Effect of Training Program on Emotional Intelligence of Nurses Caring for Patients with Alzheimer's Disease

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ABSTRACT

Context: Nurses are the cornerstone of the health care systems, and their work is associated with great pressure, and nurses are often overwhelmed. Emotional intelligence and its significance to nursing have been increasingly emphasized throughout the last few years. Emotional intelligence comprises a deposit of interrelated skills involving a capability to appraise one's emotions and those of others, utilization and regulation of one's emotions, and social skills.
This study aimed to evaluate the effect of training program on the emotional intelligence of nurses caring for patients with Alzheimer's.

Methods: A quasi-experimental (pre/post-test) design was used. The study was conducted at the geriatric units of Ain Shams University Hospitals and the geriatric department of Abassia Hospital, affiliated with the Ministry of Health. A study employs convenience sampling with a total number of 70 nursing staff who are working in the mentioned setting. Tools used for data collection were a self-administered questionnaire including two parts; part one concerned with sociodemographic characteristics of the studied nurses, and part two included the Emotional Intelligence Scale (EIS) to assess emotional intelligence in managing the workplace.

Results: The current study reveals that pre-program, 5.7% of the studied nurses have a high level of EI scores compared to about one quarter (22.9%) of the studied nurses who had a high level at post implementation of the program and increased to less than three quarters (71.4%) at follow up the program with a highly statistically significant difference between the levels of nurses' emotional intelligence (p<0.001) comparing between pre-intervention and follow-up.

***Conclusion*:** Emotional intelligence training program positively improves emotional intelligence levels among nurses caring for patients with Alzheimer's disease. The study recommended that hospitals provide continuous in-service training, education, and awareness programs for nursing staff to enhance their skills regarding emotional intelligence. Nursing emotional intelligence skills should be included in undergraduate and postgraduate nursing curricula.

Keywords: Emotional intelligence, nurse, training program, Alzheimer patients

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1. Introduction

Alzheimer's disease (AD) was identified in 1906 by Alois Alzheimer, who examined the brain of a woman who died of mental illness and found abnormal clumps and tangled fibers. Alzheimer's disease is neurological disorder in which the death of brain cells causes memory loss and cognitive decline. This disease is a neurogenerative type of dementia in which the disease starts mild and gets progressively worse. Alzheimer's Disease (AD) and Related Disorders (ADRD) are major public health problems and the most common cause of dementia, which possibly contributes to 60-70% of identified cases. An estimated 7.4 million people are living with dementia worldwide, and at least 3.7 million with Alzheimer's disease. Alzheimer's disease is projected to double by 2050 *(Durán et al., 2020; Adolfo et al., 2021).*

Alzheimer's disease (AD) has a major impact by limiting the ability to live independently. This condition of dependency involves all members of the family, particularly those who take direct care of patients. The changes in caregivers' lives may alter their health and affect the care of the sick. The gradual and continuous decline caused by Alzheimer's disease is characterized by cognitive deterioration, changes in behavior, loss of functional independence, and increasing requirements for care *(Li et al., 2021*; *Alhazzani et al., 2020).*

Effective nursing interventions are vital to managing patients with Alzheimer's disease. Progressive and severe deterioration of functional and cognitive abilities results in disruptive behaviors that can be incapacitating and even harmful to Alzheimer's disease patients. The cognitive and behavioral problems associated with Alzheimer's disease require specific nursing interventions to provide for the safety and well-being of patients *(Brooke et al., 2019*; *Lowey, 2018).*

Nurses are the first line of the health care system. This unique position is because other healthcare professionals, such as doctors and therapists, spend limited time with patients.

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They spend the most time with patients and are constantly exposed to the emotional strains of dealing with the sick and dead. This time is associated with hopelessness and difficulties in dealing with work and doing one's job effectively *(de Araujo, 2017*; *Lam, 2020).*

Emotional intelligence (EI) has recently emerged in both academic and popular literature as a concept with the potential to provide new insights into the effect of human interaction. Emotional intelligence is a set of abilities, capabilities, and other cognitive skills that assist in the success of coping with and overcoming environmental stress, identifying their own emotions, managing and understanding others' emotional phenomena, and motivating themselves in situations that are embarrassing, problematic and generate intrinsic and extrinsic conflicts *(Cejudo et al., 2018; Dugué, 2021).*

Another benefit of EI is the development of effective relationships between nurses and patients by being in tune with their emotions and others' staff. It involves the capability of nurses to recognize emotion in others' facial and body impressions. Distinguishing emotions in others is a highly valuable social skill that requires acknowledging subtle social cues. When people can know their and others' emotions and differentiate among emotional conditions, they display emotional perception capability *(Cassano et al., 2020; Chikobvu, 2022)*

Managing emotions is a skill that allows a person to use their awareness about their emotions to be adjustable and handle behavior effectively. In contrast, a person cannot successfully control emotions in others without first controlling their emotions. Persons who have overcome their emotions can better adjust to changes and help organizations adjust *(*Foji *et al., 2020; Soto-Rubio et al., 2020*).

2. Significance of the study

Caring for someone with Alzheimer's disease or another type of dementia impacts every aspect of daily life. Patient care includes quality nursing care and a care concept that respects patient's goals, preferences, and choices, obliging their emotional, social, and spiritual needs using the strengths of interdisciplinary resources. Two-thirds of the people with dementia are projected to be from developing countries by 2050. In Egypt, the dementia prevalence ranged from 2.01% to 5.07%. So, nurses, formal caregivers, and other health care providers have a great responsibility toward persons with Alzheimer's through getting adequate knowledge and practical skills to identify the patient's problems correctly and understand the nature of the disease to help how patients and families cope with Alzheimer *(Li et al., 2021; Alhazzani et al., 2020).*

Emotional intelligence helps one understand and manage emotions, helping workers take control of their work. In the care process, the nursing profession demands that nurses constantly interact with patients, medical members, and healthcare workers. Hence, "Nurse-patient interaction" is the pulse of the nursing practice. This interaction is not just a conversation. It is a complex process involving nurses' perception, understanding of the patient's emotions, and utilization of the perceptions to manage patient situations towards effective patient care. So, this study aimed to evaluate the effect of training programs on the emotional intelligence of nurses caring for patients with Alzheimer's disease.

3. Aim of the study

The study aims to evaluate the effect of training program on the emotional intelligence of nurses caring for patients with Alzheimer's disease through:

- Assessing the level of emotional intelligence among nurses.
- Developing and implementing training program according to nurses' needs to help them to improve emotional intelligence skills.
- Evaluating the effectiveness of implementing a training program on emotional intelligence.

3.1. Research hypothesis

The training program is expected to positively impact the emotional intelligence of nurses caring for patients with Alzheimer's disease.

4. Subjects & Methods

4.1. Research Design

A quasi-experimental design (one-group pretest-posttest) was adopted to test the proposed hypotheses. In this design, the baseline measures of the dependent variables are performed for all subjects. Then, subjects receive the proposed intervention. After that, all subjects are post-tested to measure the degree of change in the dependent variables *(LoBiondo-Wood & Haber, 2018).*

4.2. Study setting

The current study was conducted at Ain Shams Hospital's geriatric units and Abassia Hospital's geriatric department, affiliated with the ministry of Health.

The ^{first} place is the El Abbassia Mental Health Hospital's geriatric unit, affiliated to the Ministry of Health and Population. It consists of Units 10 and 14. They were departments that involved inpatient rooms, a medical diagnostic room, a social specialist room, a medication room, a meeting room, and an activities area.

The ^{second} place is the geriatric department "Ahmed Shawky Hospital" affiliated to Ain Shams University Hospitals. The geriatric department for follow-up for geriatric patients with special needs consists of seven floors: An administration center, outpatient units, teaching classrooms, intensive care units, and four floors of inpatient units.

4.3. Subjects

A convenient sample included all available nurses at the time of the study (n=70) working in the previously mentioned settings and accepted to participate in the study, from both genders, with different qualifications, different age groups, and years of experience were recruited to this study.

The sample size was calculated using power analysis to calculate the sample size with a precision/absolute error of 5% and a type 1 error of 5%. The sample size is calculated according to the following formula based on the following statistical equation *(Rosner, 2016).*

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

Zα = Standard normal deviation for α = 1.9600.
Zβ = Standard normal deviation for β = 0.8416.
B = (Zα + Zβ)2 = 7.8489.
C = (E/SΔ)2 = 0.1317.
N = B/C = 69.5972.

4.4. Tools of data collection

4.4.1. Self-Administered Questionnaire

It consisted of two parts:

The first part assesses the nurses' demographic data, such as age, gender, educational qualifications, marital status, income, years of experience, working hours, and number of daily cases for outpatients.

The second part is the Emotional Intelligence Scale (EIS): The Emotional Intelligence Scale (EIS) was originally developed by *Hunsaker (2001)* to assess emotional intelligence in managing the workplace. The scale consists of 25 items rated on a five-point Likert scale (very slightly, slightly, moderately, much, and very much).

The EIS includes five components. Self-awareness means being aware of the person's feelings; it consists of five items: 1, 6, 11, 16, and 21 of the emotional intelligence scale items. Managing emotions: The second key component of emotional intelligence is managing emotions (worry, anxiety, fear). It consists of five items: 2, 7, 12, 17, and 22 of emotional intelligence scale items. Self-motivation: The third key component consists of five items: 3, 8, 13, 18, and 23 of emotional intelligence scale items. Empathy consists of five items: 4, 9, 14, 19, and 24 of emotional intelligence scale items, and social skill consists of five items: 5, 10, 15, 20, and 25 of emotional intelligence scale items.

Scoring system

Sum responses to the 25 questions to obtain an overall emotional intelligence score. The score for *self-awareness* is the total of questions 1, 6, 11, 16, 21. score for *managing emotions* is the total of questions 2, 7, 12, 17, 22. The score for *motivating* is the sum of questions 3, 8, 13, 18, 23. The score for *empathy* is the sum of questions 4, 9, 14, 19, and 24. score for *social skills* is the sum of questions 5, 10, 15, 20, 25. A total score of 100 or more indicated high emotional intelligence. A score from 50 to 100 means a good platform for developing emotional intelligence. A score below 50 indicates that a person is below average in emotional intelligence. For each of the five components of emotional intelligence: Self-awareness, managing emotions, motivating oneself, empathy, and social skills, a score above 20 is considered high, while a score below 10 would be considered low.

Table (1): The scoring system categories of different EI dimensions

Items	Indicator		
	Low	**Moderate**	**High**
Self-awareness	Blow 10	10 -20	Above 20
Managing emotions	Blow 10	10 -20	Above 20
Motivation	Blow 10	10 -20	Above 20
Empathy	Blow 10	10 -20	Above 20
Social skills	Blow 10	10 -20	Above 20
Total score of EI.	Below 50	50 – 100	100 or more

4.5. Procedures

The preparatory phase included tools validity and reliability, pilot study, and fieldwork.

The preparatory phase was carried out through the following steps:

- Reviewing related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals, and magazines to develop data collection tools.
- Outlining all components of emotional intelligence guidelines through an extensive literature review and other available resources.
- Obtaining experts' opinions ensures content validity of the developed tools and training program content.

Official permission was obtained from the scientific research and ethical committee at the Faculty of Nursing of Ain Shams University before the conduction of the study.

Ethical considerations: The aim of the study and the procedures were explained to the participant who agreed to participate in the study to obtain their cooperation. Verbal consent was obtained from them. The researcher maintains anonymity and confidentiality of them. Participant was informed that; they have the right to withdraw from a study at any time without justification.

Validity and reliability: Testing validity was established by a panel or (jury) of five experts from psychiatric mental health nursing at the Faculty of Nursing at Ain Shams University who reviewed the instruments for clarity, relevance, comprehensiveness, simplicity, understanding, and applicability. The items on which experts have agreed were included in the proposed tool.

Testing the reliability of the tool. Cronbach's Alpha coefficient test tested the proposed tools. The value of 0.84 showed a strong, significant positive correlation between the items of tools, revealing that the tools consisted of relatively homogenous items.

The pilot study was carried out on ten members of the nursing staff, who were later excluded from the study. They represent more than 10% of the sample to ensure clarity, applicability, relevance, feasibility of the study conduction process, and time needed for each tool.

Field Work:

Phase 1: Assessment:

The assessment was done to determine the level of emotional intelligence among nurses as a baseline of the training program by using a pretest based on the emotional intelligence scale (EIS). Tools of the study were distributed individually to the participants, and the researcher asked

them to fill out the questionnaires; this phase was carried out over one month in the two settings.

Phase 2: Program Development:

The researchers designed the program based on data from the pre-assessment stage and reviewing recent national, and international related literature in emotional intelligence. Five psychiatric health nursing department experts, Faculty of Nursing, Ain Shams University revised and validated this program content. The training program consists of theoretical (2-3 sessions) and practical parts (4-5-6-7-8 sessions), each with general and specific objectives.

Meanwhile, the practical skills' objectives are to improve emotional intelligence (Self-awareness, managing emotion, motivation, empathy, and social skills). All program content was designed and given to nurses as an educational reference during program implementation and as a self-learning reference post-program implementation.

The data collection tool was developed from January 2018 until March 2018. Data collection for this study was carried out from March 2018 to March 2019.

Phase 3: Program Implementation:

The participants were classified into eight subgroups, each composed of (6-9); each subgroup attended nine sessions, which were scheduled for two sessions per week; the time for each session was about (45-60) min. The program was carried out in small groups in the nursing station room. Program implementation following the sessions plan uses different educational methods such as group discussion, role play, demonstration, and demonstration for practical sessions and media such as handouts, videos, powerpoint, and a guiding booklet designed and developed based on nurses' assessment.

The first was an introductory session; two theoretical sessions, five practical sessions, and the final was a summary of all previous sessions.

The content of the intervention program sessions was as follows:

The first session: Introduction about the aim, objectives of the program, and content of the sessions.

The second session: Theoretical background about Alzheimer's disease (definition, causes, and intervention).

The third session: Theoretical background about emotional intelligence (definition, characteristics, and skills)

The fourth session: Developing self-awareness (concept, type, and how to improve it).

The fifth session is developing self-regulation (concept, steps, and how to improve it).

The sixth session was for developing the self-motivation of the nurses (concept, type, and how to improve it).

The seventh session: Understanding and developing empathy skills (concept, type, and how to improve it).

The eighth session: Improving social skills training (concept, element, and how to develop it).

The ninth session: Summary of the program sessions and the participants were reassessed using the same tools during the pretest. A comparison was done to determine the effectiveness of the program.

Phase 4: Program evaluation

This phase aimed to evaluate the level of emotional intelligence. After program implementation, the evaluation was conducted to assess emotional intelligence skills using the same tools as the pretest (emotional intelligence scale (EIS). This evaluation was done twice: The first time was after one month of the intervention and implementation of the training program, and the second time after three months of completion of the program (follow-up).

4.6. Data analysis

The collected data were organized, categorized, tabulated, and statistically analyzed using the Statistical Package for Social Science (SPSS) version (25) to evaluate the effect of a training program on the emotional intelligence of nurses caring for Alzheimer's patients. Data were presented in tables and charts. The statistical analysis included qualitative data expressed as frequency and percentage. A chi-square test was used to accomplish the comparison between two variables of the qualitative data. Comparisons between quantitative variables were performed using an independent sample t-test. A probability (p-value) less than 0.05 was considered significant, and less than 0.001 was considered highly significant.

5. Results

Table 2 shows that the mean age of the nurses is 32.8±7.3 years, and less than half (44.3%) were in the age range of 25-<35 years old. Regarding gender, 81.4% of nurses were females; the rest were males, and 61.4% were married. Almost half of the nurses (54.30%) earn more than 4500 pounds monthly. Regarding years of experience, 30% of the nurses have 10-15 years of experience, with a mean of 9.8±4.2 years. Regarding working hours, 37.1% of nurses work 12 hours per day. Regarding the number of daily cases, 62.90% of nurses are assigned to 4-6 cases daily.

Table 3 represents the five items of the self-awareness domain. It reveals that there is a highly statistically significant difference only between levels of "Know what senses you are currently using" between pre-intervention and post-intervention (p=0.014); there are highly statistically significant differences among all items (p<0.05) except for "Identify when you experience mood shifts" where (p=0.741) between post-intervention and follow-up. When comparing between pre-intervention and follow-up, there are highly statistically significant differences among all items of self-awareness domain (p<0.05). The comparison of total self-awareness levels throughout the program phases reveals a statistically significant difference at p<0.001. The mean self-awareness score was 13.7±2.7 at pre-intervention compared to 16.1±2.4 post-intervention and 18.8±2.2 at follow-up, and the difference between mean scores was highly statistically significant (p<0.001).

Figure 1 reveals that pre-intervention, 58.60% of nurses have a low level of self-awareness compared to 60% of them having a moderate level of self-awareness post-intervention, and 68.60% of them have a high level at follow-up evaluation.

Table 4 represents the five items of managing emotions domain. It reveals that there is a highly statistically significant difference only between levels of "Relax when under pressure in situations" (p=0.009) and the level of

"Know when you are thinking negatively and head it off" (p=0.034) between pre-intervention and post-intervention, although between post-intervention and follow-up reveals that, there is a statistically significant difference between the levels of "Use internal talk to change your emotional state" (p=0.048), the levels of "Stay calm when you are the target of anger from others" (p<0.001), and the levels of "Know when you are thinking negatively and head it off" (p=0.006). When comparing items between pre-intervention and follow-up shows highly statistically significant differences among all items of managing emotions (p<0.05). The comparison of total managing emotions levels throughout the program phases reveals a statistically significant difference at p<0.001. The mean score of managing emotions was 13.1±2.6 at pre-intervention compared to 15.6±2.6 post-intervention and 18.6±2.6 at follow-up, and the difference between the mean scores was highly statistically significant (p<0.001).

Figure 2 represents the total of managing emotions domain. The figure illustrates that pre-intervention, 58.60% of nurses have a low level of managing emotions compared to 61.5% having a moderate level of managing emotions post-intervention and 68.60% having a high level at follow-up.

Table 5 compares the self-motivation domain between pre-intervention, post-intervention, and follow-up. It shows statistically significant differences between the levels of "Gear up at will for a task" (p=0.005), the levels of "Regroup quickly after a setback" (p=0.033), and the levels of "Produce motivation when doing uninteresting work" (p=0.002). Comparison of self-motivation domain items between post-intervention and follow-up reveals statistically significant differences among all items (p<0.05) except for "Regroup quickly after a setback" where (p=0.130).

When comparing items of the self-motivation domain between pre-intervention and follow-up shows highly statistically significant differences among all items of the self-motivation domain (p<0.05). The comparison of total self-motivation levels throughout the program phases reveals a statistically significant difference at p<0.001.

Results of the current study show that the mean score of self-motivation was 12.6±2.4 at pre-intervention as compared to 14.8±2.3 post-intervention and 17.6±2.4 at follow-up, and the difference between the mean score was highly statistically significant (p<0.001)

Figure 3 illustrates the total self-motivation domain; the current study reveals that pre-intervention, 62.9% of nurses had a low level of self-motivation, compared to 71.4% of them having a moderate level of self-motivation post-intervention, and 70% had a high level at follow-up.

Table 6 compares the five items of the empathy domain between pre-, post-intervention, and follow-up. The table reveals a statistically significant difference between levels of "Know the impact that your behavior has on others" (p=0.002) in comparing the pre and post-intervention. Post-intervention and follow-up comparisons show highly statistically significant differences among all items of the empathy domain (p<0.05. Furthermore, there are statistically significant differences among all items of the empathy domain between post-intervention and follow-up (p< 0.05).

The comparison of total empathy domain levels throughout the program phases reveals a statistically significant difference at p<0.001. the table also reveals mean empathy score was 13.5±2.2 at pre-intervention compared to 15.5±2.4 post-intervention and 18.9±2.6 at follow-up, and the difference between the mean score was highly statistically significant (p<0.001).

Figure 4 represents the total levels of empathy domain; the current study reveals that pre-intervention, 55.70% of nurses had a low level of empathy compared to 58.60%, which had a moderate level of empathy post-intervention, and 74.30% had a high level at follow-up.

Table 7 is concerned with the social domain table; when comparing items of the social skills domain between pre-intervention and follow-up, the result of the current study shows highly statistically significant differences among all items of the social domain except for "Build consensus with others" and "make others feel good" at p=0.501 and 0.074 respectively. There are highly statistically significant differences among all social skills of EI when comparing the post and follow-up phases except for "Provide advice and emotional support to others as needed" (p<0.407). Comparison of social domain items between post-intervention and follow-up reveals statistically significant differences among all items (p<0.05) except for "Provide advice and emotional support to others as needed." where (p=0.316). The total mean score of social skills was 14.6±2.6 at pre-intervention compared to 16.8±2.7 post-intervention and 19.4±2.5 at follow-up, and the difference between the mean score was highly statistically significant (p<0.001).

Figure 5 illustrates the total of the social skills domain. The current study reveals that pre-intervention, 52.90% of nurses had a low level of social skills compared to 47.1%, having a moderate level of social domain post-intervention, and 74.3% having a high level at follow-up.

Table 8 indicates the comparison of total emotional intelligence throughout the program phases. It reveals statistically significant differences between the total emotional intelligence pre-, post, and follow-up (p<0.001).

Figure 6 illustrates the total emotional intelligence domains; 57.1% of nurses had a low level of total emotional intelligence at pre-intervention compared to 60% of them having a moderate level at post-intervention and 71.4% having a high level at follow-up.

6. Discussion

Emotional intelligence (EI) is the most important skill for nurses. EI is the critical component of nursing education, practices, and attitude. Emotional intelligence is an interesting and potentially important concept in nursing. The integration of training on emotional intelligence among nurses caring for patients with Alzheimer's disease will make them better able to perform their jobs, which requires them to communicate, be motivated, and work in a team. The study aims to evaluate the effect of training program on the emotional intelligence of nurses caring for patients with Alzheimer's.

As regards age, findings of the present study reveal that approximately less than half of the nurses were in the age range of 25-<35 years old, and most of the studied nurses were less than 45 years old, with a mean age of 32.8±7.3. It could be due to the mean age. These results contradict the study by *Issa et al. (2022)*, who conducted a study to assess the relationship between emotional intelligence and pain management awareness among nurses. They reported that less than half of the sample is in the age range of 25-35 years old, and more than three-quarters of the studied nurses aged less than 45 years.

Concerning gender, it was found that most of the studied subjects were females, and the rest were males. This finding is likely due to most nursing schools and faculties in the past being allowed only for female students while male students were recently accepted. Also, in our culture, the nursing profession is considered more suitable for females to help themselves and their families with caring and financial support. This finding is in the same line with the study of *Ramadan et al. (2020)*, who carried out a study to examine the effect of emotional intelligence programs on nursing students and reported that most of the sample were females.

Considering monthly income, it was found that approximately half of the studied subjects belonged to the middle-income group. These findings may be explained by the low salaries of nursing staff in Egypt despite efforts made to improve the quality of life for nurses in recent years. However, it still needs improvement, especially since around two-thirds of the studied nurses were married. This result agreed with *Li et al. (2021)*, who reported that more than half of the studied subjects belonged to the middle-income group, according to their study about the relationship between emotional intelligence and job well-being in Chinese registered nurses.

Concerning years of experience, the present study reveals that more than one-third of studied subjects had ten to fifteen years of experience with a mean of (9.8±4.2), and more than one-quarter had five to ten years of experience. This finding could be due to the low mean age of the studied nurses.

Table (2): Frequency and percentage distribution of studied nurses' Sociodemographic characteristics (n=70).

Sociodemographic characteristics	No.	%
Age (Years)		
<25	9	12.9
25-<35	31	44.3
35-<45	28	40.0
45+	2	2.9
Mean±SD	32.8±7.3	
Gender		
Male	13	18.6
Female	57	81.4
Educational Level		
Diploma	36	51.4
Bachler	22	31.4
Postgraduate	12	17.1
Marital Status		
Single	20	28.6
Married	43	61.4
Widow	4	5.7
Divorced	3	4.3
Income		
<2500	3	4.3
2500–3500	8	11.4
3500–4500	21	30.0
>4500	38	54.3
Experience (Years)		
<5	17	24.3
5–10	20	28.6
10–15	21	30.0
>15	12	17.1
Mean ±SD	9.8±4.2	
Work Hours		
6 hours	23	32.9
12 hours	26	37.1
24 hours	21	30.0
Number of daily cases		
<4	13	18.6
4–6	44	62.9
>6	13	18.6

Table (3): Comparison of self-awareness domain of Emotional Intelligence between pre-, post-intervention, and follow-up (n=70).

Self-awareness domain of emotional intelligence	Pre		Post		Follow-Up		Pre Vs. Post		Post Vs. Follow-Up		Pre Vs. Follow Up	
	No	%	No	%	No	%	X^2	P	X^2	P	X^2	P
Associate different internal physiological cues with different emotions												
Very Slightly	11	15.7	5	7.1	3	4.3						
Slightly	19	27.1	9	12.9	6	8.6						
Moderately	19	27.1	28	40.0	12	17.1						
Much	13	18.6	17	24.3	30	42.9						
Very Much	8	11.4	11	15.7	19	27.1	8.55	0.073	13.22	0.010	24.11	<0.001
Calm yourself quickly when angry												
Very Slightly	21	30.0	14	20.0	4	5.7						
Slightly	27	38.6	18	25.7	12	17.1						
Moderately	10	14.3	14	20.0	9	12.9						
Much	3	4.3	11	15.7	22	31.4						
Very Much	9	12.9	13	18.6	23	32.9	9.16	0.057	14.287	0.006	37.947	<0.001
Know what senses you are currently using												
Very Slightly	16	22.9	9	12.9	3	4.3						
Slightly	23	32.9	10	14.3	7	10.0						
Moderately	16	22.9	23	32.9	12	17.1						
Much	7	10.0	15	21.4	25	35.7						
Very Much	8	11.4	13	18.6	23	32.9	12.43	0.014	12.264	0.015	35.383	<0.001
Identify when you experience mood shifts												
Very Slightly	3	4.3	1	1.4	1	1.4						
Slightly	8	11.4	1	1.4	1	1.4						
Moderately	21	30.0	20	28.6	13	18.6						
Much	22	31.4	31	44.3	35	50.0						
Very Much	16	22.9	17	24.3	20	28.6	8.027	0.091	1.971	0.741	11.736	0.019
Know when you become defensive												
Very Slightly	12	17.1	8	11.4	5	7.1						
Slightly	23	32.9	18	25.7	10	14.3						
Moderately	29	41.4	27	38.6	16	22.9						
Much	5	7.1	10	14.3	25	35.7						
Very Much	1	1.4	7	10.0	14	20.0	7.648	0.105	14.554	0.006	36.359	<0.001
Total self-awareness												
Low	41	58.6	13	18.6	7	10						
Moderate	25	35.7	42	60	15	21.4		X^2=25.2				<0.001
High	4	5.7	15	21.4	48	68.6						
Mean±SD	13.7±2.7		16.1±2.4		18.8±2.2							
T-test (P value)			<0.001									

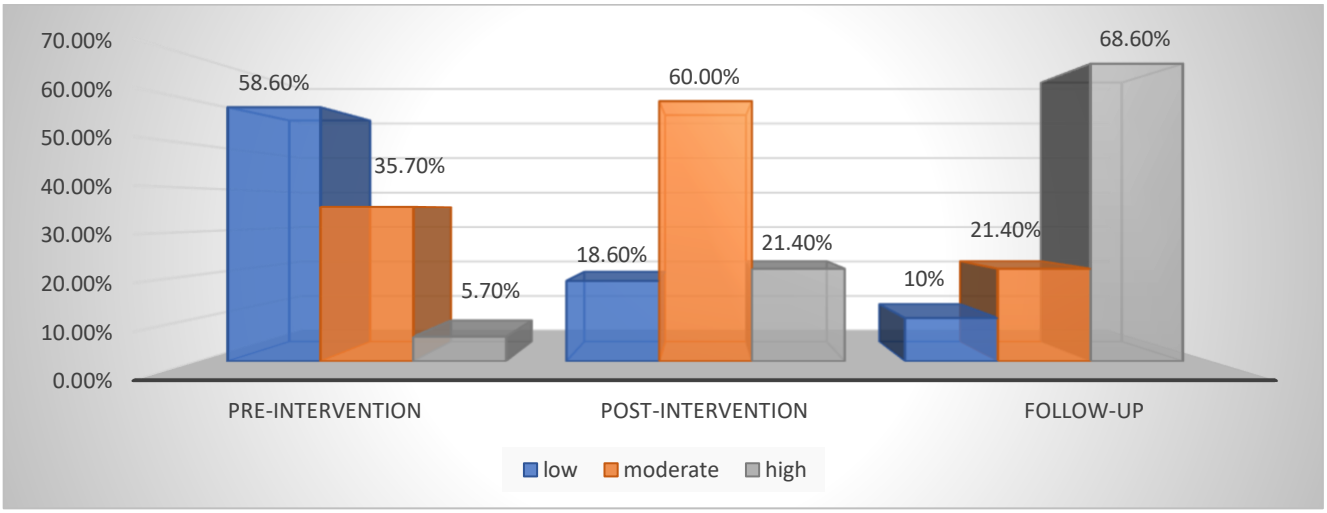

Figure (1): Percentage distribution of self-awareness levels through pre-intervention, post-intervention, and follow-up (n=70).

Table (4): Comparison of managing emotion domain of Emotional Intelligence between pre-, post-intervention, and follow-up (n=70).

Managing the emotional domain of emotional intelligence	Pre		Post		Follow-Up		Pre Vs. Post		Post Vs. Follow-Up		Pre Vs. Follow Up	
	No	%	No	%	No	%	X^2	P	X^2	P	X^2	P
Relax when under pressure in situations												
Very Slightly	21	30.0	6	8.6	4	5.7						
Slightly	23	32.9	20	28.6	9	12.9						
Moderately	14	20.0	20	28.6	20	28.6						
Much	7	10.0	14	20.0	22	31.4						
Very Much	5	7.1	10	14.3	15	21.4	13.60	0.009	7.35	0.118	31.50	<0.001
Know when you are becoming angry												
Very Slightly	10	14.3	2	2.9	2	2.9						
Slightly	5	7.1	3	4.3	3	4.3						
Moderately	26	37.1	30	42.9	19	27.1						
Much	17	24.3	20	28.6	24	34.3						
Very Much	12	17.1	15	21.4	22	31.4	6.69	0.153	4.15	0.385	11.05	0.026
Use internal "talk" to change your emotional state												
Very Slightly	17	24.3	5	7.1	4	5.7						
Slightly	23	32.9	24	34.3	11	15.7						
Moderately	17	24.3	19	27.1	17	24.3						
Much	6	8.6	12	17.1	18	25.7						
Very Much	7	10.0	10	14.3	20	28.6	9.20	0.056	9.58	0.048	24.54	<0.001
Stay calm when you are the target of anger from others												
Very Slightly	6	8.6	4	5.7	4	5.7						
Slightly	21	30.0	14	20.0	7	10.0						
Moderately	32	45.7	32	45.7	3	4.3						
Much	8	11.4	14	20.0	24	34.3						
Very Much	3	4.3	6	8.6	32	45.7	4.43	0.350	46.78	<0.001	63.45	<0.001
Know when you are thinking negatively and head it off												
Very Slightly	16	22.9	9	12.9	5	7.1						
Slightly	29	41.4	17	24.3	8	11.4						
Moderately	14	20.0	23	32.9	14	20.0						
Much	8	11.4	15	21.4	27	38.6						
Very Much	3	4.3	6	8.6	16	22.9	10.41	0.034	14.54	0.006	36.89	<0.001
Total managing emotion domain												
Low	41	58.6	12	17.1	8	11.4						
Moderate	26	37.1	43	61.5	14	20	X^2=65.530				<0.001	
High	3	4.3	15	21.4	48	68.6						
Mean ±SD	13.1±2.6		15.6±2.6		18.6±2.6							
T-test (P value)			<0.001									

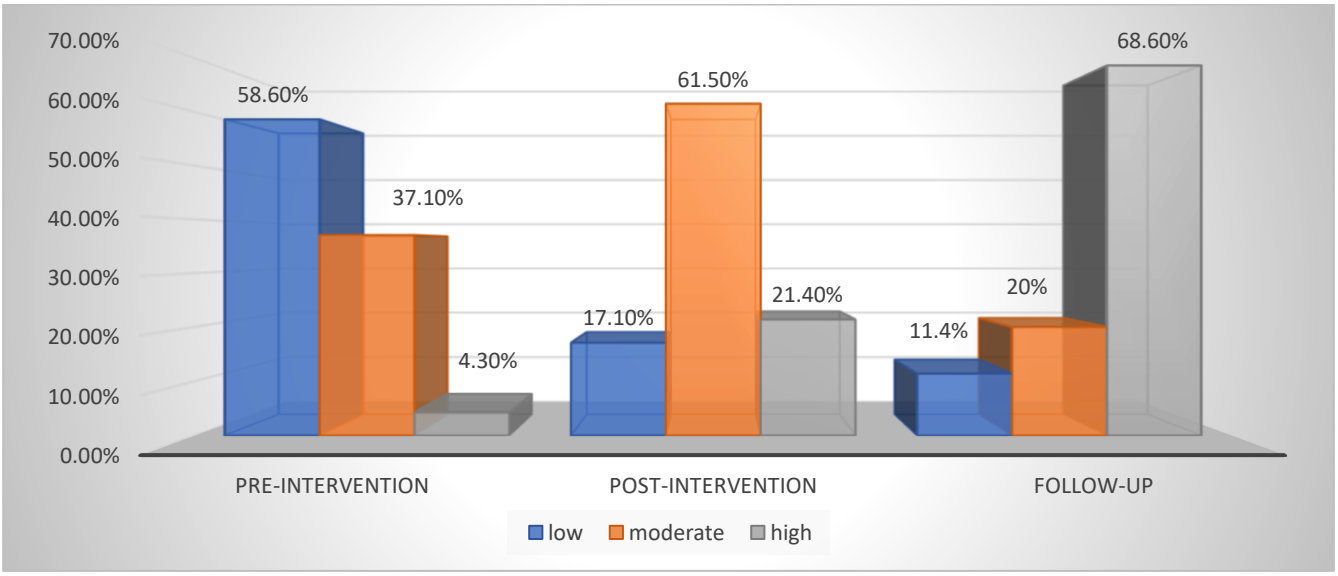

Figure (2): Percentage distribution of managing emotion levels between pre-intervention, post-intervention, and follow-up (n=70).

Table (5): Comparison of the self-motivation domain of Emotional Intelligence between pre-, post-intervention and follow-up (n=70).

Self-motivation domain of emotional intelligence	Pre		Post		Follow-Up		Pre Vs. Post		Post Vs. Follow-Up		Pre Vs. Follow Up	
	No	%	No	%	No	%	No	%	No	%	No	%
"Gear up" at will for a task.												
Very Slightly	25	35.7	9	12.9	3	4.3						
Slightly	18	25.7	13	18.6	8	11.4						
Moderately	16	22.9	28	40.0	21	30.0						
Much	4	5.7	10	14.3	21	30.0						
Very Much	7	10.0	10	14.3	17	24.3	14.70	0.005	10.90	0.028	37.53	<0.001
Regroup quickly after a setback												
Very Slightly	15	21.4	5	7.1	3	4.3						
Slightly	37	52.9	34	48.6	21	30.0						
Moderately	4	5.7	12	17.1	17	24.3						
Much	4	5.7	8	11.4	9	12.9						
Very Much	10	14.3	11	15.7	20	28.6	10.50	0.033	7.10	0.130	25.71	<0.001
Produce motivation when doing uninteresting work												
Very Slightly	21	30.0	13	18.6	8	11.4						
Slightly	26	37.1	11	15.7	7	10.0						
Moderately	17	24.3	27	38.6	20	28.6						
Much	4	5.7	14	20.0	19	27.1						
Very Much	2	2.9	5	7.1	16	22.9	17.07	0.002	9.64	0.047	37.68	<0.001
Stop or change an ineffective habit												
Very Slightly	2	2.9	2	2.9	2	2.9						
Slightly	6	8.6	6	8.6	4	5.7						
Moderately	29	41.4	35	50.0	19	27.1						
Much	32	45.7	24	34.3	31	44.3						
Very Much	1	1.4	3	4.3	14	20.0	2.70	0.608	13.14	0.011	13.76	0.008
Follow your words with actions												
Very Slightly	18	25.7	11	15.7	6	8.6						
Slightly	22	31.4	13	18.6	10	14.3						
Moderately	16	22.9	24	34.3	12	17.1						
Much	8	11.4	14	20.0	25	35.7						
Very Much	6	8.6	8	11.4	17	24.3	7.52	0.111	12.20	0.016	25.09	<0.001
Total self-motivation domain												
Low	44	62.9	11	15.7	6	8.6						
Moderate	23	32.9	50	71.4	15	21.4		X^2=32.786			<0.001	
High	3	4.3	9	12.9	49	70						
Mean ±SD	12.6±2.4		14.8±2.3		17.6±2.4							
T-test (P value)			<0.001									

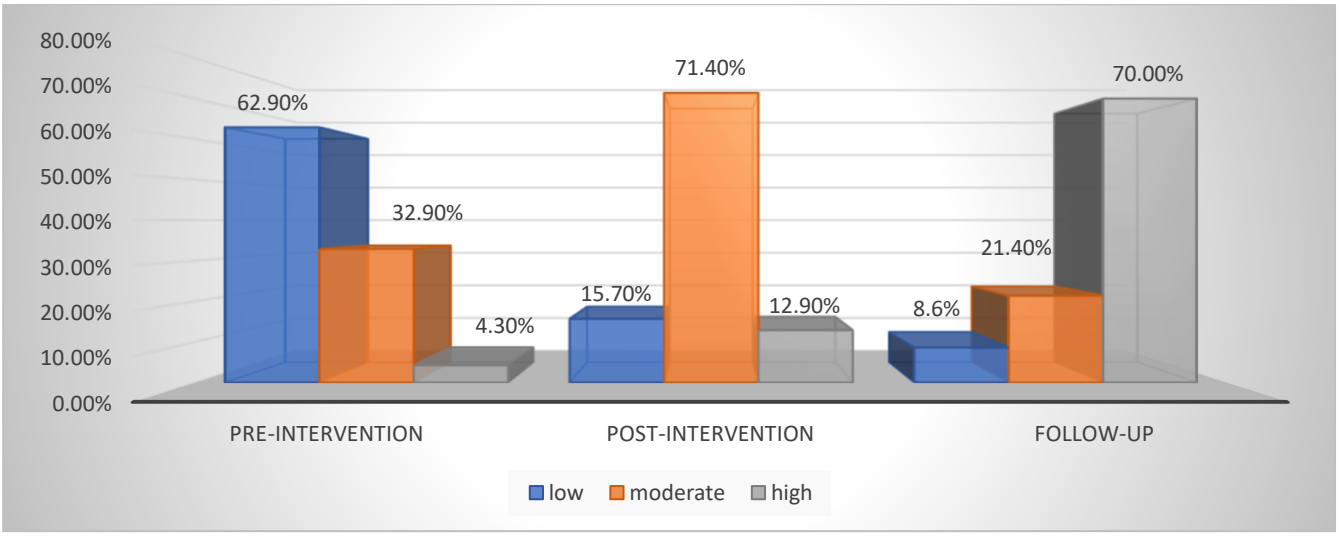

Figure (3): Percentage distribution of self-motivation levels through pre-intervention, post-intervention, and follow-up (n=70).

Table (6): Comparison of empathy domain of emotional intelligence between pre-, post-intervention, and follow-up (n=70).

Empathy domain of emotional intelligence	Pre		Post		Follow-Up		Pre Vs. Post		Post Vs. Follow-Up		Pre Vs. Follow Up	
	No	%	No	%	No	%	No	%	No	%	No	%
Know the impact that your behavior has on others.												
Very Slightly	17	24.3	8	11.4	4	5.7						
Slightly	27	38.6	12	17.1	7	10.0						
Moderately	16	22.9	26	37.1	13	18.6						
Much	6	8.6	16	22.9	27	38.6						
Very Much	4	5.7	8	11.4	19	27.1	17.26	0.002	14.27	0.006	43.26	<0.001
Build consensus with others												
Very Slightly	15	21.4	10	14.3	4	5.7						
Slightly	19	27.1	16	22.9	9	12.9						
Moderately	22	31.4	22	31.4	12	17.1						
Much	5	7.1	10	14.3	20	28.6						
Very Much	9	12.9	12	17.1	25	35.7	3.35	0.501	15.37	0.004	29.41	<0.001
Help others manage their emotions												
Very Slightly	9	12.9	6	8.6	4	5.7						
Slightly	29	41.4	26	37.1	13	18.6						
Moderately	21	30.0	20	28.6	13	18.6						
Much	7	10.0	11	15.7	18	25.7						
Very Much	4	5.7	7	10.0	22	31.4	2.49	0.646	15.66	0.004	27.20	<0.001
Show empathy to others												
Very Slightly	13	18.6	9	12.9	6	8.6						
Slightly	20	28.6	14	20.0	8	11.4						
Moderately	16	22.9	21	30.0	13	18.6						
Much	13	18.6	12	17.1	13	18.6						
Very Much	8	11.4	14	20.0	30	42.9	4.13	0.388	9.97	0.041	20.76	<0.001
Engage in intimate conversations with others												
Very Slightly	9	12.9	5	7.1	3	4.3						
Slightly	12	17.1	7	10.0	4	5.7						
Moderately	34	48.6	35	50.0	16	22.9						
Much	11	15.7	16	22.9	29	41.4						
Very Much	4	5.7	7	10.0	18	25.7	4.21	0.377	16.99	0.002	30.48	<0.001
Total empathy domain												
Low	39	55.7	11	15.7	5	7.1						
Moderate	28	40	41	58.6	13	18.6		X^2=75.415			<0.001	
High	3	4.3	18	25.7	52	74.3						
Mean±SD	13.5±2.2		15.5±2.4		18.9±2.6							
T-test (P-value)			<0.001									

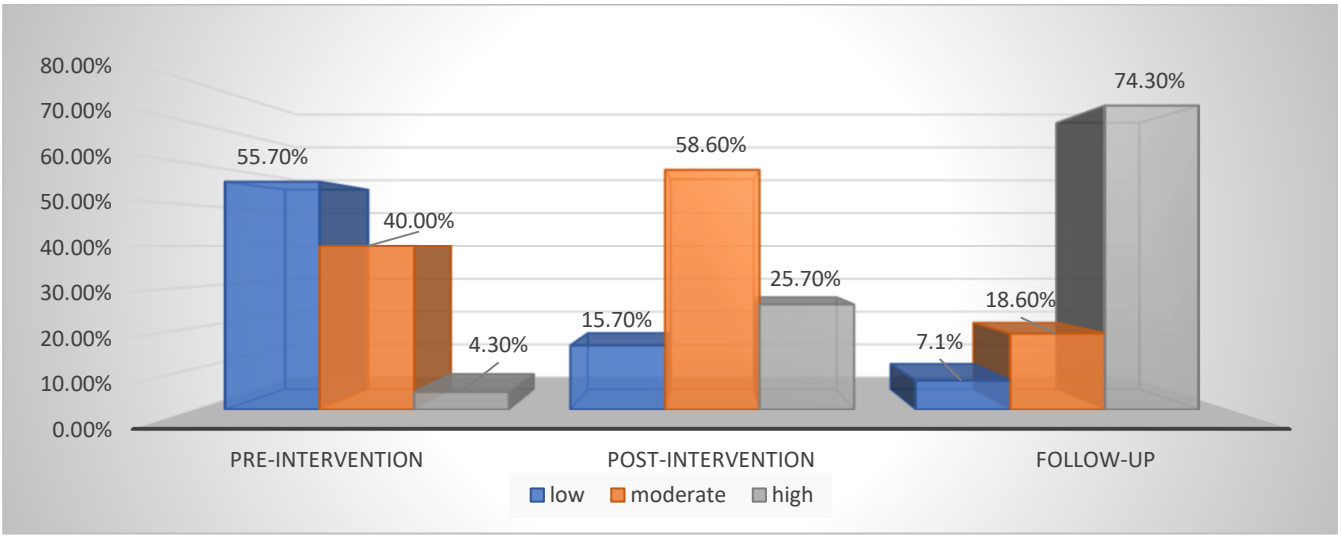

Figure (4): Percentage distribution of empathy domain levels through pre-intervention, post-intervention, and follow-up (n=70).

Table (7): Comparison of social skills domain of Emotional Intelligence between pre-, post-intervention, and follow-up (n=70).

Social skills domain of emotional intelligence	Pre		Post		Follow-Up		Pre Vs. Post		Post Vs. Follow-Up		Pre Vs. Follow Up	
	No	%	No	%	No	%	No	%	No	%	No	%
Initiate successful resolution of conflict with others.												
Very Slightly	21	30.0	9	12.9	5	7.1						
Slightly	33	47.1	19	27.1	9	12.9						
Moderately	5	7.1	17	24.3	13	18.6						
Much	3	4.3	14	20.0	23	32.9						
Very Much	8	11.4	11	15.7	20	28.6	22.70	<0.001	10.05	0.040	47.64	<0.001
Build consensus with others												
Very Slightly	15	21.4	10	14.3	4	5.7						
Slightly	19	27.1	16	22.9	9	12.9						
Moderately	22	31.4	22	31.4	12	17.1						
Much	5	7.1	10	14.3	20	28.6						
Very Much	9	12.9	12	17.1	25	35.7	3.35	0.501	15.37	0.004	29.41	<0.001
Make others feel good												
Very Slightly	5	7.1	2	2.9	2	2.9						
Slightly	12	17.1	3	4.3	3	4.3						
Moderately	25	35.7	26	37.1	11	15.7						
Much	16	22.9	23	32.9	24	34.3						
Very Much	12	17.1	16	22.9	30	42.9	8.53	0.074	10.36	0.035	21.44	<0.001
Provide advice and emotional support to others as needed												
Very Slightly	1	1.4	1	1.4	1	1.4						
Slightly	4	5.7	4	5.7	4	5.7						
Moderately	23	32.9	22	31.4	12	17.1						
Much	15	21.4	15	21.4	19	27.1						
Very Much	27	38.6	28	40.0	34	48.6	70.34	<0.001	3.99	0.407	4.73	0.316
Accurately reflect people's feelings back to them												
Very Slightly	16	22.9	6	8.6	4	5.7						
Slightly	17	24.3	7	10.0	5	7.1						
Moderately	20	28.6	31	44.3	15	21.4						
Much	12	17.1	17	24.3	28	40.0						
Very Much	5	7.1	9	12.9	18	25.7	13.09	0.011	11.98	0.017	28.20	<0.001
Total social skills domain												
Low	37	52.9	12	17.2	6	8.6						
Moderate	28	40	33	47.1	12	17.1	X^2= 67.503				<0.001	
High	5	7.1	25	35.7	52	74.3						
Mean±SD	14.6±2.6		16.8±2.7		19.4±2.5							
T-test (P value)			<0.001									

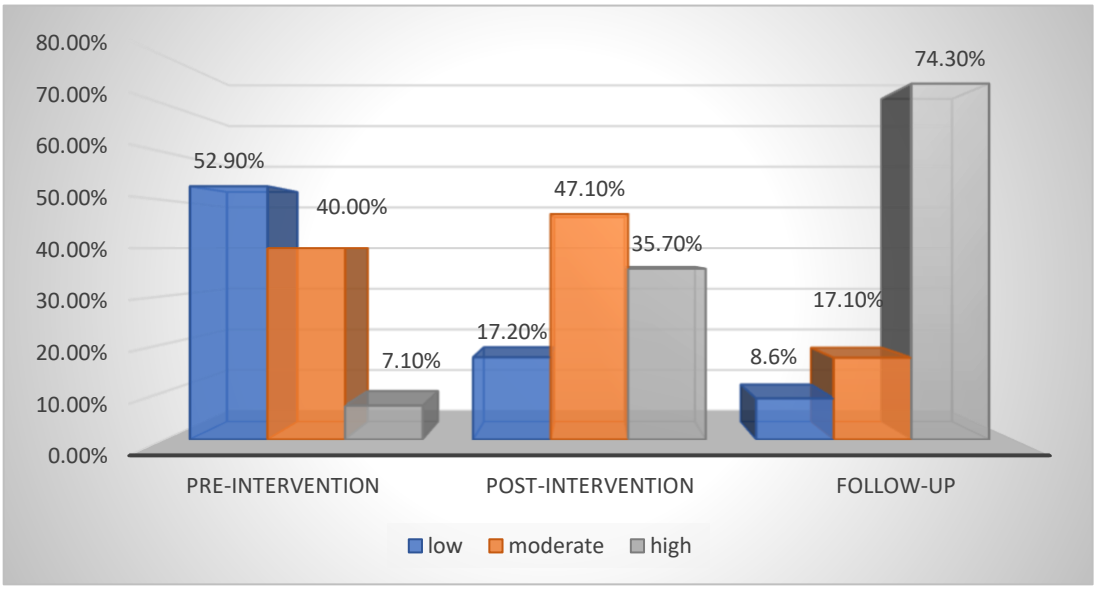

Figure (5): Percentage distribution of social domain levels between pre-intervention, post-intervention, and follow-up (n=70).

Table (8): Comparison of emotional intelligence throughout the program phases (pre, post, and follow-up (n=70).

Total emotional intelligence	Pre		Post		Follow-Up		X^2	p-value
	No	%	No	%	No	%		
Low	40	57.1	12	17.1	6	8.6		
Moderate	26	37.1	42	60	14	20	97.308	<0.001
High	4	5.7	16	22.9	50	71.4		

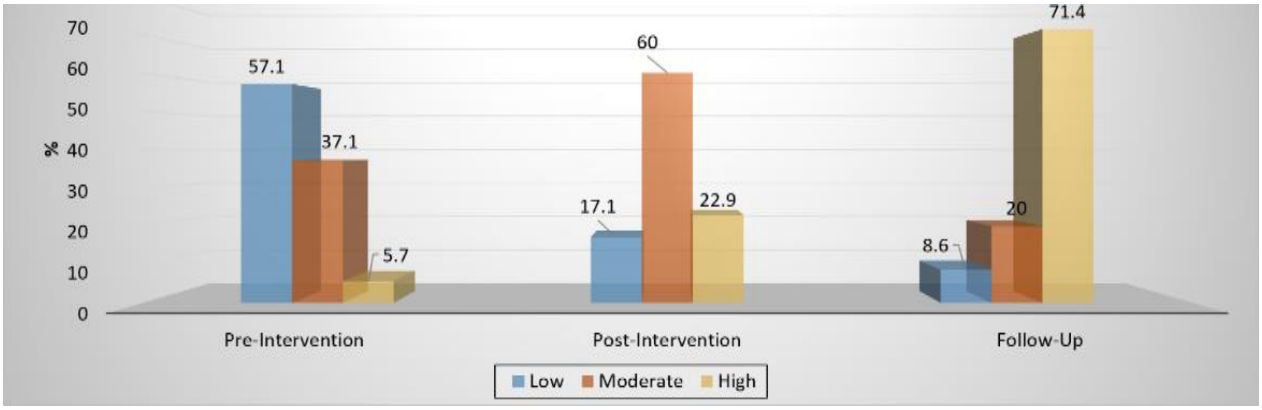

Figure (6): Percentage distribution of emotional intelligence levels between pre-intervention, post-intervention, and follow-up (n=70).

This finding aligns with the *Shoukry et al. (2022)* study about the relationship between nurses' emotional intelligence and safety practices for elderly patients. They reported that about one-third of the studied subjects had 10-15 years of experience. Another study by *El-Azzab et al. (2019)* aimed to assess work-related stress, burnout, and self-efficacy among psychiatric nurses and revealed that more than one-third of the studied sample had 5 to 10 years of experience.

Regarding marital status, the current study findings revealed that around two-thirds of nurses were married. This high percentage is due to Egyptian society's cultural and religious customs, especially in rural areas. This finding agrees with the finding of *Khademi (2020),* who emphasized that most respondents were married in a study that examines emotional intelligence and the quality of nursing care.

About the self-awareness domain, the current study reveals that the mean self-awareness score was significantly increased from pre-intervention to post-intervention and at follow-up. Furthermore, about three-fifths of the nurses have a low level of self-awareness at pre-intervention assessment, and only a small percentage have a high level of self-awareness. These findings were significantly changed post-intervention evaluation, where three-fifths of nurses have moderate self-awareness. During the follow-up evaluation, there was a statistically significant increase in self-awareness, where nearly three-quarters of nurses have a high level of self-awareness. These findings reflect that most nurses gain self-awareness after the training program. Also self-awareness increased and improved over time may be due to the integration of knowledge gained during the program and the application of this knowledge throughout work and life circumstances. Similarly, *Talman et al. (2019),* in their study about the emotional intelligence of nursing applicants and related factors. They found a statistically significant increase in the mean score of emotional self-awareness after receiving the intervention.

Regarding managing the emotion domain, the current study reveals that more than one-half of the nurses have low levels of managing emotion skills at pre-intervention assessment. These findings were significantly changed post-intervention, in which three-fifths of nurses have moderate levels of managing emotion skills. Furthermore, at follow-up evaluation, there was a statistically significant increase in the level of managing emotion skills, where about three-quarters of nurses have a high level of managing emotion. As well as the mean managing emotion skills score was significantly increased from pre-intervention to follow-up.

This result may be due to the way of implementing the program in which the researcher teaches nurses to help others as patients and their colleagues and share their feelings with others. Also, they developed their way of complementing others when doing something right and managing happy events that leave a good impression of themselves to other people. Nurses were more successful in establishing personal and interpersonal relationships due to learning EI skills such as listening and sympathizing. These skills helped nurses to directly affect their audience, increased their acceptability, strengthened their relationships, and protected them from burnout and the negative impact of their work.

This finding was matched with the findings of *Erkayiran and Demirkiran (2018).* They conducted a study to assess the impact of improving emotional intelligence skills training on nursing. They reported a statistically significant improvement in managing emotion at the three times of assessments (pre-, immediately post, and follow-up) in which the management emotion of nurses was increased from a low level before intervention to a high level post-intervention and after three months of implementing the program.

Concerning the self-motivation domain, the current study reveals that the mean self-motivation score was significantly increased from pre-intervention to post-intervention and at follow-up. Furthermore, more than one-half of the nurses have low self-motivation at pre-intervention assessment, and only a small percentage have high self-motivation. These findings dramatically and

significantly changed post-intervention, in which around three-quarters of nurses have moderate self-motivation, and about one-tenth have high self-motivation. During the follow-up evaluation, there was a statistically significant increase in self-motivation, where about three-quarters of nurses have a high level of self-motivation.

The finding could explain that EI training developed skills such as emotional regulation, considering the level of self-motivation, having functional rather than dysfunctional thoughts once analyzing daily affairs, and self-control and positive feedback when facing anger-provoking situations. Therefore, EI training indirectly affects nurses by improving their psychosocial skills.

This finding matches the study by *Mohamed et al. (2019)*, who aimed to examine the effect of head nurses' emotional intelligence educational program on nurses' motivation and organizational support. Their findings showed that staff nurse motivation increased from a low level before the program implementation to a high-level post-intervention and after three months. Also, there are highly statistically significant differences among all items of the self-motivation domain.

Concerning the empathy domain, the current study reveals that the mean empathy score was significantly increased from pre-intervention to post-intervention and at follow-up. Furthermore, comparing the empathy skills domain between pre-intervention and follow-up shows highly statistically significant differences among all items of the empathy skills domain. Also, there are statistically significant differences among all items of the empathy skills domain between post-intervention and follow-up. This result could be declared that EI training indirectly affects nurses by improving their psychosocial skills. This effect appeared through getting familiar with interpersonal communication skills, verbal and non-verbal components of communication, and good communication characteristics that helped improve empathy and social skills.

This finding was compatible with other studies in which *Hajibabaee et al. (2018)* conducted a study to assess the relationship between empathy skills and emotional intelligence among Iranian nursing students. They found a highly statistically significant difference among all items of the empathy skills domain between pre-intervention, post-intervention, and follow-up, increasing the emotional intelligence scores.

Regarding the social skills domain, the current study reveals that the mean self-motivation score was significantly increased from pre-intervention to post-intervention and at follow-up. Furthermore, comparing social domain levels showed highly statistical differences between pre-intervention, post-intervention, and follow-up. This improvement may be due to the effectiveness of training program sessions, which provided the nurses with skills to develop their communication and connection with others and how to accept criticism in work and accept the views of others. Also, they improved their appraisal skills, which helped them to increase their relationship with the healthcare team and their patients at work.

This finding matched the study by *Trigueros et al. (2020)*, who studied the "Relationship between emotional intelligence, social skills, and peer harassment" and found highly statistically significant differences regarding all items of social skills.

Regarding total emotional intelligence scores, the current study reveals a statistically significant difference between the total emotional intelligence levels between pre, post, and follow-up, that most of the studied nurses have a high level of emotional intelligence at follow-up evaluation compared to pre-intervention.

Furthermore, when comparing the levels of emotional intelligence at pre-intervention, post-intervention, and follow-up, the current study reveals that more than one-half of the nurses have low total emotional intelligence at pre-intervention assessment. This finding was dramatically and significantly changed at post-intervention evaluation in which more than one-half of nurses have moderate levels of total emotional intelligence. While at follow-up evaluation, slightly less than three-quarters of nurses have a high total emotional intelligence. These findings reflect the effectiveness of the training sessions and the teaching material given to the nurses in this study that improving their emotional intelligence skills. As well as it highlights the need for such training programs to enhance nurses' skills improving the quality of care, patient satisfaction, and outcomes. These findings support the research hypothesis.

These findings are congruent with those of *Zaki et al. (2018)*, who studied the effect of emotional intelligence programs on decision-making style. Their results showed the effectiveness of the emotional intelligence program in developing emotional intelligence skills among studied nurses. There was a statistically significant difference between the levels of emotional intelligence pre-intervention and post-intervention.

7. Conclusion

Based on the findings of the present study, it can be concluded that:

The research findings unequivocally support the efficacy of an emotional intelligence training program, including theoretical and practical components, in enhancing and elevating emotional intelligence among nurses. The research hypothesis positing the positive impact of the training program is affirmed. The study reveals that more than half of the participating nurses exhibited low emotional intelligence before the intervention. However, a significant change occurred following the intervention, with more than half of the nurses demonstrating a moderate level. During the follow-up evaluation, a substantial portion of the nurses maintained and even surpassed this improvement, with less than three-quarters of them attaining high emotional intelligence. The statistical analysis underscores a significant difference across the pre-intervention, post-intervention, and follow-up phases, focusing on the program's lasting impact.

8. Recommendations

In the light of the study results and the preceding conclusions, the following is recommended:

Address nurses' daily challenges and demands with patients, colleagues, and the healthcare system. By focusing on specific emotional intelligence components, interventions

can be more efficient and effective in elevating emotional intelligence levels among nurses.

Designing research with follow-up assessments at various intervals beyond the immediate post-training period will provide valuable insights into the durability of the intervention's effects.

Exploring potential factors contributing to the maintenance or decline of emotional intelligence levels over time, such as organizational support, ongoing professional development, or individual practices, will enhance understanding of the sustained impact of emotional intelligence training among nurses. Hospitals should provide continuous training programs to nursing staff to enhance their skills regarding emotional intelligence.

The undergraduate and postgraduate nursing education curriculum should include nursing emotional intelligence skills.

More future research is suggested to examine the effect of emotional intelligence training on nurses' outcomes.

Staff development and continuing nursing education activities are strongly recommended to improve nurses' emotional intelligence. This staff development could be in the form of On-the-job training courses, Seminars, and workshops.

9. References

Alhazzani, A. A., Alqahtani, A. M., Alqahtani, M. S, Alahmari, T. M., & Zarbah, A.A. (2020). Public awareness, knowledge, and attitude toward Alzheimer's disease in Aseer region, Saudi Arabia. *Egyptian Journal of Neurology Psychiatry and Neurosurgery, 56*(81). https://doi.org/10.1186/s41983-020-00213-z.

de Araujo, C. M. M., Vieira, D. C. M., Teles, M. A. B., Lima, E. R., & Oliveira, K. C. F. (2017). The repercussions of Alzheimer's disease on the caregiver's life. *Journal of Nursing*. UFPE, 11(2). https://doi.org/10.5205/reuol.10263-91568-1-RV.1102201707.

Brooke, J., Cronin, C., Stiell, M., Ojo, O., Belcina, M. T., Smajlović, S. K., & Slark, J. (2019). Nursing students' cultural beliefs and understanding of dementia: A phenomenological study across three continents. *Nurse Education Today, 77*, 6-11. https://doi.org/10.1016/j.nedt.2019.02.007.

Cassano, F., Tamburrano, A., Mellucci, C., Galletti, C., Damiani, G., & Laurenti, P. (2020). Evaluation of emotional intelligence among master's degree students in nursing and midwifery: A cross-sectional survey. *International Journal of Environmental Research and Public Health, 17*(17), 6347. https://doi.org/10.3390/ijerph17176347.

Cejudo, J., Rodrigo-Ruiz, D., López-Delgado, M. L., & Losada, L. (2018). Emotional intelligence and its relationship with levels of social anxiety and stress in adolescents. *International Journal of Environmental Research and Public Health, 15*(6), 1073. https://doi.org/10.3390/ijerph15061073.

Chikobvu, P., & Harunavamwe, M. (2022). The role of emotional intelligence and work engagement on nurses' resilience in public hospitals. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur, 20*(0), a1690. https://doi. org/10.4102/sajhrm. v20i0.1690.

Dugué M., Sirost O., and Dosseville F. (2021). A literature review of emotional intelligence and nursing education. *Nurse Education in Practice, 54,* 103124. https://doi.org/10.1016/j.nepr.2021.103124.

Duran-Gomez, N., Guerrero-Martin, J., Perez-Civantos, D., Jurado, C. F. L., Palomo- Lopez, P., & Caceres, M. C. (2020). Understanding resilience factors among caregivers of people with Alzheimer's disease in Spain. *Psychology Research and Behavior Management, 13*, 1011 –1025. https://doi.org/10.2147/PRBM.S274758.

El-Azzab, S. E. H. I., Abdel-Aziz, H. E., & Alam, F. H.M. (2019). Work-related stress, burnout and self-efficacy among psychiatric nurses. *International Journal of Novel Research in Healthcare and Nursing, 6*(2), 729-744.

Erkayiran, O., & Demirkiran, F. (2018). The impact of improving emotional intillegence skills training on nursing students' interpersonal relationship styles: A quasi experimental study. *International Journal of Caring Science, 11*(31), 1901-1913.

Foji, S., Vejdani, M., Salehiniya, H., & Khosrorad, R. (2020). The effect of emotional intelligence training on general health promotion among nurse. *Journal of Education and Health Promotion, 9,* 4. https://doi.org/10.4103/jehp.jehp_134_19.

Hunsaker, P. L. (2001). *Training in management skills*. Prentice-Hall, Upper Saddle River, New Jersey.

Hajibabaee, F., Farahani, M. A., Ameri, Z., Salehi, T., & Hosseini, F. (2018). The relationship between empathy and emotional intelligence among Iranian nursing students. *International Journal of Medical Education, 9*, 239–243. https://doi.org/10.5116/ijme.5b83.e2a5.

Issa, M. R., Muslim, N. A., Alzoubi, R. H., Jarrar, M., Alkahtani, M. A., Al-Bsheish, M., Alumran, A., & Alomran, A. K. (2022). The relationship between emotional intelligence and pain management awareness among nurses. *Healthcare*, *10*(6),1047. https://doi.org/10.3390/healthcare10061047.

Khademi, E., Abdi, M., Saeidi, M., Piri, S., Mohammadian, R. (2020). Emotional intelligence and quality of nursing care: A need for continuous professional development. *Iranian Journal of Nursing and Midwifery Research, 26*(4), 361–367. https://doi.org/10.4103/ijnmr.IJNMR_268_19.

Lam, A., Ploeg, J., Carroll, S. L., Duggleby, W., McAiney, C., & Julian, P. (2020). Transition experiences of caregivers of older adults with dementia and multiple chronic conditions: An interpretive description study. *SAGE Open Nursing, 6*, 2377960820934290. https://doi.org/10.1177/2377960820934290.

Li, X., Fang, X., Wang, L., Geng, X., & Chang, H. (2021). Relationship between emotional intelligence and job well-being in Chinese registered nurses: Mediating effect of communication satisfaction. *Nursing open, 8*(4), 1778–1787. https://doi.org/10.1002/nop2.820.

LoBiondo-Wood, G. & Haber, J. (2018). *Nursing research: methods and critical appraisal for evidence-based practice* 9th ed. Elsevier. Pp 179-184.

Lowey, S. E. (2018). Students' knowledge of and interest in older adults: Impact of a geriatrics course. *Journal of Nursing Education, 57*(2), 106–109. https://doi.org/10.3928/01484834-20180123-08.

Mohamed, A. F. A., Abd El Rahman, A.A., Ismail, A. M. F. (2019). Effect of Head Nurses Emotional Intelligence Educational Program on Nurses motivation and organizational support. *Egyptian Journal of Health Care, 10*(4), 355–386. https://doi.org/10.21608/EJHC.2019.186762

Ramadan, E. N., Abdel-Sattar, S. A., Abozeid, A. M., & El Sayed, H. A. (2020). The effect of emotional intelligence program on nursing students' clinical performance during community health nursing practical training. *American Journal of Nursing Research, 8*(3), 361–371. https://doi.org/10.12691/ajnr-8-3-6.

Rosner B. (2016). *Fundamentals of Biostatistics.* 8th ed. Duxbury Press. P. 281.

Shokry, A. G., El Guindy, H. A., Abozied, A., Hassan, S. (2022). The relationship between nurses' emotional intelligence and their safety practice for elderly patients. *Niles Journal for Geratric and Gerontology, 6*(1), https://doi.org/10.21608/NILES.2023.253820.

Soto-Rubio, A., Giménez-Espert, M. D. C., & Prado-Gascó, V. (2020). Effect of emotional intelligence and psychosocial risks on burnout, job satisfaction, and nurses' health during the covid-19 pandemic. International *Journal of Environmental Research and Public Health, 17(*21), 7998. https://doi.org/ 0.3390/ijerph17217998.

Talman, K., Hupli, M., Rankin, R., Engblom, J., & Haavisto, E. (2019). Emotional intelligence of nursing applicants and factors related to it: A cross-sectional study. *Nurse Education Today, 85,* 104271.https://doi.org/10.1016/j.nedt.2019.104271.

Trigueros, R., Sanchez-Sanchez, E., Mercader, I., Aguilar-Parra, J. M., López-Liria, R., Morales-Gázquez, M. J., Fernández-Campoy, J. M., & Rocamora, P. (2020). Relationship between emotional intelligence, social skills, and peer harassment. A study with high school students. *International Journal of Environmental Research and Public Health, 17*(12), 4208. https://doi.org/10.3390/ijerph17124208.

Zaki, H. N., Abd-Elrhaman, E. S. A., & Ghoneimy, A. G. H. (2018). The effect of emotional intelligence program on decision-making style. *American Journal of Nursing Research, 6*(6). 524–532. https://doi.org/10.12691/ajnr-6-6-21.