

Problem solving skills and clinical decision making among nursing interns

Alaa. M. S. El-Demerdash¹, Sanaa. A. Ibrahim², Wafaa. A. Elhosany³

¹Assistant lecturer of Nursing Administration, Faculty of Nursing-Suez Canal University, Ismailia, Egypt

²Professor of Nursing Administration, Faculty of Nursing-Port Said University, Ismailia, Egypt

³Professor of Nursing Administration, Faculty of Nursing-Suez Canal University, Port Said, Egypt

* corresponding author: alaa_eldemerdash@nursing.Suez.edu.eg

Abstract: Recently, nurses experience many crises and are faced with a large number of problems because of the technological advancements and the increasingly complex healthcare system. When the nurses are faced with the unpredictable circumstances, they must have problem solving skills to manage these processes. Problem solving is one of the decision-making patterns. Clinical decision-making can be defined as a problem solving activity that emphasizes on defining the patient problems and selecting the appropriate treatment interventions. The aim was to identify the relation between problem solving skills and clinical-decision making of nursing interns at Suez Canal University. Subject and method: descriptive correlational design was utilized to carry out this study. The sample of the study was all the internship students in the academic year 2018/2019 who affiliated to Faculty of Nursing at Suez Canal University and spent their internship period in Suez Canal University Hospitals during the data collection period. They were 68 students. The setting was Suez Canal University Hospitals. Tools: Two tools were used. Tool (1) problem solving inventory. Tool (2) the clinical Decision Making in Nursing Scale. Results: There was a statistically significant strong correlation between problem solving skills and clinical decision-making ($P < 0.001$) Conclusion: There was a relationship between problem solving skills and clinical decision making of nursing interns at Suez Canal University. Recommendations: problem solving skills and clinical decision-making should be included in the orientation-training program of the nursing interns.

Keywords: Clinical decision making – Decision making - problem solving – Nursing Interns.

I. INTRODUCTION

Problem solving skills are very important skills for determining, practicing, and evaluating the nursing care for healthy and sick. Nurses use problem solving skills in teamwork, health care management and in their role as a caregiver. Problem solving skills underlie all the nursing practice [1]. Problem solving can be defined as a cognitive-behavioral emotional process in which the individual tries to reach to the most appropriate solution to the difficult stressful circumstances that they experience [2].

Nurses need to make the accurate clinical decisions that are congruent with the patients' diagnoses. The quality of care that is provided to the patients is mainly affected by the nurses' ability to make an efficient clinical decision. Clinical decision-making can be defined as a problem solving activity that emphasizes on defining the patient problems and selecting the appropriate treatment interventions [3].

Some researchers reported that decision-making is a stage of the problem solving while the conflict theory of decision-making sees that the systematic searching for information, the consideration of all possible alternatives and the non-impulsive making of the best final decision, in other words, problem solving, is one of the decision making patterns. Other

researchers believe that decisions and problems situations are distinct and the decisions create problems. However, they also believe that the mental framework used in both is similar [4].

1.1 Significance of the study:

Problem solving skills is very important for nurses to deal with the many challenges of the health care. Clinical decision-making is essential requirement of effective problem solving. It was very important to identify the relation between problem solving skills and clinical-decision making of nursing interns at Suez Canal University

II. SUBJECT AND METHODS

2.1. The aim of this study: was to identify the relation between problem solving skills and clinical-decision making of nursing interns at Suez Canal University.

2.2. Study design: was descriptive correlational design.

2.3. The sample of the study: was all the internship students in the academic year 2018/2019 who affiliated to Faculty of Nursing at Suez Canal University and spent their internship period in Suez Canal University Hospitals during the data collection period. They were 68 students.

2.4. Study setting: Suez Canal University Hospitals, which consist of three buildings (educational building, special surgery building and oncology building)

2.5. Research question: is there a relation between problem solving skills and clinical decision making of nursing interns at Suez Canal University?

2.6. Tools of data collection:

2.6.1. Tool (1): Problem-solving inventory (PSI)

This tool is a questionnaire, which was developed by [5]. It measures adults' and adolescents' problem-solving skills. It consists of 32 items grouped under three factors:

A- problem solving confidence (PSC) which measures the person's beliefs about his/her ability to solve new problems (11 items)

B- Approach-avoidance Style (AAS) which measures the ability to review initial problem-solving efforts for use in the future and to conduct an active search for different alternative solutions (16 items)

C- Personal control (PC) which expresses the ability to maintain control during problematic situations (5 items).

• Scoring system:

The measurement scale is six points likert scale ranging from **1 (strongly agree)** to **6 (strongly disagree)**. Negative items (3,10,12,13,14, 18, 19, 21,24,26,28,29,30,31) are reverse scored. The total score ranges from 32 to 192. The average score is 80 points. Total scores >80 indicate that problem solving skills are insufficient, whereas total scores ≤ 80 indicate that problem solving skills are sufficient. [5,6,7]

2.6.2. Tool (2): Clinical Decision Making in Nursing Scale (CDMNS)

The CDMNS is a questionnaire developed by Jenkins to measures the participants' self-perceptions of decision - making skills and behaviors that are utilized during working in the clinical settings with patients. The CDMNS consists of 40 items which are grouped under four subscales. 10 items for each subscale [8]. These subscales are:

- Search for Alternatives or Options,
- Canvassing of Objectives and Values
- Evaluation and Reevaluation of Consequences
- Search for Information and Unbiased Assimilation of New Information.

Scoring system:

The items of CDMNS are evaluated on a five point likert scale ranging from always = 5 to never = 1. 18 items (2,3,5,8,12,16,18,20,21,22,23,25,29,31,36,37,39,40) were written as negative. The rest items were written as positive. 18 negative items were inversely scored.

Maximum and minimum scores to be taken are 200 and 40 for the total scale and 50 and 10 for each subscale. A score from 40- 80 was considered as a low level of decision making. Score ranged from 81- 140 was considered as a middle level of decision making. A score ranged from 141-200 was considered as a high level of decision making[9].

2.7. Field work:

The data collection took about one week at the middle of August 2019. The researcher explained the aim of the study and the questionnaires to the nursing interns. Then, each nursing intern received a copy of the questionnaires and completed it in the presence of the researcher to provide explanation for any ambiguous or confusing items.

2.8. Administrative design:

The official agreements were taken from the dean of the Faculty of Nursing, Suez Canal University, the vice dean of environmental and community affairs of the Faculty of Nursing, Suez Canal University, academic internship coordinator, the director of Suez Canal University hospitals, the manager of the training unit in the Suez Canal University hospitals and clinical internship coordinator

2.9. Ethical considerations:

Written and oral consent were obtained from the participants after a brief explanation of the aim of the study with stress on the confidentiality of the information and the importance of the study. The study proposal was approved by the Research Ethics Committee at the Faculty of Nursing in Suez Canal University.

2.10. Statistical design:

Data obtained were coded and transformed into coding sheets. Then, statistical analysis was done by using SPSS system files (SPSS package version 22). Variables were checked for normality with Kolmogorov Smirnov test at 0.05 level, accordingly variables were significant ($P < 0.001$) so the data were nonparametric. Descriptive statistics including frequency distribution were used to describe different characteristics of variables. Spearman correlation test applied for answering the study question. Significance level values considered at $p < 0.05$.

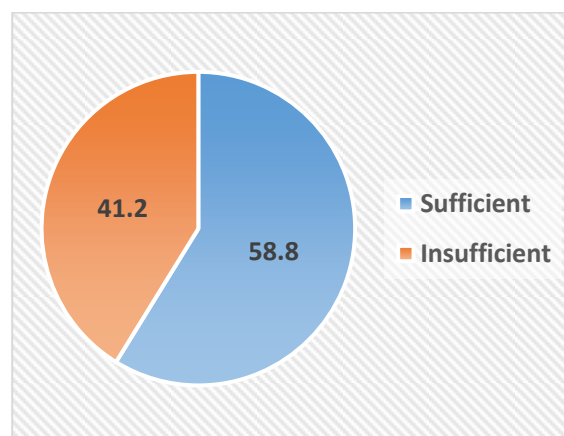
III. RESULTS

Figure (1): Levels of problem solving skills among nursing interns in Suez Canal University (n=68)

Figure (1) reveals that more than half (58.8%) of nursing interns had insufficient level of problem solving skills and only (41.2%) of nursing interns scored sufficient level of problem solving skills

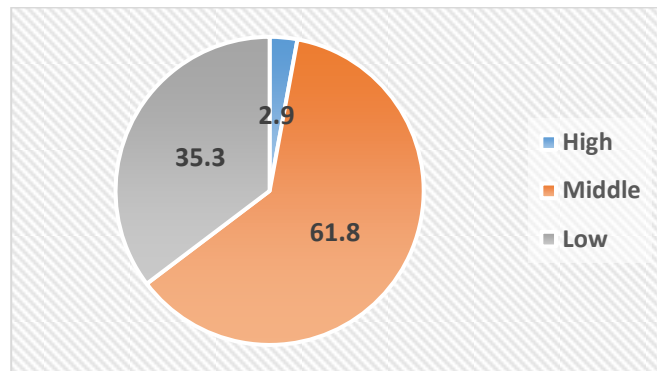


Figure (2): Levels of clinical decision making among nursing interns in Suez Canal University (n=68)

Figure (2) reveals that about two third (61.8%) of nursing interns had a middle level of clinical decision making. Only (2.9%) of participants scored high level of clinical decision making

Table (I): the relation between problem solving skills and clinical decision-making of nursing interns.

Problem solving skills	Clinical decision making	
	r	P value
	0.778	<0.001*

* Significant at $p < 0.05$. $r =$ spearman correlation test

Table (I) reveals that there is a strong positive correlation ($r=0.778$) between problem solving skills and clinical decision making $P<0.001$

IV. DISCUSSION

Regarding the problem-solving skills, the results revealed that more than half of the participants had a sufficient level of problem-solving skills. From my point of view, these results occurred due to that the learning in the Faculty of Nursing at Suez Canal University is based on problem-based learning. The participants also studied and applied the nursing process, which, is strongly related to the problem-solving process, and considered one of its applications during their studying years. These results were similar to the results of the participant of fourth-year nursing students who participate in Ancel study who also scored a sufficient level of problem-solving skills [1]. Nursing students in Durmaz study also scored satisfactory level of problem-solving [10].

Regarding the clinical decision-making, about two-third of the participants showed a moderate level of clinical decision-making in the preprogram stage. From my point of view, these results were due to that the participants trained on making clinical decisions during their studying years through applying the nursing process.

The participants in AL-Dossary and Farcic studies also scored moderate level of clinical decision-making [3,11]. The participants who were assessed by Walsh, demonstrated high level of clinical decision-making [12]. The participants in the study of Padden, demonstrated a low level of clinical decision-making skills [13].

Regarding the relation between problem solving skills and clinical decision-making, the study results revealed that there was a positive correlation between problem-solving skills and clinical decision-making. From my point of view, this result was due to that there is a high degree of similarity between the problem-solving process and the clinical decision-making process. The needed skills in both processes are the same. Both processes include developing alternatives or solutions, selecting the best one, identifying the appropriate implementation plan, and evaluating the consequences.

Many studies that examined the relation between problem-solving and clinical decision-making. Decision making was described as one of problem-solving domains [14]. The area of problem-solving is closely related to decision-making [15]. Also, the clinical decision-making will be difficult without problem-solving skills [16]. Finally, training on problem-solving skills improving clinical decision-making skills [17].

V. CONCLUSION

The following study concluded that about more than half of the participants scored sufficient level of problem solving skills and about two third of the participant scored middle level of clinical decision-making. There was a strong positive correlation between problem solving skills and clinical decision-making.

REFERENCES

- [1] **Ancl, G. (2016).** Problem-Solving Training: Effects on the Problem-Solving Skills and Self-Efficacy of Nursing Students. *Eurasian Journal of Educational Research*, 64, 231-246. Available at: <http://dx.doi.org/10.14689/ejer.2016.64.13>
- [2] **Lau, Y. (2014).** Factors affecting the social problem solving ability of baccalaureate nursing students. *Nurse education today*, 34(1), 121-126. doi: 10.1016/j.nedt.2012.10.010.
- [3] **AL-Dossary, R. (2015).** The Impact of Residency Programs on Clinical Decision-Making and Leadership Skills among New Saudi Graduate Nurses. Doctorate thesis, George Mason University. Available at <https://0811j9r8a-1103-y-https-search-proquest-com.mplbci.ekb.eg/docview/1695272523/12C6F571BB334BBDPQ/1?accountid=178282>
- [4] **Talanker, S. (2016).** Problem-solving is Decision-making. Paper presented at 2016 Annual Meeting of Decision Sciences Institute, Texas, USA. Retrieved from: <https://www.researchgate.net/publication/310844404>
- [5] **Heppner, P. P., & Petersen, C. H. (1982).** The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology*, 29, 66-75. DOI: 10.1037/0022-0167.29.1.66
- [6] **Cevik, A. & Olgun, N. (2015).** Do Problem-Solving Skills Affect Success in Nursing Process Applications? An Application among Turkish Nursing Students. *International Journal of Nursing Knowledge*, 26(2), 90-95. <http://doi.org/10.111/2047-3095.12043>
- [7] **Soliman, A. (2014).** The Problem-Solving Inventory: Appraisal of Problem Solving in the Arab Context, Factor Structure, and Validation. *International Perspectives in Psychology: Research, Practice, Consultation*, 3(4), 252-267. DOI: 10.1037/ipp0000020
- [8] **Jenkins, H. (1983).** Perceptions of Decision Making Among Baccalaureate Nursing Students as Measured by The Clinical Decision Making in Nursing Scale. Doctoral thesis, University of Maryland. Available at: <http://mplbci.ekb.eg/MuseProxyID=1105/MuseSessionID=0811jpkm5/MuseProtocol=https/MuseHost=search.proquest.com/MusePath/pqdtglobal/docview/303273267/F41AA452E55B4257PQ/2?accountid=178282>
- [9] **Kileb, S. (2013).** Critical Thinking And Clinical Judgment Skills For Baccalaureate Nursing Students In El-Menia University. Unpublished master thesis, Assuit University.
- [10] **Durmaz, Y., Serin, E. & Polat, H. (2018).** Determination of Problem-Solving and Communication Skills of Nursing/Midwifery Students. *International Journal of Caring Sciences*, 11(3), 1771-1777. Available at: <http://www.internationaljournalofcaringsciences.org/>
- [11] **Farcic, N., Barac, I., Lovric, R., Pačarić, S. Gvozdanović, Z. & Ilakovic, V. (2020).** The Influence of Self-Concept on Clinical Decision-Making in Nurses and Nursing Students: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 17(1), 3059-3062. doi:10.3390/ijerph17093059
- [12] **Walsh, S. (2010).** The Effects of Pattern Recognition Based Simulation Scenarios on Symptom Recognition of Myocardial Infarction, Critical Thinking, Clinical Decision-Making, and Clinical Judgment in Nursing Students. Doctorate thesis, Georgia State University. Available at: <https://0811j9rr4-1103-y-https-search-proquest-com.mplbci.ekb.eg/docview/858458087/4629E40D39CA48D8PQ/1?accountid=178282>
- [13] **Padden, M. (2011).** The Effects of Guided Reflective Journaling on Nursing Students' Level of Reflection, Self-Awareness, and Perceived Clinical Decision Making Skills. Doctorate thesis, Widener University. Available at: <https://0811jjkzq-1105-y-https-search-proquest-com.mplbci.ekb.eg/docview/926972515/4C5B9204CA3343ABPQ/1?accountid=178282>

International Journal of Novel Research in Healthcare and NursingVol. 8, Issue 1, pp: (304-309), Month: January - April 2021, Available at: www.noveltyjournals.com

- [14] **Lee, B. & Lee, Y. (2020)**. A study examining the effects of a training program focused on problem-solving skills for young adults. *Thinking Skills and Creativity*, 37(1), 1-11. DOI: 10.1016/j.tsc.2020.100692
- [15] **Fazlollahi, B. & Vahidov, R. (2001)**. A Method for Generation of Alternatives by Decision Support Systems. *Journal of Management Information Systems*, 18(2), 229-250. DOI: 10.1080/07421222.2001.11045683
- [16] **Cripe, T. (2020)**. Nurse Educator Strategies Fostering Clinical Decision-Making in Nursing Students: A Qualitative Study. Doctoral thesis, Capella University. Available at: <https://0811j9r8a-1103-y-https-search-proquest-com.mplbci.ekb.eg/docview/2393169238/3D6667EED7CE4B61PQ/1?accountid=178282>
- [17] **Heidari, M. & Shahbazi, S. (2014)**. The effect of Problem Solving Training on Decision Making Skill in Nursing Students. *International Journal of Nursing Education Scholarship*, 6(1), 15-18. DOI: 10.5958/j.0974-9357.6.1.004