

## **Clinical Decision-Making Ability among Students at Faculty of Nursing in Suez Canal University**

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### **Abstract**

**Background:** Clinical decision-making ability in nursing is one of the most important skills nursing students must learn and employ in their nursing practice to ensure patient safety and optimal delivery of care. **Aim of the study:** To assess level of clinical decision-making ability among students at Faculty of Nursing, Suez Canal University. **Research design:** A descriptive research design was used in the study. **Setting:** the study was carried out at Faculty of Nursing, Suez Canal University. **Sample:** Included 210 nursing students from the second, third, and fourth academic years by using a systematic random sample. **Tools for data collection:** Data was collected by using Clinical Decision Making in Nursing Scale (CDMNS). **Results:** The highest percentage of nursing students record the medium level of clinical decision-making ability, compared to the least percentage of them record the low level of clinical decision-making ability. Also, there was not a statistically significant difference between nursing students' clinical decision-making ability with their different academic years. However, there was a statistically significant difference between nursing students' clinical decision-making ability with their having another degree in nursing field and their age. **Conclusions:** The level of clinical decision-making ability is mainly relatively medium rather than high among students at Faculty of Nursing, Suez Canal University. **Recommendations:** Organize training programs by continuous learning unit at faculty of nursing for clinical instructors and nursing students on clinical decision-making in the nursing practice.

**Keywords:** Ability, Clinical decision-making, Nursing students.

### **1. Introduction**

Today, nurses are exposed to ever-changing complicated conditions in health care services. To be able to cope with these conditions effectively, nurses should be competent decision-makers (Lee et al., 2017). So, nursing students must develop sound judgment and decision-making skills to deal confidently with the challenges they

will encounter as registered nurses. Also, they need to be knowledgeable in many significant aspects of nursing, have access to trustworthy information sources, and extract from new information the elements that are applicable to determine and solve the problems (Krishnan, 2018).

Decision-making is described as a choice made by a practitioner from many

alternatives. Clinical was defined as “of, relating to, conducted in, or as if in a clinic” involving direct observation of a patient (Manetti, 2019). Clinical decision making (CDM) is a systematic process where nurses determine the type of information they collect, recognize problems according to the cues identified during information collection, and decide upon appropriate interventions to address those problems (Tiffen et al., 2014).

Baxter and Boblin (2008) introduced five types of decisions students were making in baccalaureate nursing programs. Five types include assessment, intervention, resource, communication, and action. Assessment decisions involve deciding what type of data and how to gather the data to complete a client assessment. Intervention decisions involve determining what nursing interventions can be taken to improve or maintain the client’s health condition. Resource decisions involve who or what students can access to support them when making clinical decisions. Communication decisions involve determining who they should communicate within the decision-making process. Action decisions involve deciding whether to proceed in the decision-making process or not (Krumwiede, 2010).

The clinical decision-making process includes: selecting from a number of

alternatives or options which means that the decision-maker uses a number of strategies or resources to achieve desired objectives, canvassing objectives and values which the decision-maker should be aware of the influence of these values as they permeate the decision process and affect the choice of outcomes, evaluating and reevaluating consequences which means that the decision-maker evaluates certain risks or benefits that gained from alternatives, and search for and unbiased assimilation of new information used in the decision process for making good decisions (Yu et al., 2019).

### **1.2 Significance of the Study:**

Many of the current graduates still lack many skills like critical thinking, problem-solving, and decision-making skills. Therefore, there is a strong requirement of higher education institutions to focus on training future graduates to be more adaptable to the community needs, as well as to match between graduates’ skills and the prerequisite skills for their future careers.

### **2. The aim of the study:**

This study aimed to assess clinical decision-making ability among students at the Faculty of Nursing, Suez Canal University.

### **2.2. Objective of the study:**

- Determine the level of clinical decision-making ability among students at the Faculty of Nursing, Suez Canal University.

### **3. Subject and Methods**

#### **3.1. Study design:**

A descriptive design was used in the study.

#### **3.2. Study setting:**

This study was conducted at the Faculty of Nursing, Suez Canal University. The Faculty of Nursing in Ismailia had been established in 2006. It adopts new and innovative educational approaches. It follows Problem Based Learning (PBL) strategy in addition to Community-Oriented and Community-Based Education.

#### **3.3. Study subjects:**

Sample included 210 students from the second, third, and fourth academic years, distributed proportionally based on number and percentage of each academic year as the following: (second year (31%) = 65 students, third year (32%) = 68 students, and fourth year (37%) = 77 students). The first academic year students were excluded from the study sample as students should have a long length of stay in the clinical settings.

#### **3.4. Tool of data collection:**

#### **Students' personal characteristics data:**

Students' personal characteristics data such as student's name (optional), academic year, age, and having another degree in the nursing field (technical institute of nursing/ nursing diploma).

#### **Clinical Decision Making in Nursing Scale:**

The questionnaire was adapted from **Jenkins (1983)**. It aims to assess nursing students' clinical decision-making ability. It consisted of 40 items, grouped under four subscales, related to different clinical decision-making behaviors: searching for alternatives (10 items), canvassing of objectives and values (10 items), evaluation and reevaluation of consequences (10 items), and searching for information and unbiased assimilation of new information (10 items).

#### **Tool validity and reliability:**

CDMNS has strong content validity, and the Arabic copy has face validity by **Rashwan (2016)**. In the current study, the CDMNS Arabic copy was tested for its subject validity on 10 students from the second (5 students), third (3 students), and fourth academic year (2 students) to determine the visibility and readability of this tool. Cronbach's alpha regarding CDMNS in the present study was 0.80.

### **Scoring system:**

Nursing students responded to this questionnaire along a continuum of 5-point Likert scale to rate the frequency of behaviors, ranging from 1=" never" to 5=" always" for only positive items (22 items) and ranging from 5= " never" to 1=" always" for negative items (18 items).

CDMNS has a potential score range of 40–200 in the whole scale and 10–50 in each subscale, and there is no cutting point. The total scoring of CDMNS is divided into three levels: low (40–130), medium (131–160), and high (161–200) (Canova et al., 2016).

### **3.5. Field work:**

The data were collected at the end of the second semester of the academic year 2019–2020, taking about two months from the beginning of July to the end of August. A self-administered questionnaire was used by using Google drive form online software. This method was chosen to decrease the risk of transmission of COVID-19 during the data collection period. Official permission was obtained from the dean of nursing faculty, Suez Canal University to obtain the WhatsApp list of nursing students from the official WhatsApp academic groups to send out the questionnaire link. The researcher

selected the students randomly, contacted them separately, and had their primary agreement for participation in the study. Then, the questionnaire link was sent to them.

### **3.6. Pilot study:**

A pilot study was carried out on (10%) of the study participants to check the applicability and feasibility of the instrument, to identify the obstacles and problems, and to take needed measures to manage these obstacles and problems when collecting data. It was done including 21 students, which were taken proportionally as the following: second year (7 students), third year (7 students), and fourth year (7 students). No modification was needed, and the pilot study was not included in the study sample.

### **3.7. Ethical considerations:**

Official permission was obtained from the ethical scientific research committee at the faculty of nursing, Suez Canal University to upload the informed consent and get the students' agreements to participate in the study through Google drive form. The students were informed that any individual included in the study has the right to refuse to participate in the study or withdraw from the study at any time with no negative

consequences to them, and the confidentiality of the data and results was maintained.

### **3.8. Data analysis:**

Data were organized, revised, tabulated using the SPSS program, version 22. All continuous data were normally distributed and were expressed in mean  $\pm$  standard deviation (SD). Categorical data were expressed in number and percentage. The student's t-test was used for comparison between two variables with continuous data. One-way analysis of variance (ANOVA) test was used for comparison among more than two variables with continuous data. A correlation coefficient test was used to test for correlations between two variables with continuous data. Statistical significance was set at  $p < 0.05$ .

## **4. Results**

**Table (1):** shows that the fourth academic year represented the highest percentage of students (36.6%) rather than other academic years. The students' ages ranged between 20 and 25 years with a mean score ( $21.5 \pm 1.2$ ). The students who do not have another degree in the nursing field (technical institute of nursing/ nursing diploma) represented the highest percentage (81.9 %) rather than others who have another degree.

**Table (2):** shows that canvassing for

objectives and values record the highest mean score ( $37.7 \pm 3.7$ ), compared to searching for information and unbiased assimilation of new information record the least mean score ( $35.9 \pm 3.6$ ). Totally, clinical decision-making ability mean score was recorded ( $147.72 \pm 12.05$ ).

**Figure (1):** clarifies that the highest percentage of nursing students (74.8%) record a medium level of clinical decision-making ability, compared to the least percentage of them (8.1%) record a low level of clinical decision-making ability.

**Table (3) :** shows that there was no statistically significant difference between nursing students' clinical decision-making ability with their different academic years ( $P$ -value= 0.580). Whereas there was a statistically significant difference between nursing students' clinical decision-making ability and their having another degree in the nursing field ( $P$ -value= 0.009).

**Table (4):** shows that there was a statistically significant correlation between nursing students' age and total clinical decision-making ability ( $P$ -value < 0.05).

## **5. Discussion**

Clinical decision-making ability among nursing students is very important for

identifying and prioritizing patient problems or needs, managing time to meet all needs efficiently and effectively. So, Engaging students in decision-making at the educational level ensures that new nursing graduates have had some experience in making decisions through assessment, evaluating risk and benefit, and choosing correct alternatives to make the most effective clinical decisions (**Butts and Rich, 2019**).

Concerning the distribution of personal characteristics of students at faculty of nursing, the current study showed that the fourth academic year students represented the highest percentage of students rather than other academic years. This result agrees with **Bektas et al. (2020)**, whereas this result is in contrast with **Aktas and Karabulut (2016)** who found that the least percentage of students were in the fourth year.

Moreover, the result of the current study showed that most nursing students do not have another degree in the nursing field. This result is inconsistent with **Leena Salminen et al. (2016)** who found that one-third of nursing students had a previous qualification in the nursing field. This result may be due to those educational policies of the nursing faculties that permit only a limited number of the

technical nursing institutes' new graduates to enroll at the faculties of nursing.

Regarding the mean scores of clinical decision-making ability subscales among nursing students, the current study result showed that that canvassing for objectives and values record the highest mean. This result is in accordance with the findings of **Mohamed et al. (2017)** and **Ciftci et al. (2020)**, whereas **Inangil and Cura (2020)** found that nursing students record the least mean score toward canvassing for objectives and values.

The result of the current study may be due to that canvassing of objectives and values subscale that focuses on the professional values and attitudes of decision-makers in terms of diversity. This also refers to the holistic approach to a patient. This result is following Benner's theory, confirming that only expert nurses can step back and see the patient, rather than as a series of tasks that need to be performed in nursing care (**Farcic et al., 2020**). In addition, nurse educators are role models to encourage nursing students to express their opinions.

Conversely, searching for information and unbiased assimilation of new information record the least mean. The result of the present study is in the same line with the findings of **Arzani et al. (2016)**, whereas it is incongruent



with **Farcic et al. (2020)** who clarified that nursing students record the highest mean score toward searching for information and unbiased assimilation of new information. This result can be interpreted in the light that the way that students view the information-seeking process. Nursing students who look for new information felt that more trouble than it is worth. In addition, there are variables that influence nursing students' information gathering at all stages of their clinical experiences as sources of the information, timing/academic pressure, and academic stress that may impinge on the students' ability to engage in information searches.

Regarding level of clinical decision-making ability, it was found that the highest percentage of nursing students recorded a medium level of clinical decision-making ability. This result is supported by the findings of **Mohamed et al. (2017)**, and **Inangil and Cura (2020)** who reported that the highest percentage of nursing students in the range of medium level of clinical decision-making ability. Whereas the nursing students' clinical decision-making ability score in this study is lower than the scores of the students participating in the studies conducted by **Edeer and Sarikaya (2015)** and **Al-Dossary et al. (2016)** who reported that the highest percentage of nursing students

in the range of high level of clinical decision-making ability.

On the other hand, the nursing students' clinical decision-making ability score in the current study is higher than the scores of the students participating in the studies conducted by **Canova et al. (2016)** and **Pramilaa (2018)** who reported that the highest percentage of nursing students in the range of low level of clinical decision-making ability.

The result of the current study means that nursing students' decision-making ability in the clinical settings is in process of development and needs to be better. This result may be due to that the large number of students that exceed ten in PBL classes could affect the opportunity of all students to participate in the group discussion and the ineffective formulation of the problem statement used in PBL sessions. In this regard, **Dicle and Durmaz-Edeer (2013)** denoted that in the PBL strategy, students are learning the skills of developing hypotheses to face new situations, determining learning requirements, doing research, and selecting the correct and necessary information, and these skills have improved the students' clinical decision-making perceptions.

Besides that, these results are due to the limited number of clinical instructors in the

nursing faculty, whereas the guidance and support of the clinical instructor is the key to the students' growth and ability to make clinical decisions. In this regard, **Garzone-Johnson (2019)** argued that nursing students learn to make clinical decisions depending upon the situation at hand and the support and guidance provided by the clinical instructors in the other hand.

It was found that there was not a statistically significant difference between nursing students' clinical decision-making ability with their different academic years. This result agrees with **Lean Keng and AlQudah (2017)**, and this result might be due to nursing students' progress from simple to more complex tasks through different academic years in the nursing program, they become less confident in their clinical capabilities and decision-making.

These findings suggested that the needed for more encouragement for an open, questioning environment in nursing where nursing students can learn better decision-making skills in a supportive practice environment. In this regard, **Smith (2013)** denoted that nursing students should encourage to use critical thinking skills to try to find clinical reasons for changes in their patients'

condition and in turn, to make accurate decisions about their patients' care.

Regarding the relationship between nursing students' clinical decision-making ability and their having another degree in the nursing field, it was found that there was a statistically significant difference between nursing students' clinical decision-making abilities with their having another degree in the nursing field. The result of the present study is contradicted with **Maneval et al. (2012)** who explored that nursing students' previous degrees in the nursing field did not significantly change their decision-making abilities.

This result may be due to that nursing students with other degrees in the nursing field had more inquisitiveness to learn new knowledge and skills in the nursing field. Also, they had more previous training and clinical experience in clinical settings. Hence, nursing students' clinical experience increases their confidence in their decision-making skills. In this regard, **Ludin (2018)** said that nursing students with more clinical experience were more likely to have been taught content about special skills and procedures in their basic registered nursing curriculum than those with less clinical experience.



Furthermore, it was found that there was a statistically significant correlation between nursing students' age and total clinical decision-making ability. This result is congruent with **Arzani et al. (2016)** and **Ludin (2018)**, whereas it is in contrast with **Choi and Kim (2015)** and **Phillips et al. (2021)** who reported that there was no statistically significant correlation between clinical decision-making ability and age.

The result of the current study may be due to that nursing students' decision-making ability depends on knowledge and experience, and novice nursing students' decision-making ability is strongly affected by specific information and rules, where experienced nursing students have a more holistic understanding of the situation and make decisions using a patient-oriented approach. In this regard, **Gizaw et al. (2018)** said that clinical decision-making is based on nursing students' experience, and this is normally acquired with age.

## **6. Conclusion:**

The level of clinical decision-making ability is mainly relatively medium rather than high clinical decision-making ability among students at the faculty of nursing, Suez Canal University. Additionally, nursing students' characteristics have a statistically significant

difference in relation to clinical decision-making ability except their different academic years have not a statistically significant difference with clinical decision-making ability.

## **7. Recommendations:**

1-

**Recommendations implemented by faculty administrators:**

- Designing training programs for clinical instructors and nursing students about clinical decision-making in the nursing practice.
- Improve PBL skills practice through additional training programs for effective PBL practice that will enhance clinical decision-making among nursing students.
- Provide a supportive learning environment that will help nursing students to develop a more positive perception of their clinical decision-making ability in clinical settings.

2-

**Further researches are recommended to:**

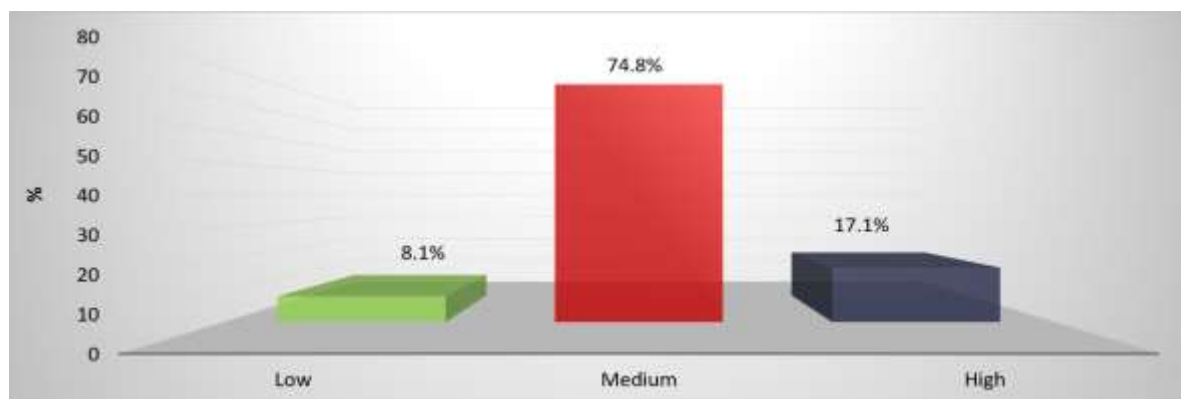
- Study clinical decision-making among nursing students with a large sample size from different universities to generalize the results.

**Table 1:** Distribution of personal characteristics of students at faculty of nursing (n=210):

Items		No.	%
<b>Academic year</b>			
• Year 2		65	31.0
• Year 3		68	32.4
• Year 4		77	36.6
<b>Age</b>	<b>Range</b>	20-25	
	<b>Mean ± SD</b>	21.5 ±1.2	
<b>Another degree in nursing field</b>			
• Yes		38	18.1
• No		172	81.9

**Table 2:** Mean scores of total clinical decision-making ability and its subscales among nursing students (n=210):

Subscales	Range of scores	Mean ± SD
<b>Search for alternatives and options</b>	27 – 47	37.6 ± 3.6
<b>Canvassing for objectives and values</b>	27 – 47	37.7 ± 3.7
<b>Evaluation and re-evaluation of consequences</b>	24 – 48	36.4 ± 4.4
<b>Searching for information and unbiased assimilation of new information</b>	26 – 45	35.9 ± 3.6
<b>Total clinical decision-making ability</b>	114 – 175	147.72 ± 12.05



**Figure (1):** levels of clinical decision- ability among nursing students (n=210)

**Table (3):** Relation between personal characteristics of nursing students and clinical decision-making ability (n=210):

		Clinical decision-making	Test	P- value
		Mean ±SD		
Academic grade	Grade 2	146.3 ±12.4	F= 0.547	0.580
	Grade 3	148.3 ±10.6		
	Grade 4	148.0 ±13.1		
Another degree in nursing field (technical institute/ nursing diploma/ nursing diploma)	Yes	152.2 ±11.1	t= 2.673	0.009*
	No	146.6 ±12.1		

\* Statistically significance difference at p<0.05.

**Table 4:** Correlation between nursing students' clinical decision-making ability and their age (n=210):

Clinical decision-making subscales	Age	
	Pearson correlation (r)	P-value
Total clinical decision-making ability	0.189	0.006*

\* Statistically significance difference at p<0.05.

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