

## The relationship between Emotional Intelligence and Problem Solving Skills on Nursing Students

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### Abstract

**Background:** Emotional intelligence is comprised of individual, emotional, and social abilities. It includes the competency of an individual to manage their relationships with others, and regulate emotions and efficiently solved their problem. **Aim:** this study aims to assess the effect of emotional intelligence training program on nursing students problem solving skills. **Design:** A descriptive, correlational design was followed in carrying out this study. **Setting:** The study was conducted at the Technical Nursing Institute at El-Fayoum University. **Subjects:** included all the available nursing students at second year was 200 nursing students. **Tools of data collection:** Data were collected by using two tools emotional intelligence questionnaire and problem solving skills questionnaire. **Results:** 48.5% of the nursing students had high emotional intelligence. Half of nursing students in the study sample were high problem solving skills. **Conclusion:** There were highly statistically significant correlations between emotional intelligence and problem solving skills. **Recommendations:** The Technical Institute of Nursing should adopt the emotional intelligence, educational approach in all its different grades and Enhance nursing problem solving skills through providing them with supportive and positive training environment.

**Key words:** Emotional intelligence -Nursing students- Problem solving skills.

### Introduction

Emotional intelligence is defined as a set of emotional and social competencies and knowledge regarding other mental skills. This concept was introduced by John Mayer, emphasizing on the ability of individuals to control their feelings and those of the others, accept the views of others, and control social relations and feedback. Emotional intelligence is the capability of individuals to explain and interpret their emotional status. In fact, emotional intelligence is a form of competence, which determines the processes through which skills could be utilized optimally (*Ghanbari, 2020*).

The first component of emotional intelligence is emotional self-awareness, which contains emotional self-awareness, Accurate Self-assessment, and Self-confidence. The second component of EI, Self-management

contains Emotional self-control, Transparency, Adaptability, and Achievement orientation. The third EI component is Social Awareness that means awareness of others' feelings, needs, and concerns, which encompasses the competency of Empathy (*Collins, 2016*).

Emotional intelligence can assist student nurses in managing their own and their patients' emotions, showing genuine emotional responses, being empathetic and communicate emotions without introducing conflict. It also helps in dealing with instinctive feelings, such as anger and dissatisfaction, a nurse-patient relationship. By attempting to view the circumstance patients' points of view and empathizing with their feelings, nursing students can manage many clinical situations. When patients are cared for by a nurse who demonstrates emotional intelligence skills, they feel that the nurse is actually concerned about their welfare

and health, which is the essence of nursing and caring (*Mohamed, 2019*).

Emotional intelligence is the ability to understand feelings and emotions, put them in a ways that make emotion and intelligent mature and healthy. Emotional intelligence is comprised of individual, emotional, and social abilities. It includes the competency of an individual to manage their relationships with others, and regulate emotions and efficiently solved their problem (*Saleh, 2020*).

Nursing students face unique problems which are specific to the clinical and therapeutic environment, causing a lot of stress during clinical education. This stress can affect their problem-solving skills. They need to promote their problem-solving and critical thinking skills to meet the complex needs of current healthcare settings and should be able to respond to changing circumstances and apply knowledge and skills in different clinical situations. Institutions should provide this important opportunity for them (*Ahmady & Shahbazi, 2020*).

A problem is defined as the difference between the actual situations and desired situation. In other words, a problem is the gap between where one is and where one wants to be. A problem occurs when there is deviation from standards or routines which cause conflict and becomes a barrier to the achievement of organizational goals (*Rahman, 2019*).

Problem-solving skill is defined as a person's ability to engage in cognitive processes when understanding and solving problems. Problem-solving skill is one of the important skills provided to prospective teacher students because, in addition to developing thinking skills, it also trains students' ability to manage learning to develop thinking skills. *Yusuf et al., 2020*).

Problem-solving is an essential skill in nursing. Improving this skill is very important for nurses because it is an intellectual process

which requires the reflection and creative thinking. Problem-solving skill means acquiring knowledge to reach a solution, and a person's ability to use this knowledge to find a solution requires critical thinking. The promotion of these skills is considered a necessary condition for nurses' performance in the nursing profession (*Ahmady & Shahbazi, 2020*).

To solve the problem at hand, an individual will take steps related to the problem-solving process. Steps or steps that must be passed by students in solving problems there are five stages, namely (1) visualize the problem, (2) describe the problem in physical description, (3) plan the solution, (4) execute the plan, and (5) check and evaluate (*Apriyani, 2019*).

Emotional intelligence is the ability to understand, control, and evaluate one's feelings and emotions and to maintain constructive emotions to promote emotional knowledge and cognitive activities. Emotional intelligence abilities in the success of health-care organizations are important and ultimately help individuals think better under difficult conditions. Nurses with high emotional intelligence can manage their feelings and emotions and make goal-oriented decisions. Low emotional intelligence, on the other hand, reduces the levels of happiness and health and problem-solving ability in nurses (*Shahbazi et al., 2020*).

#### **Significance of the study:**

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Nursing profession can be regarded as a difficult profession because of the fact that it requires making vital decisions and due to the negative feelings during this process. Nursing students need to have advanced problem solving skills so as to be able to cope with these negative emotions. Improved decision making and problem solving performance of nursing students varies depending on their emotional intelligence. In addition to the development of nursing students, professional knowledge and skills, it is suggested that attempts to increase and improve their emotional intelligence should be made (*Erkayiran and Demirkiran, 2018*).

### **Aim of the Study**

This study aims to assess emotional intelligence and problem solving skills among nursing students.

#### **Research hypothesis:**

Emotional intelligence will improve nursing students problem solving skills.

#### **Research design:**

A descriptive, correlational design was followed in carrying out this study.

### **Subjects and Methods**

#### **Setting:**

The study was conducted at Technical Nursing Institute at El- Fayoum University, where nursing students were having their training. Technical Nursing Institute at El-Fayoum University consists of two classrooms, Medical Surgical lab, Obstetric and Pediatric lab., Computer lab, and library in addition to two administration offices. The Period of study at the Technical Institute of Nursing is two years and six months internship.

#### **Subjects of the study:**

Study subjects included all 2<sup>nd</sup> year nursing students who were enrolled in the Technical Nursing Institute at El-Fayoum University at the time of study during the data collection period (academic year 2019-2020). The study sample was 200 nursing students.

#### **Tools of data collection:**

Data for this study was collected by using two tools, namely emotional intelligence questionnaire and problem solving skills.

### **Emotional intelligence Questionnaire (Appendix I): This tool consisted of two parts:**

**Part I:** It was included data related to personal characteristics of nursing students such as; age, gender, marital status, residence, attended training about emotional intelligence and problem solving.

**Part II:** This tool was developed by (Abo Hashem, 2008) based on (Mayer & Salovey, 2002). It aimed to assess the emotional intelligence among nursing students. It was included (5) basic dimensions contained (61) items.

#### **❖ Scoring system:**

Responses of participants were measured through 5 point lickert scale ranging from “Never” (1) to “Always” (5). Negative statements had reversed scores. Items scored were added together to get a dimension score for every participant, these scores were converted into a percent score, then the result was considered high if the percent score was 60% or more and low if less than 60%.

### **2-Problem solving skills questionnaire**

It was developed by (Abuzaitoun & Banat, 2010). It aimed to assess perceived problem-solving skills among nursing students. It consists of 40 items grouped under five dimensions.

#### **❖ Scoring system:**

Responses of participants were measured through (5) point lickert scale ranging from “Never” (1) to “Always” (5). Negative statements had reversed scores. Items scores were added together to get a dimension score for every participant, These scores were converted into a percent score. The respondent perception regarding problem solving skills was considered high if the percent score was 60% or more and low if less than 60%.

### **Operational Design:**

The current study was carried out in three phases: preparation, pilot study and field work.

#### **A- Preparatory phase:**

The researcher reviewed of related literatures and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines on the review, the researcher prepared with the tools for data collection.

**Validity of the tool:**

Validity of tools was presented to a panel of experts for face and content validity and collected their general opinions about the tools for relevance, clarity, applicability, comprehensiveness and understandability. A jury group consists of five experts in the nursing administration. Four of them are Professors of Nursing Administration from different Universities, one from Ain-Shams, one from Zagazig and two from Menofyia. The fifth is Assistant Professor of Nursing Administration Faculty of Nursing Mansoura University.

**Tools reliability:** Reliability of the tools was examined through assessing internal consistency, measured by Cronbach's alpha coefficient. The result was (0.804) for Emotional intelligence questionnaire and (0.856) for Problem solving skills questionnaire.

**B- Pilot Study**

A Pilot study was done on "20" nursing students selected randomly which represent approximately 10% of the main study subjects at the mid September. A pilot study was done for testing the clarity and applicability of tools and their relevance to the study. It also helped to estimate the time needed to complete the data collection forms that approximately ranged from 25 – 30 minutes. Since there wasn't any change made in the tools, the pilot study subjects were included in the main study sample.

**C. Field work:**

The fieldwork of the study was performed in the period from the beginning of October 2019, and was completed by the march 2020. The researcher explained to the participants the questionnaire sheets (Emotional intelligence questionnaire and problem solving skills questionnaire). The researcher, distributed data collection tools to the respondents individual in the class, each respondent had adequate time to complete the questionnaire sheets. The time needed to complete the data collection forms that approximately ranged from 25 – 30 minutes. The researcher was present during this time to clarify any inquiries.

Each participant filled the tools and back it to the researcher to check for completeness.

**Ethical consideration:**

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Prior study conduction, an approval was obtained from the scientific research and ethical committee of the faculty of nursing, Ain Shams University The researcher clarifies the aim of the study to all nursing students who agree to participate in the study prior to data collection. Respondents were assured that anonymity and confidentiality would be guaranteed, and were informed about their right to refuse or withdraw from the study at any time. The study procedures do not entail any harmful effects on participants.

**III- Administrative design:**

Prior study conduction, an approval was obtained from the Dean of Faculty of Nursing, Ain-Shams University. The researcher was met with the director of technical nursing institute El-Fayoum University. The purpose of the study and its procedure was explained to them to gain their approval.

**IV. Statistical Design**

Data entry and statistical analysis were done by using (SPSS) Version 20 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and Means and standard deviation and range of quantitative variables. Student t-test (t) was used for comparisons between two-independent quantitative variables. The Cronbach alpha coefficient was calculated to assess the reliability of the developed tool through its internal consistency. The Spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked once in order to identify the independent predictors of the scores of knowledge and multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05 and highly significant at p-value <0.001. Correlation Coefficient (r) test was used to test

the closeness of association between two variables.

**Results:**

**Table (1):** describes The study sample consisted of 200 nursing students whose age ranged between 20 and 21 years.. 59% of them were female. The great majority was single (89.5%). 61% live in Rural area.. The majority of the participants haven't previous training on emotional intelligence and problem solving skills (92% & 85.5%) respectively.

**Table (2):** describes the percentage of agreement of students upon emotional intelligence dimension ranged between 54% and 43.5%.

**Table (3):** Concerning the problem solving skills among nursing students in the study sample, shows the percentage of agreement ranged between 56% and 44.5%.

**Table (4):** presents a Correlation matrix between emotional intelligence, and problem solving skills dimensions scores. It shows highly statistically significant correlation between total emotional intelligence questionnaire ( $r=0.482$ ). Meanwhile statistically significant strong positive correlation between total knowledge and total problem solving skills and between total emotional intelligence questionnaire and total problem solving skills.

**Table (1):** Socio-demographic characteristics of nursing students in the study. (n=200).

	Frequency	Percent
<b>Age</b>	168	84
20	32	16
21		
Mean±SD	20.16±0.37	
<b>Gender</b>		
Male	82	41
Female	118	59
<b>Marital status</b>		
Single	179	89.5
Married	21	10.5
<b>Residence</b>		
Rural	122	61
Urban	78	39
<b>Attendance of training about emotional intelligence</b>		
Yes	16	8
No	184	92
<b>Attendance of training about problem solving skills</b>		
Yes	29	14.5
No	171	85.5

**Table (2):** Percentage distribution of Nursing student Emotional Intelligence among Nursing students (n=200).

Emotional Intelligence Dimensions	N	%
Regulation of Emotion	104	52
Use of Emotion	95	47.5
Sharing/Experiencing Emotion	87	43.5
Emotions Appraisal	108	54
Perceiving Emotion	92	46

**Table (3):** Nursing student problem solving skills throughout intervention phases (n=200).

Problem Solving Skills dimensions	N	%
General orientation	97	48.5
Definition of Problem	112	56
Generating alternatives	94	47
Make a decision	89	44.5
Evaluation	110	55

**Table (4):** Correlation matrix between problem solving skills dimensions scores (n=200).

		Spearman's rank correlation coefficient				
		General orientation	Definition of Problem	Generating alternatives	Make a decision	Evaluation
General orientation	r					
	P-value					
Definition of Problem	r	0.845				
	P-value	<0.001**				
Generating alternatives	r	0.673	0.770			
	P-value	<0.001**	<0.001**			
Make a decision	r	0.534	0.422	0.520		
	P-value	<0.001**	<0.001**	<0.001**		
Evaluation	r	0.705	0.706	0.398	0.375	
	P-value	<0.001**	<0.001**	<0.001**	<0.001**	

**Discussion**

Emotional intelligence is a concept that fascinates academic scholars and health care professionals. Emotions affect thinking and are essential for people to make the right decisions, to best solve problems, to cope with change, and to succeed. Emotional intelligence is actually a mixture of abilities to identify emotions, integrate emotional information into problem solving processes, perceive and cope with the complexity of emotions and the regulation of emotions in oneself and one’s environment. Nursing is a stressful occupation. Therefore, nursing students need to develop the ability to control emotions and channel their moods in a beneficial way (Ayala & Keren, 2020).

Regarding the regulation of emotion of nursing students, the present study shows that, it was low. This may be related to change emotions these emotions may turn to feelings of inadequacy, insecurity about skills, and sometimes even fear of making a wrong decision.

This result consistent with *Por, et al., (2020)* in a study in London argued that student nurses need to develop the ability to control their emotions and channel their moods constructively, since an inability to self-regulate emotions can lead to an increase in stress and anxiety.

In relation to sharing and experiencing emotion the present study shows that, it was low. Follow-up phase. This result may be due to they may have insufficient confidence to appreciate themselves in a positive dainty. Also nursing students may have little experience and sudden entrance into an unknown situation triggers tensions and anxieties, and these feelings may interfere negatively.

Concerning perceiving emotions among nursing students, the present study describes that, there were highly statistically significant differences. This result may indicate to which extent they perceive their emotions accurately and satisfied with life and have high self-esteem. This signifies that nursing students can manage and are satisfied with personally important events and have a reflective influence on thought perception and behavior.

This finding is consistent with *Mayer, Salovey & Caruso (2020)* who clarified that emotional intelligence includes the ability to engage in sophisticated information processing about one's own and others' emotions and the ability to use this information as a guide for thinking and behavior. Individuals with high EI pay attention to use, understand, and manage emotions, and these skills serve adaptive functions that potentially benefit themselves and others.

The current study has also led to a significant improvement in nursing students problem solving skills. The result of this study agreed to study conducted by *Ahmady & Shahbazi, (2020)* In a study in Iran who reported nurses' understanding of their problem-solving skills is moderate. Receiving advice and support from qualified nursing managers and educators can enhance this skill and positively impact their behavior.

Regarding the general approach toward the problem among nursing students, the present study revealed that, there was a low percent score. This may be due to the ability to control emotions and reactions in response to different problems and incidents. In the next stage, the learners who have already accepted the problem as a reality in life replace impulsive decisions with firm decisions based on logical thinking and optimism about the future. They will also be capable of constant revision of the steps taken in order to identify their weaknesses and strengths and to embrace other solutions if necessary.

Also the current study displays that there were highly statistically significant differences in defining the problem among nursing students. This result may be due to nursing students are primarily concerned with problem solving skills and highly needed to understand and learned about it. In congruence with this, *Kuang-Chao, Szu-Chun and KuenYi, 2015 and Arroio, 2010* "Illustrated that the most significant improvement was students' understanding of the steps problem definition and analysis,

selecting the optimum solution, evaluating the results and revising the solution.

More over the finding of the present study revealed that generating alternatives was increase, obviously throughout the program phases result may be due to the existence of a general tendency of the individual to practice the problem solving activities and reflect a more positive perception of personal control on one's problems and control of their emotions during problem solving process..

In addition, the finding of the present study revealed that making the decision was highly statistically significant differences throughout the program phases among nursing students. This result may be due to training skills of systematic and critical thinking helps Nursing students to acquire a creative, questioning, and investigating. nursing students acquiring such properties gain self-confidence in areas such as making decisions.

In agreement with *Altun, (2018)* in a study in turkey who investigated The perceived problem solving ability and values of student nurses and midwives who reported that there was a significant effect of the problem solving skills of nursing students. It was seen that solving a problem systematically increases the skill in problem solving. A systematic process that focuses on analyzing a difficult situation always includes a decision-making step.

Concerning evaluation among nursing students, the present study revealed that, there were slightly high. This may be due to that students were able to evaluate themselves objectively. We identified that those who were successful from a student's perspective, were the students who were competent, had a positive personality, promoted feelings of self-acceptance and were concerned with personal and professional growth. It was observed that our students perceive themselves as quite successful in problem solving at the time the study was performed.

Finally, as an evidence the present study demonstrated significant positive correlations between emotional intelligence dimensions and problem solving skills dimensions. This result may be due to ability of students to recognize own emotions and effects easily, always take responsibly of personal performance and aware of own strengths and limits, they learn how to judge self-worth and capabilities, exercise effective tactics for urging and work with others toward mutual goals and easily solve problems.

On the same line the study conducted by *Arefnasab, (2020)* in a study in Iran found that People with high emotional intelligence significantly solve problems better than people with low emotional intelligence.

On the same line the study conducted *Shahbazi et al. (2021)* who reported that training emotional intelligence and problem-solving skills can be successful in controlling the emotional reactions of individuals and can reduce adverse reactions to problem and reported that teaching emotional intelligence and problem-solving skills and can both play a significant role in reducing students' aggression. Conversely, *Ergin, (2020)* in a study in turkey reported that that there is a negative relationship between emotional intelligence and problem solving .

### **Conclusion**

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In the light of the study findings, it is concluded that, the majority of nursing students in the study setting lack knowledge of emotional intelligence and problem solving skills. There is statistically significant relation between emotional intelligence and age and gender of nursing students. There were highly statistically significant correlations between emotional intelligence and problem solving skills.

### **Recommendations**

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**In the light of study findings, it is recommended that:**

1. The Technical Institute of Nursing should adopt the emotional intelligence educational approach in all its different grades..
2. Emotional intelligence should be applied in all nursing curricula to enhance life-long self directed learning and improve professional performance of future nurses.
3. Giving students the opportunity to express their feelings and discuss situations that may be cause problems and effective communication between students and teachers
4. Enhance nursing problem solving skills through providing them with supportive and positive training environment.
5. Continuing assessment of the application of the problem solving skills should be done regularly through soliciting the feedback from students.

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