

# Emotional Intelligence Training Program and its Effect on Nursing Students Problem Solving Skills

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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 pretest- posttest one group quasi-experimental study design was used. **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 before the intervention. This increased to 86.5% at the post intervention phase and the improvement continued through the follow up phases reaching to 89.5%. Half of nursing students in the study sample were high problem solving skills before the intervention. This rose to 87.5% at the post intervention phase and reached 90.5% at the follow-up phase. **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<sup>13</sup>.

Goleman states that EI consists of four fundamental capabilities: “self-awareness, self-management, social awareness and social skills”. Self-awareness is understanding one’s own personal preferences, strengths and limitations. Self-management is the ability of one person to manage personal internal states and intuitions to assist in pursuing goals. On the other hand, social awareness is the ability of a person to sense and understand what other people are going through including their feelings and concerns. Social skill is the ability to encourage appropriate responses in other people<sup>15</sup>.

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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<sup>17</sup>.

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 to meet the complex needs of current health care 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<sup>3</sup>.

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<sup>20</sup>.

Problem-solving is defined as a cognitive and behavioral process that involves creating effective options, selecting and applying the most appropriate one to cope with a particular situation. 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 nursing students' performance in the nursing profession<sup>3</sup>.

Problem-solving skills are essential in nursing education at undergraduate and graduate nursing schools are faced with the critical challenge of preparing students to safely and effectively perform nursing tasks in a complex, ever-changing healthcare environment. However, since these skills have not been systematically integrated in the nursing curriculum, nurses who are expected to offer the best and fastest solutions in response to patient needs and problems have been reported to lack sufficient problem-solving skills<sup>22</sup>.

To solve the problem at hand, nursing students will take steps related to the problem-solving process. The problem-solving process is explained as a complex process that requires a lot of skills in applying it . Steps that must be passed by nursing students in solving problems there are six steps are namely: 1) determines the existence of the problem, 2) identify and define the problem,3) find solutions (generate alternative), 4) evaluate the solutions (prioritization), 5) implement the chosen solution and 6) evaluate the outcome<sup>5</sup>.

Emotional intelligence in the person health students is proven to have a big share in the ability solve the problem (Problem Solving Skill). This is because health students while studying and become a health worker later will be faced with a variety kinds of human emotions so health students must have abilities that are smart in terms of emotionality and fast and firm in solving problems. Ability in solving problems cannot be measured by only looking at cognitive abilities someone, but must be to see emotional intelligence abilities when something happens crisis or problem<sup>14</sup>.

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

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 vary 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<sup>12</sup>.

### **The Aim of the Study**

This study aims to assess the effect of emotional intelligence training program on nursing students problem solving skills.

### **Hypothesis:**

Emotional intelligence training program will improve nursing students problem solving skills.

### **1) Research design**

A pretest- posttest one group quasi-experimental study design was carried out in the 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 for 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 three 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 part was developed by the researcher based on a literature review Motamedi<sup>18</sup> & El Ghoul<sup>10</sup>. It aimed to assess nursing student knowledge regarding emotional intelligence and problem solving skills. It included (2) basic dimensions contained 35 questions (15) multiple choice question, (10) Matching and (10) True and False questions covering different aspects of emotional intelligence and problem solving skills.

**Part III:** This tool was developed by Abo Hashem, 2008<sup>1</sup> based on Mayer & Salovey<sup>16</sup>. It aimed to assess the emotional intelligence among nursing students. It was included (5) basic dimensions contained (61) items

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

It was developed by Abuzaitoun & Banat<sup>2</sup>. It aimed to assess perceived problem-solving skills among nursing students. It consists of 40 items grouped under five dimensions.

### **2) Operational Design:**

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

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

This stage lasted from May to the end of August. It extend for four months, before constructing the program. 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 the

tools for data collection.

### **B- Pilot Study**

A Pilot study was done on “20” nursing students selected randomly which represents 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 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 done 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 study involved four phases (assessment, planning, implementation and evaluation phases).

#### **§ assessment phase .**

Permission to conduct the study was obtained from the director of technical nursing institute El-Fayoum University. This questionnaire was distributed three times throughout the study pre, post program and after three months of the program implementation. In the beginning, the researcher met the nursing students to explain the purpose and the benefits of the study. This phase was conducted at the beginning of October 2019. The researcher explained to the participants the questionnaire sheets (Knowledge assessment, Emotional intelligence questionnaire and problem solving skills questionnaire). The researcher, distributed data collection tools to the respondents individually 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. These constituted the baseline pre-test data of the study intervention.. After completing of the data collection

during the Assessment pre test phase, analysis was done in order to identify all the nursing students needs

#### **§ Planning Phase.**

During this phase, the researcher developed the content of the training program. This was based on the pertinent literature from text books, articles, magazines, internet search and guided by the results of the assessment pre test phase. The suitable place and time for conducting the sessions determined after took the approval with the director and study subjects agreement, as well as the program schedule were prepared accordingly. This phase was conducted at the end of October 2019. The program consisted of two main parts. The first theoretical part (7) sessions covered knowledge regarding objectives and content of the program, as concept of emotional intelligence, importance of emotional intelligence, types of intelligence. characteristics of emotional intelligent personnel. components of emotional intelligence and problem solving skills knowledge as concept of problem solving, importance of problem solving skills, types of problem and characteristics of problem, process of problem solving, The second part was (8) practical sessions included small group activities to apply rules of emotional intelligence, role play to apply components of emotional intelligence and brainstorming for applying problem solving techniques.

#### **§ implementation phase.**

The program was implemented at Technical Nursing Institute at El- Fayoum University where nursing students were having their study.

The program was implemented throughout two months (November and December 2019). The time allowed for achieving the program was “30 hours for two groups”: (21 theoretical and 9 practical). two days weekly, one session was offered daily, two hours for each session.

At the beginning of each session, the objective of the session was explained. Daily feedback was done about the previous session and at the end of each session. In

the first session the researcher explained the aim of the study, program objectives, plan and content.

The researcher used various teaching methods to attract students attention and motivate them to participate. The teaching methods used during the implementation of the program were lecture, brainstorming, discussion, role play, group activities, while the teaching media used were data show, white board and marker, video, poster and flip chart. The researcher distributed a handout about content of the program to all nursing students. At the end of last session; a post test was done to assess the effect of training program.

#### § Evaluation phase

A post test was done at the end of the program implementation at the last week of december using the same tools used as in the pre-program assessment to evaluate the effect of emotional intelligence training program on nursing students problem solving skills.

#### § Follow up phase

Was done after Three months after implementing of the program at the march 2020 using the same evaluation tools.

**Ethical Considerations:** 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.

#### 3) 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. Cronbach alpha coefficient was calculated to assess the reliability of the developed tool through its internal consistency. 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

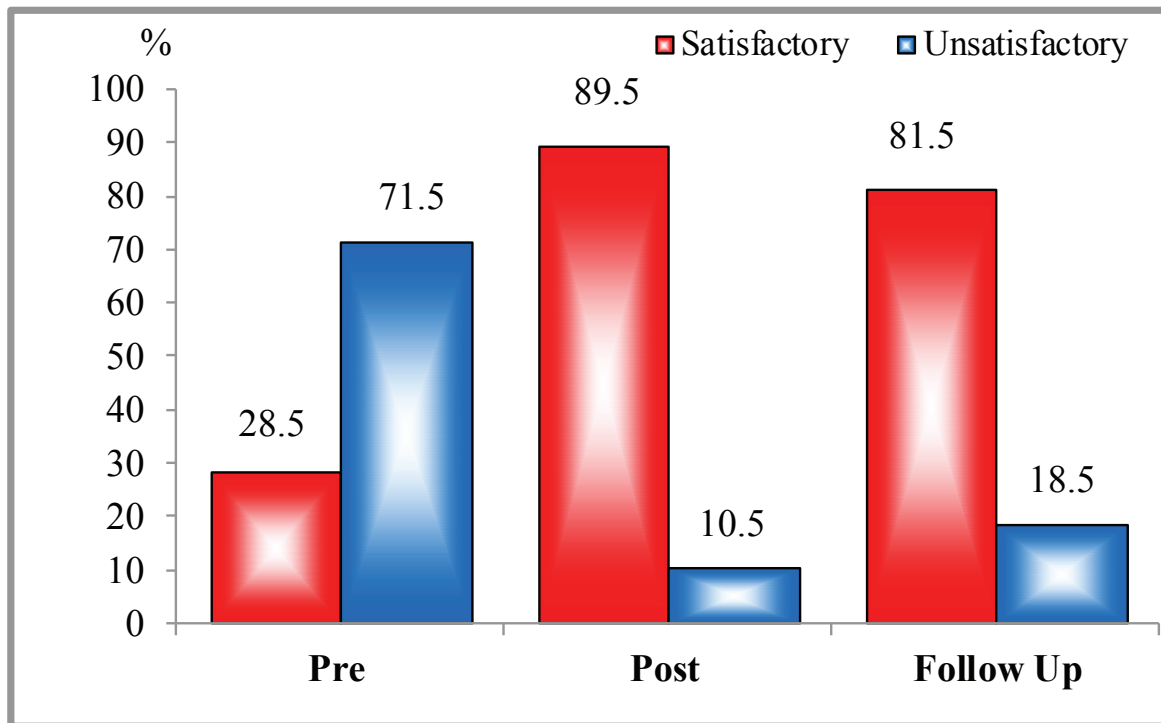
**Table (1): Socio-demographic characteristics of nursing students in the study. (n=200)**

	Frequency	Percent
Age	168	84
20	32	16
21		
Mean±SD	20.16±0.37	
Gender	82	41
Male	118	59
Female		

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

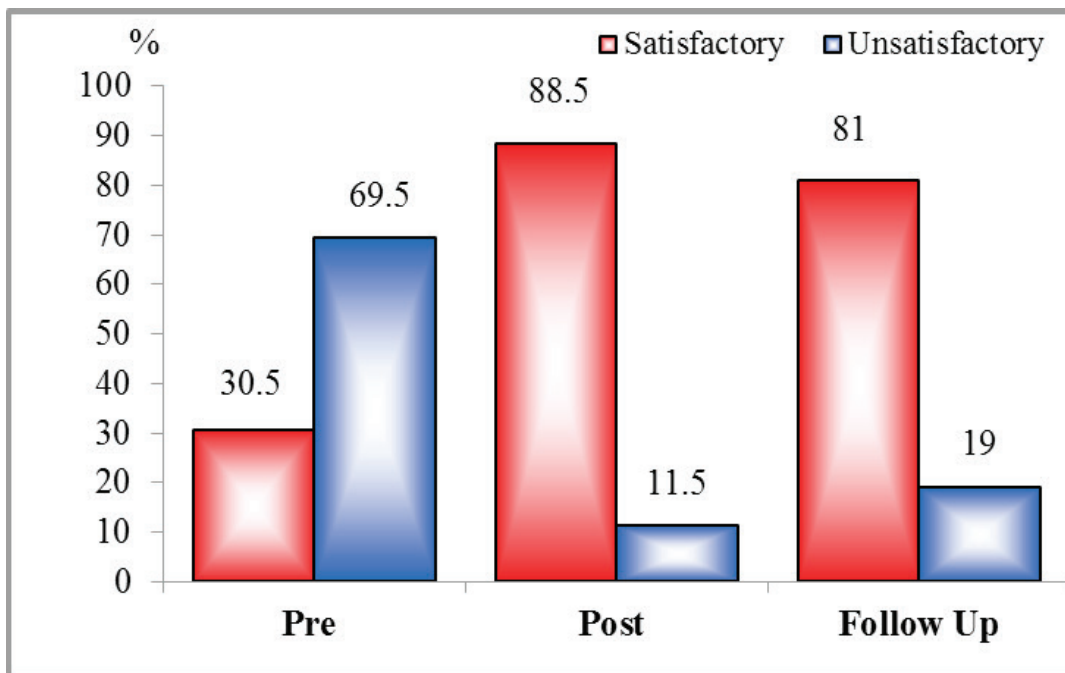
Marital status		
Single	179	89.5
Married	21	10.5
Residence		
Rural	122	61
Urban	78	39
Attendance of training about emotional intelligence		
Yes	16	8
No	184	92
Attendance of training about problem solving skills		
Yes	29	14.5
No	171	85.5

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



**Figure (1): Total knowledge of emotional intelligence among nursing students through out the intervention phases.**

**Figure 1** demonstrates that only 28.5% of the nursing students had satisfactory knowledge of emotional intelligence before the intervention. This increased to 89.5% at the post intervention phase and slightly declined to 81.5% at the follow-up phase.



**Figure (2): Total knowledge of problem solving skills among nursing students through out the intervention phases.**

**Figure 2** demonstrates that only 30.5% of the nursing students had satisfactory knowledge of problem solving skills before the intervention. This increased to 88.5% at the post intervention phase and slightly declined to 81. % at the follow- up phase.

**Table 2: Nursing students Emotional Intelligence throughout intervention phases (n=200)**

Emotional Intelligence Dimensions	Time						X2 (P-value) Pre & Post	X2 (P-value) Pre & Follow-up
	Pre		Post		Follow Up			
	N	%	N	%	N	%		
Regulation of Emotion	104	52	178	89	181	90.5	65.825 (<0.001**)	72.360 (<0.001**)
Use of Emotion	95	47.5	167	83.5	174	87	57.351 (<0.001**)	70.842 (<0.001**)
Sharing/Experiencing Emotion	87	43.5	173	86.5	178	89	81.275 (<0.001**)	92.590 (<0.001**)
Emotions Appraisal	108	54	175	87.5	182	91	54.230 (<0.001**)	68.665 (<0.001**)
Perceiving Emotion	92	46	174	87	180	90	75.457 (<0.001**)	88.971 (<0.001**)

Highly statistically significant  $p < 0.001^{**}$

As regards emotional intelligence **Table (4)**  $p < 0.001^{**}$  as compared to the pre intervention phase. shows that there was highly statistically significant improvement in the post and follows up phases. The improvement continued through the follow up phases reaching to 89.5% as a total .

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

Problem Solving Skills dimensions	Time						X2 (P-value) Pre & Post	X2 (P-value) Pre & Follow-up
	Pre		Post		Follow Up			
	N	%	N	%	N	%		
General orientation	97	48.5	174	87	176	88	67.839 (<0.001**)	72.003 (<0.001**)
Definition of Problem	112	56	170	85	182	91	40.438 (<0.001**)	62.893 (<0.001**)
Generating alternatives	94	47	183	91.5	185	92.5	92.994 (<0.001**)	98.119 (<0.001**)
Make decision	89	44.5	176	88	183	91.5	84.629 (<0.001**)	101.517 (<0.001**)
Evaluation	110	55	173	86.5	177	88.5	47.948 (<0.001**)	55.367 (<0.001**)

Highly statistically significant  $p < 0.001^{**}$

Concerning the problem solving skills among nursing students in the study sample, Table 5 show that half of them has high problem solving skills at the pre-intervention phase. Highly statistically significant improvement at the post and follow –up phases of the intervention( $p < 0.001^{**}$ ) in all areas of skills.

**Table 4: Correlation matrix between knowledge, emotional intelligence, and problem solving skills dimensions scores (n=200)**

	Spearman’s rank correlation coefficient					
	Total knowledge		Total Emotional Intelligence		Total Problem Solving Skills	
	R	P-value	R	P-value	r	P-value
Total knowledge						
Total Emotional Intelligence Questionnaire	0.482	<0.001**				
Total Problem Solving Skills	0.169	0.035*	0.375	0.002*		

Statistically significant  $p < 0.05^*$

Highly statistically significant  $p < 0.001^{**}$

**Table 4** presents an Correlation matrix between knowledge, emotional intelligence, and problem solving skills dimensions scores. It shows highly statistically significant correlation between Total knowledge and 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.

### 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**<sup>7</sup>.

According to the present study results, nursing students knowledge of emotional intelligence was deficient at the pre intervention phase. However, at post and follow-up program phase majority of nursing students had adequate knowledge. From the researcher point of view, this result may be due to most of nursing students were the first time they knowing and hearing about the emotional intelligence.

In this respect, **Mousa**<sup>19</sup> in a study on Ain Shams University in Egypt who studied "The Effect of Emotional Intelligence training Program on stress among nursing students" and reported that less than one fifth of nursing students had adequate knowledge regarding emotional intelligence at preprogram. However, at post and follow-

up program phase majority of nursing students had adequate knowledge.

In further confirmation of the positive effect of the current study intervention on nursing students total knowledge, the multivariate analysis identified it as the main significant positive predictor of knowledge score. This shows the independent influence of the intervention on the nursing students knowledge scores regardless other confounding factors. The positive effect of the intervention might explained by its focus on problem solving skills so that the attendance realize the importance of applied content to close the gap between theory and practice.

This study result is consistent with **Ancel, et al.**<sup>4</sup> in a study in Turkey reported that most of the students had unsatisfactory knowledge level pre training program about concepts related problem solving because they had not received PS education before the training program.

The implementation of the present study intervention led to significant improvement in nursing students emotional intelligence. Such improvement could be attributed to the effect of the intervention as evidenced by multivariate analysis, which identified it as the main positive predictor of the study score. This success of the intervention is undoubtedly due to its content which was tailored to fit students' needs and the process of intervention which entailed true hands-on training the emotional intelligence.

In agreement with the foregoing current study findings, **Bikmoradi et al.**<sup>8</sup> in a study in Iran conducted a study to identify the correlation between emotional intelligence and leadership style of nursing managers. These study findings revealed that, nursing managers had high level of emotional intelligence. It also revealed that emotional intelligence of nursing managers was at good ability level.

The current study intervention has also led to a significant improvement on nursing students problem solving skills. This continued to increase reaching ninety and half percent at the follow-up phase. Such improvement

is attributed to the effect of intervention. problem solving skills help nursing students to be innovative, responsible, flexible, courageous, adventurous, different thinker, self-confident, logical, objective, comfortable, emotional, energetic, effective, creative and producer has a structure. These characteristics are important for the success of one's life.

The finding of this study supported by **Ebrahim**<sup>9</sup> who said that the studied participants who trained on problem-solving skills were able to mention the cause of the problem, define problem, discuss alternative solutions and make decision toward solution and evaluate the solution. This may be due the efficacy of the program for improving the students' ability to solve the problems and the effective role of the researchers in using a real life situations and helped students express reactions to problems and develop alternative and more adaptive behaviors by using role-playing, video modeling, skill practice, and reinforcing desired behaviors.

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 the implementation of the intervention helped 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**<sup>6</sup> 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**<sup>22</sup> 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**<sup>11</sup> in a study in turkey reported that that there is a negative relationship between emotional intelligence and problem solving .

## Conclusion

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. Implementing emotional intelligence training program for these students is effective in improving their emotional intelligence as well as problem solving skills. A number of student characteristics as age, gender, marital status do influence their emotional intelligence and problem solving skills and the extent of their improvement after the intervention. 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:

- The Technical Institute of Nursing should adopt the emotional intelligence educational approach in all its different grades..

- Emotional intelligence should be applied in all nursing curricula to enhance life-long self directed learning and improve professional performance of future nurses.

- Giving students the opportunity to express their feelings and discuss situations that may be cause problems and effective communication between students and teachers

- Enhance nursing problem solving skills through providing them with supportive and positive training environment.

- Continuing assessment of the application of the problem solving skills should be done regularly through soliciting the feedback from students

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**Conflict of Interest:** Not present any conflict.

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