to be taken into account in the clinical education of nurses is to increase nurses' mental skill, which helps to recognize the patient and the disease.

Nursing skills are divided into three groups of cognitive skills, emotional skills and technical or care skills. Mental skills are part of caregiving techniques. In fact, mental skills can be stated as physical assessment skills, in which the nurse examines the health status including observing the skin in regards to wound and injury, assessing the breathing status, examining the mental state and level of consciousness, checking body temperature, touching and observing capillary filling, touching the pulse of organs and checking for color, size and symmetry, hearing of the sound of heart and lungs and observing the chest, etc. [10-11].

Universities should pay attention to the nurses' mental skills in addition to physical skills so that they can nurture nurses that due to many changes in clinical settings, care giving method, technology advancements and changes in the view of patients are able to provide useful clinical services in accordance with community needs and can meet the satisfaction of nursing care receivers. Children are the future of any society, and childhood health is very important [12-13]. If children need to receive health care, physical examination is the first step in the implementation of the nursing process and the first interaction between the child and the nurse [12]. In order to achieve high-quality care in the field of children's health care, not only science and skills are required, but also the way of investigation and physical examination are very important and fundamental [14]. Investigating the actual need of nurses in the pediatric wards seems necessary to carry out physical examination skills [15].

The global shortage of nursing power and the increasing nurses' occupational problems, especially in Iran, have led nurses to increase their knowledge and skills to provide better care and improve the health of individuals and groups, and in addition to consulting and cooperating with other members of the care teams, they must be skilled in dynamic thinking and clinical decision making [16], so having mental skills to perform precise physical exam are crucial and necessary.

Since it is necessary to find out the level of mental skills of nurses in different parts of the children ward in conducting physical examinations, this research was conducted with the aim of determining mental skills of physical examinations of children by nurses and related agents in Children's Health Education Center of Rasht.

2. MATERIALS AND METHODS

2.1 Studied Population

The descriptive-analytic study was performed on 127 female nurses working in pediatric wards of the 17th Shahrivar hospital in Rasht in 2018. Enumeration sampling method was used in this study. Total of 140 nurses who received the questionnaire were used in the study was, but due to the high work load, 13 were excluded and 127 completed and delivered the questionnaire.

Inclusion criteria

- ✓ Nurses' willingness to participate in the study
- ✓ female nurses
- ✓ Minimum work experience of 6 months
- ✓ Nurses working in children's ward

Exclusion criteria

- ✓ Unwillingness of nurses to participate in the study
- ✓ Metronomes, supervisors and nurses in outpatient wards who were not active in the clinic.

2.2 Information Gathering Tools

The tool used in this study was a questionnaire consisting of two parts. The first part consists of demographic information questionnaire including age, sex, marital status, educational degree, nursing experience, work experience in pediatric ward, history of retraining related to health status assessment, ward type and desired ward, employment status, level of interest in the ward, the number of children and job satisfaction.

The second part was a questionnaire for physical examination of children with 30 items. The average of each skill conducted by nurses was evaluated using a scale in 6 levels and scored 0 to 5. Scoring were designated for the answer (I do not know how to do this technique) without a score, (I know how to do this technique but it's not part of my job) zero score (I rarely do this technique) one score, (done this several times during my job) two scores, (I do this technique sometimes, " sometimes a year") three scores, (I use this technique repeatedly at my work "every 2-5 times I'm working") four scores, (I use this technique repeatedly at my work" every time I'm at work") five scores. Using the findings of the questionnaire, frequency and percentage of distribution, the score of the nurse's assessment was determined in the physical examination of the children. The skill scores in each item were zero to five. Individual's responses were combined in each questionnaire and the mean was determined. Statistical differences between age, sex, level of education and other demographic information with the mean score were determined. According to the total score of the items, which was 150, that is, 30 points of the item multiplied by a high score of five, the average score of nurses' self-assessment was obtained in physical examination skills of children.

Regarding the validity and reliability of the questionnaire, the initial version of the questionnaire was used to assess the validity (content) as well as the appropriateness of writing and order of placement by 10 faculty members of the Faculty of Nursing, Shahid Beheshti Faculty of Rasht, which after applying the opinions of experts, this tool was used to collect information in the second stage with the content validity coefficient ratio (CVR) of 80 and content validity index (CVI) of 80. To assess the reliability of the tool after conducting a pilot study with a sample of 14 individuals, the Cronbach's alpha coefficient, one of the internal consistency methods for determining the reliability, was used and the obtained Cronbach's alpha coefficient was 78% and the internal correlation coefficient was 98.15%.

In order to conduct this study, after making arrangement with the nursing director of the health education center of 17th Shahrivar, taking the nurses' name lists and information about the different parts of the hospital, a questionnaire was provided to the nurses and completed by the nurses after explaining on how to response to the questionnaire.

2.3 Statistical Analysis

After collecting data, the informations were entered into the SPSS software v.21. The mean of acquired skills were then compared through the variance test using descriptive statistical methods including mean, standard deviation of frequency, inferential statistics (independent t-test and paired t-test). The normal distribution of data was assessed using Kolomographer-Smirnov test as well as assessment of being nonparametric using Chi-square, Mann-Whitney, Logistic regression and independent t-test. P <0.05 was considered as significance level of the tests.

3. RESULTS

Analysis of nurses' demographic data showed that 39.4% of nurses were between 31 to 40 years old. 51.2% had a permanent job, 59% had less than 10 years of clinical work experience, 59.1% had a moderate interest in their job, 85% had a working shift, 85.8% had a bachelor's degree, and 66.1% had a graduation score of 14 to 17.

The highest mean of mental skills were related to respiratory assessment questions with 4.7 ± 0.7, assessing mental status and consciousness level with 4.6 ± 0.8, and assessing the temperature with 4.6 ± 0.8 and the lowest mean were 2.3 ± 1.5 related to the question of equality assessment, annular reaction to light and pupil adaption (Table 1).

Table 1. Mean and standard deviation of the mental skills questionnaire for physical examination of children by nurses

Questionnaires	Mean ± SD
Whole skin color observation	4.5±1
Assessment of respiratory status	4.7±0.7
Mental status and level of consciousness	4.6±0.8
View and touch the tips for edema	4.1±1
Check the temperature	4.6±0.8
Touch and observe capillary fillings	3.9±1.1
Touch the pulse of the organs	3.9±1
Observing the skin in terms of ulcers and injuries	4.1±1
Listening to the lung sounds	2.9±1.4
Abdominal hearing for bowel sounds	2.6±1.4
See and touch the abdomen	3±1.4
Listening to the heartbeat	2.7±1.5
Turgor skin examination	3.3±1.3
See the tips in the terms of skin color and hair growth	3.4±1.2
Observe and check the eyes	3.4±1.3
Assessment of speaking according to age	3.4±1.3
Touch the abdomen in the terms of tenderness and bloating	3.1±1.3
Observe the movement range of joints	3±1.3
Observe the chest shape	3.4±1.4
Face evaluation for sense of movement and symmetry	3.1±1.5
Touch the tips and organs in terms of color, size and symmetry	3.1±1.5
Check muscle strength	3±1.5
Observations of size and muscle symmetry	2.7±1.4
Speaking-based hearing examination	2.7±1.5
Observe fecal examination	2.6±1.7
The assessment of draws, annular response to light and pupil adaptation	2.3±1.5
Assessment of the level of consciousness using the Glasgow scale	3.3±1.4
Observe the oral cavity	2.9±1.4
Observe the lumbar spine	2.7±1.4
Checking reflexes according to age	2.8±1.4

The indexes of mental skills score ranged from 0 to 150, with the lowest score of 3 and a maximum of 150 obtained by nurses. Regarding the response of nurses, mean score and standard deviation of mental skills score were 99.7 ± 24.9 with 95% of confidential interval (95.31-103).

Comparison of mental status of nurses showed that their highest number was 71.7% in the moderate range (Table 2).

Table 2. Comparison of the mental skill status of physical examination of children

Grading	No. (%)
Low	17 (13.4)
Moderate	91 (71.7)
Good	13 (10.2)
Perfect	6 (4.7)
Total Number	127 (100)

Comparison of total scores of mental skills in terms of individual and organizational variables showed that there were a significant difference between the mean of mental skills with the service ward ($p < 0.001$), the interest in the current ward ($p = 0.031$) and the history of retraining related to health status assessment ($p= 0.034$). while, there were not a significant relationship between the mean mental skills with age ($p = 0.847$), total score at graduation date ($p = 0.052$), marital status ($p = 0.812$), number of children ($p = 0.501$), educational status ($p = 0.997$), employment status ($p = 0.505$), classification of clinical experience ($p = 0.664$), classification of work experience in the current ward ($p = 0.27$), shift work ($p = 0.127$), the level of interest in the current field and job ($p = 0.479$).

Multiple linear regression model was used to determine the variables associated with the mental skill score. Shift work (versus fixed) ($p = 0.026$) had a significant correlation with mental skill score, so that shift work nurses had a higher mean scores than fixed shift work nurses (17.6 ± 7.8). Also, there was a significant correlation between the decrease in the interest rate ($p = 0.004$) with the score of mental skills, so that a decrease in the level of interest decreased the mental skill score. Clinical experience ($p = 0.96$) and lack of related retraining experience ($p = 0.082$) had no significant correlation with mental skills scores experience (Table 3).

4. DISCUSSION

The results of this study showed that the highest number of nurses in terms of mental skills status were in the moderate range, which was in consistent with the study conducted by Nasiriyani et al. [15], Mahreini et al. [17] and Brown et al. [18]. Regarding the moderate mental skills of nurses and the effect of training on improving their performance, it is recommended that common educational programs should be be developed to improve knowledge in some skills.

In the present study, there was no significant association between mean mental skill and total score at graduation date, which is consistent with Habibzadeh et al. [19] study. The graduation grade reflects the success of the nurses in theory lessons and practice of clinical internship. A nurse with higher graduation degree has a better

Table 3. Estimation of regression coefficients of factors related to mental skill score based on multiple linear regression model

Variables	Estimated regression coefficient	Standard error	P-value	Confidential interval	
				Bottom limit	Upper limit
Fixed coefficient	91.491	19.536	0.000	52.817	130.165
Clinical experience	0.716	0.427	0.096	-0.128	1.561
Shiftwork (circular or constant)	17.671	7.826	0.026	2.179	33.163
Decreased interest in the current sector	-10.957	3.762	0.004	-18.406	-3.510
Not having a retraining history related to health status assessment	-7.890	4.497	0.082	-16.791	1.012
The statistical value is F (4.126) = 4.096 p = 0.004					
Based on the coefficient of determination (R2 = 0.118), 11.8% of the change in mental skill score are predictable based on the variables of above regression model					

clinical education. The more useful nursing clinical education enables nurses to be able to work independently and expertly in clinical settings and to carry out physical examination skills with the appropriate qualifications. In fact, training and creating a suitable environment for performing physical examination skills will help nurses with their problem-solving skills to use their professional role to raise the viewpoints of other treatment team members about the nurse's ability to resolve the patient's problem, and with reinforcing this belief more participation of nurses will be provide in care and treatment. Proper training of clinical skills, in addition to improve the nursing skills, affects their quality of care, also, affects the satisfaction of nursing caregivers, nurses' satisfaction from nursing work, and relieving their anxiety and stress in the workplace.

In the present study, the mean of mental skill was significantly correlated with the service ward which was in concordance with the study of Hajbagheri et al. According to the authors of the present article, nurses' skills increase due to nurses dominate in the place of service and repeat the skills in the ward. With this regard, Moercke's study on medical students [20] and Old's study on physicians [21] showed that the skills that people encountered frequently were performed better with a lower percentage of errors, which confirm the abovementioned point.

The results of this study showed that there was a significant relationship between the decreases of interest rate in current ward with the level of mental skills score, so that nurses who had less interest in attending in ward had less skill. The results of Salimi's research showed that there was a significant relationship between the interest of nursing students with the type and the levels of skills [22]. Nurses seem to be doing more researches on their field of interest. In addition to the interest in the working ward and the activity of the nurses in the ward, proficiency and skill will be develop. But if they are not interested and nurses do not consider many skills as their duties, they will experience shortages in performing specialized examinations, which can even lead to underworking and put patients at-risk.

In the present study, nurses' employment status was not significantly correlated with mean mental skills. In the study of Mohammadi et al., it was found that the employment status did not have a significant relationship with the use of skills, and the standard performance motivation was reduced with the stable employment status. Khoran et al. study showed that the mean skill of the permanent employment nurses was higher than average score of not permanent nurses score [23]. The authors believe that due to the fact that employment status is a motivational factor for nurses in terms of functions and skills, it is therefore effective on mental skills, but because there was no significant difference in this regard, this might be related to the lack of feeling safe about answering the questionnaire.

In the present study, there was no significant relationship between the mean mental skills with work experience in the current ward. In a research conducted by Nezhadshamsi et al. there was no significant correlation between having and not having work experience with skill level [24]. From the viewpoint of the authors, this difference is related to the studied population and the studied variables, because the study was conducted on students. The high level of history and experience of working will increase the available cognitive resources for changing the data and ultimately lead to an increased decision-making accuracy, which should take into account on the timing of the placement of nurses in different positions and critical care units.

Of limitations of this study, the lack of budget and time to examine mental skills of physical examination executed by nurses in other wards of the hospital and compare with pediatric ward nurses can be mentioned.

5. CONCLUSION

The results of this study indicated that the nurses had moderate mental skills, which mean mental skill was significantly associated with the total score at the time of graduation, the ward of service, the level of interest in the current ward and the history of retraining related to health status assessment. Therefore, considering the factors affecting mental skills, this skill can be increased, which should be considered in future researches.

CONSENT

It is not applicable.

ETHICAL APPROVAL

The purpose of the research was explained to the nurses and they were assured that the information of this research would be used in

general without mentioning the names. This research has been approved by the Ethics Committee of Guilan University of Medical Sciences with the code of IR-GUMS.REC. 1397.275.

ACKNOWLEDGMENTS

We would like to thank the nurses who patiently collaborated with us and made this research possible. Also, the authors announce their gratitude to the Vice-Chancellor for Research and Technology of Guilan University of Medical Sciences for their cooperation and arrangements.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Lesa R, Dixon A. Physical assessment: implications for nurse educators and nursing practice. International Nursing Review. 2007;54(2):166-72.
2. Alamri MS, Almazan JU. Barriers of physical assessment skills among nursing students in Arab Peninsula. Int J Health Sci (Qassim). 2018;12(3):58–66.
3. Bahador RS, Nouhi E, Sabzevari S. The effect of nursing process training on critical thinking and quality of nursing care. Journal of Clinical Nursing and Midwifery. 2018;7(3):202-209
4. Zeid Abadi MR, Ghazanfari Z, Roudi Rasht Abadi OS. Correlation between knowledge-skill and the importance of physical assessments in nurses: A descriptive correlational study. Hayat. 2017; 23 (1) :86-99
5. Azizzadeh Forouzi M, Alimirzaei R, Dehghan M, Heidarzadeh A. Evaluation of nursing students' clinical skills in intensive care units. JNE. 2018;6(6):58-63.
6. Hakimzadeh R, Karamdost N, Memarian R, Ghodrati A, Mirmosavi J. Assessing nursing students' clinical competency: Self-assessment. 2012;1(1):17-25.
7. Douglas C, Windsor C, Lewis P. Too much knowledge for a nurse? Use of physical assessment by final-semester nursing students. Nursing & Health Sciences. 2015;17(4):492-9.
8. Birks M, Cant R, James A, Chung C, Davis J. The use of physical assessment skills by registered nurses in Australia: Issues for nursing education. Collegian. 2013;20(1): 27-33.
9. Baxter P, Norman G. Self-assessment or self deception? A lack of association between nursing students' self-assessment and performance. Journal of Advanced Nursing. 2011;67(11):2406-13.
10. Traeger L, Park ER, Sporn N, Repper-DeLisi J, Convery MS, Jacobo M, Pirl WF. Development and evaluation of targeted psychological skills training for oncology nurses in managing stressful patient and family encounters. Oncol Nurs Forum. 2013;40(4):E327-36.
DOI: 10.1188/13
11. Cusack E, Killoury F, Nugent LE. The professional psychiatric/mental health nurse: Skills, competencies and supports required to adopt recovery-orientated policy in practice. J psychiatrment Health Nurs. 2017;24(2-3):93-104.
DOI: 10.1111/jpm.12347.
12. Richards D, Caldwell PH, Go H. Impact of social media on the health of children and young people. J Paediatr Child Health. 2015;51(12):1152-7.
13. Lang JJ, Belanger K, Poitras V, Janssen I, Tomkinson GR, Tremblay MS. Systematic review of the relationship between 20m shuttle run performance and health indicators among children and youth. J Sci Med Sport. 2018;21(4):383-397.
14. Salmond SW, Echevarria M. Healthcare Transformation and Changing Roles for Nursing. Orthop Nurs. 2017;36(1):12–25.
15. Nasiriani K, Farnia F, Salimi T, Shahbazi L, Motavasselian M. Nursing graduates' self-assessment of their clinical skills acquired in medical-surgical wards. Iranian Journal of Medical Education. 2006;6(1):93-100.
16. Aliniya S. Bruner. Suddarth's textbook of medical surgical nursing. Eleventh ed. Tehran: Jame Negar; 2008.
17. mahreini M, Moatary M, Akaberian S, Mirzaie K. Determining nurses' clinical competence in hospitals of Bushehr University of Medical Sciences by self assessment method. Iran South Med J. 2008;11(1):69-75.
18. Brown RA, Crookes PA, Iverson D. An audit of skills taught in registered nursing preparation programmers in Australia. BMC Nursing. 2015;14(1):68.

19. Habibzadeh H, Khajehali N, Khalkhali H, Mohammadpour Y. Effect of evidence-based nursing training on nursing students ability in executive skill of nursing process in Urmia University of Medical Sciences, 2013. J Urmia Nurs Midwifery Fac. 2013; 11(4)
20. Moercke AM, Eika B. What are the clinical skills levels of newly graduated physicians? Self-assessment study of an intended curriculum identified by a Delphi process. Medical Education. 2002;36(5): 472-8.
21. Old A, Naden G, Child S. Procedural skills of first-year postgraduate doctors at Auckland District Health Board, New Zealand. The New Zealand Medical Journal. 2006;119(1229).
22. Salimi T, Karimi H, Shahbazi L, Dehghanpour M, Hafezieh A, Parandeh K, et al. Evaluation of clinical skills of final year nursing students in critical care units. JSSU. 2005;13(3):60-66.
23. Khoran M, Hajizadeh E. Nurses' self-assessment for pediatric physical examination skills. Iran Journal of pediatric Nursing (JPEN). 2016;3(2).
24. Nejad Shamsi P, Zaker-Jafari HR, Basirat M, Zaker-Jafari A. Self-assessment of senior dental students about acquired skills based on the educational program. RME. 2017;9(3):78-73.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle3.com/review-history/49508