Effect of Educational Program on Compassion Fatigue and Compassion Satisfaction Among Psychiatric Nurses

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Abstract:

Background: Compassion fatigue among nurses has a negative influence on them and the quality of care they provide. **The aim** of this study was to evaluate the effect of an educational program on compassion fatigue and compassion satisfaction among psychiatric nurses. **Subjects and Methods: Research design:** A Quazi experimental design (single group pre-post-test) was utilized in this study. **Subjects:** A purposeful sample of 105 psychiatric nurses was included in this study. **Setting:** This study was carried out at El-Azazi Mental Health Hospital in Abo Hamad City, Elsharkia Governorate, Egypt. **Tools of data collection:** Nurse's Interviewing Questionnaire sheet and Professional Quality of Life Scale were used to collect data for this study. **Results:** The percent of nurses experiencing high level of compassion satisfaction have been increased from (58.1%) at pre-program to (85.7%) at post program period. While, burnout score has been decreased from 70.5% at pre-program to 34.3% at post program period among studied nurses. As well as secondary traumatic stress score have been decreased from 73.3% at pre-program to 61.9% at post program period among studied nurses. **Conclusion:** The educational program was effective in reducing the level of burnout and secondary traumatic stress (compassion fatigue) and enhancing the level of compassion satisfaction among studied psychiatric nurses. **Recommendations:** Providing psychosocial counseling for psychiatric nurses experiencing compassion fatigue (CF) can increase their abilities to understand the ways compassion fatigue affects various dimensions of their lives, so they can be better equipped to develop and refine internal coping skills which help them in managing the difficult nature of their job.

Key Words: Compassion fatigue, compassion satisfaction, professional quality of life, mental health hospital.

Introduction:

Nurses who work in mental health settings frequently care for patients who have complex mental health issues. This caring necessitates a high degree of sympathetic and long-term therapy and over time, this extensive involvement with patients may give rise to nurses experiencing anxiety, nightmares, depression, grief, relational conflicts, sleep disorders, and compassion fatigue (CF) **(Murray, 2019).** Furthermore, direct and indirect trauma, insufficient staffing levels, workplace violence, critically sick patients, a lack of resources, and an aging workforce, may make psychiatric nurses more vulnerable to compassion fatigue over time. Workloads that are too intense, rising demands on the healthcare system, and a lack of support all contribute to this risk. Lack of education and ineffective management are other significant contributors **(Funk, 2016).**

Compassion fatigue was identified as an increasing problem among medical professionals. It is a dysfunctional condition caused by continuous exposure to seeing suffering or the trauma of others, along with burnout symptoms (BO) **(Bao & Taliaferro, 2015)**. Compassion fatigue is a conjunction of burnout and secondary traumatic stress (STS). The BO is defined by emotional exhaustion, anger, frustration, and depression, whereas STS is characterized by negative feelings fueled by fear, avoidance behaviors, and intrusive thoughts **(Sorenson et al., 2016).**

Burnout and secondary traumatic stress can occur together or separately. Although the symptoms of CF and BO are similar, the difference is that BO is not caused by work-related fear, whereas STS is caused by the fear resulting from exposure to work-related trauma. Burnout is caused by a work environment, not a patient care experience, and results in tiredness, anger, and frustration **(Ames et al., 2017).**

There are numerous risk factors for CF, including both individual and environmental factors. Individual factors, such as having less than five years of professional experience, inefficient coping strategies, blurred professional boundaries, and distressing personal life events exacerbate the nurse's response to workplace stressors. Environmental factors (e.g., high patient acuity, heavy workload, end-of-life patient care, lack of administrative support, and rapidly changing technology) can increase the risk for compassion fatigue and burnout **(Sullivan et al., 2019).**

Compassion fatigue affects the psychiatric nurse physically, behaviorally, and emotionally. Frequent headaches, exhaustion, gastrointestinal symptoms, chest discomfort or tachycardia,

hypertension, muscular tension, sleep disturbances, anxiety, and frequent or chronic disease are some of the physical effects of compassion fatigue. The inability to maintain balance of objectivity and empathy, overworking, chronic lateness, difficult concentration and focusing, excessive startle reactions, eating disturbances, avoiding or fearing work, substance abuse, and frequent absenteeism are some of the behavioral effects **(Sorenson et al., 2017).**

Emotional indicators of compassion fatigue include diminished sense of purpose, emptiness, reduced sense of personal achievement, low self-esteem, a diminished ability to feel happiness or joy, high self-expectations, numbness, hopelessness, apathy, disinterested and detached, irritability, anger, and depression **(Teixeira, 2021).**

Moreover, CF has major effects on both nurses and overall professional productivity. Nurses with CF are more likely to be delayed to work, avoid patient communication, and may lose the ability to express compassion to future traumatized patients for the rest of their lives. When nurses with CF continue to work in the same work situation, the chance of misdiagnosis, inefficient treatment strategies, poor professional judgment, and even patient maltreatment increases **(Bellolio et al., 2014)**. These nurses may think about leaving the workforce due to a sense of lack of achievement over a lengthy period of time. All of these may eventually contribute to understaffing and have a negative impact on the efficiency of patient care **(Labib, 2015).**

Compassion satisfaction (CS), as opposed to compassion fatigue, is a positive feature of one's professional life. It describes the satisfaction that nurses can have from delivering care to their patients, even in difficult circumstances. This sense of success and accomplishment in their job fosters positive patient and work-related outcomes **(Derayunan, 2019).** The CS is related to numerous antecedents (e.g., developing sympathetic caregiving relations, and viewing caring as a vocation) and effects (e.g., enhanced work performance, competence, and engagement) that influence the quality of patient care **(Sacco & Copel, 2018).**

Numerous interventions, including those focused on stress management and enhancing self-care activities, have been implemented to prevent compassion fatigue. Early identification of problems, enhanced awareness, enough sleep,

exercise, mindfulness, self-reflection, and spiritual support are some of the recommended self-care measures for reducing compassion fatigue. Self-care approaches have been found to encourage psychiatric nurses to share in activities that promote self-renewal and compassion satisfaction **(Wayment et al., 2019).**

Significance of the study:

Compassion fatigue may cause significant levels of disengagement, frustration, and job disappointment, which can result in workplace violence and incivility, as well as an overall unhealthy work environment, endangering the patient safety and quality of nursing care **(Saleh et al., 2021). Sinclair et al. (2017)** revealed that level of compassion fatigue among nurses was 20–40%.

Educating psychiatric nurses on compassion fatigue and self-care practices may enhance nurses' health and have a beneficial impact on patient care and nurse retention in the specialty. Therefore, the aim of this study was to evaluate the effect of an educational program on compassion fatigue and compassion satisfaction among psychiatric nurses.

Aim of the study:

This study aimed to evaluate the effect of an educational program on compassion fatigue and compassion satisfaction among psychiatric nurses.

This aim was achieved through:

1) Asses the level of compassion fatigue and compassion satisfaction among psychiatric nurses.
2) Accordingly, developing and implementing an educational program to minimize compassion fatigue and improve compassion satisfaction among psychiatric nurses.
3) Evaluating the effects of the educational program on compassion fatigue and compassion satisfaction among psychiatric nurses.

Methods

Research hypotheses

1- Nurses who will receive the educational program will have a lower score of burnout and secondary traumatic stress than before the program implementation.
2- Nurses who will receive the educational program will have a higher level of compassion satisfaction than before the program

implementation.

Operational definitions:
- **Compassion satisfaction:** is the feeling of pleasure that nurse feel as result of helping others who are suffering.
- **Compassion fatigue:** is the physical and mental exhaustion and emotional withdrawal experienced by nurses as a result of repeated exposure to others' suffering leading to diminished ability to empathize or feel compassion for others. It's combination of both burnout and secondary traumatic stress.
- **Psychiatric nurses:** are nurses who care for the psychological and physical well-being of people with mental health conditions or behavioral problems.

Research design:
A Quazi experimental design (single group pre-post-test) was utilized in this study.

Setting:
This study was carried out at El-Azazi Mental Health Hospital in Abo Hamad City, Elsharkia Governorate, Egypt. This hospital is affiliated to the Ministry of Health. It offers care mainly for psychiatric patients from the lower and middle socioeconomic strata. It accommodates about 200 beds for patients with mental illness and patients with drug addiction. It consists of 10 departments divided into four parts, which are as follows: Part (1) It consists of three outpatient clinics: One for patients with psychiatric disorders, one for patients with drug addiction, and the last one for children with mental illness; Part (2) Three inpatient psychiatric units for male patients; Part (3) One unit for electroconvulsive therapy; and Part (4) Three units for treatment of drug addiction: one unit for detoxication and two units provide rehabilitation services and psychotherapy for those patients.

Subjects:
A purposeful sample of 105 psychiatric nurses employed in the previously mentioned setting was recruited for this study based on the following inclusion criteria:
1- Males and Females
2- All educational levels.
3-Work at a psychiatric hospital for at least one year.

Sample size:
The sample size was calculated using the Epi-info software version 7, of Stat Calc.

Assuming that the total number of nurses on the work at the time of data collection at the previously mentioned hospital was 130 nurses, the high risk of compassion fatigue among mental health nurses ranged from 28.57% to 44.8 % **(Xie et al., 2020)**. Therefore, with a power of 80% and a confidence level of 95%, the sample size is 92 nurses, plus 12% to account for the dropout and non-response rate, as a result, the required number is 105 nurses.

Tools of data collection
Data were collected using a self-administered questionnaire sheet that included two sections as follows:

First Section: Nurse's Interviewing Questionnaire: It contains data pertinent demographic and some other characteristics such as age, gender, marital state, educational level, monthly income, years of experience, average working hours/week, practicing sport, and sleep disturbances.

Second Section: Professional quality of life scale (ProQOL) version 5: It was developed by **(Stamm, 2009),** and adopted and translated into Arabic language by the researchers. It is the most commonly used scale for assessing the impact of assisting others who have suffered and been traumatized. It evaluates the nurse's feelings throughout the previous month. It includes 30 items divided into 3 subscales namely: Compassion Satisfaction (CS), Burnout rate (BO), and Secondary Traumatic Stress (STS). Each subscale includes 10 items as follows;

- Compassion Satisfaction items (No 3, 6, 12, 16, 18, 20, 22, 24, 27 & 30),
- Burnout items (No 1, 4, 8, 10, 15, 17, 19, 21, 26 & 29),
- Secondary Traumatic Stress items (No 2, 5, 7, 9, 11, 13, 14, 23, 25, & 28).
- Burnout and Secondary Traumatic Stress are both components of compassion fatigue.

Scoring system:
All items were assessed on a 5-points scale ranging from strongly agree= 5 to strongly disagree= 1. Each subscale is rated independently and cannot be combined or summed. Low levels of each subscale were identified at scores $\leq$ 22, moderate levels between 23-41, and high levels $\geq$ 42. The intensity of what the participant perceives in

each category is represented by the participant's score, with a lower numeric number reflecting less intensity.

Content validity and reliability

To ensure the original validity of the tool, the researchers translated it into Arabic language using the translation and back-translation technique. The constancy of the translations as well as the grammar and structure of the Arabic language were examined by a panel of five experts (three psychiatric mental health nursing faculty members and two psychiatrists). Once a consensus was established on the clarity, consistency, and relevance of the tool's translations and back-translations, an Arabic version of the tool was built. The experts' advices were taken into account.

The tool's reliability was evaluated using the Cronbach's test in the Statistical Package for Social Sciences (SPSS) V.20 (SPSS Inc., Chicago, Illinois, USA). It displays high reliability as follows: compassion satisfaction (α= 0.853), burnout (α= 0.721), and secondary traumatic stress (α= 0.852).

Administrative Design

An official approval for carrying out this study was obtained by sending an official letter from the Dean of the Faculty of Nursing to the Manager of El-Azazi Mental Health Hospital to obtain their approval for collecting data.

Operational Design

The operational design for this study included a preparatory phase, pilot study, fieldwork, and ethical considerations.

Preparatory phase:

It included reviewing past, current, local, and international related literature and theoretical knowledge of various aspects of compassion fatigue and compassion satisfaction among psychiatric nurses, by using books, articles, periodicals, and other available resources through the Internet search.

Pilot study

A pilot study was done on (13) psychiatric nurses as representing around 10% of the total sample prior to the start of the actual study to estimate the time needed for data collection, as well as the applicability and clarity of the tool. The participants were directed to fill in the questionnaire and to make a note of any questions that were difficult or confusing to answer. The necessary changes were performed, including the use of a simpler semantic for the statements. The tool was finalized based on the results of the pilot study. Nurses who participated in the pilot study were excluded from the main study.

Fieldwork:

The educational program implementation consumed three successive months for all program phases (pre-program assessment, program implementation, and post-program evaluation) from the beginning of December 2019 to the beginning of March 2020. During this period, the researchers collected data twice a week (Sundays & Mondays) from 10.00 a.m. to 12.00 noon.

The educational program was conducted in four phases, as follows:

1) Assessment phase:

The researchers began recruiting the study sample according to the inclusion criteria. They started by introducing themselves to the nurses, describing the aim and procedure of the study, and inviting them to take part. After gaining their approval for participation, the questionnaire sheets were distributed to them. There were detailed guidelines on how to complete the questionnaire. It took about 15 to 20 minutes to be completed. The data were primarily assessed in order to prepare the groundwork for the intervention sessions. This phase lasted two weeks, from 1 to 15 December 2019.

2) The Planning phase:

Following a review of the relevant literature, the researchers formulated the educational booklet contents based on the data collected during the assessment phase, as well as the needs of the nurses and the study's purposes. The identified needs were included in the educational program's aims and objectives, which were then included in the booklet. After the booklet's content was validated, it was distributed to nurses as a self-learning aid. During this phase, the researchers worked with the hospital's directors to find a suitable room for delivering the educational program, which was the Training room. The hospital has a room specialized for providing workshops and training for the hospital staff. This room contains tables, chairs and data show for conducting any training sessions for the staff.

The researchers implemented the program in this room using data show and their Labe tops. They used PowerPoint presentation

followed by a group discussion for theoretical sessions. Role playing was utilized for practical contents as relaxation technique to ensure nurses understanding.

Objectives of the program

- Identify the meaning, signs, and symptoms of compassion satisfaction.
- Provide nurses with an overview about compassion fatigue including its definition, causes, signs, and symptoms as well as its sub items (burnout and secondary traumatic stress).
- Raise nurses' awareness of compassion fatigue risk factors and preventative strategies, so as to empower them to be able to identify and prevent its onset.
- Recognize the impact of compassion fatigue on nursing practice.
- Develop skills of effective coping with stressful events.
- Apply strategies to minimize compassion fatigue and improve compassion satisfaction during nursing practice.

3) Implementation phase:

The nurses were divided into 7 groups, each group included 15 nurses. The educational program was administered to the participant nurses throughout (9) sessions. The researchers met three or four groups once a week (two groups/day). Each session had its own set of objectives and title based on its content. The duration of each session ranged from 45 to 60 minutes, depending on the amount of time available, the content of each session, as well as participants active engagement and responses. All nurses were given the same topics and taught using the same teaching methods, such as group discussions, videos, and booklet, to confirm that all participants had the same learning experience. The program was carried out during two months, from 16 December 2019 to 16 February 2020.

To facilitate learning and understanding of the educational booklet, the sessions were supplemented by images, posters, and videos displayed on a data show and a laptop. Each session begins with a review of the previous one and the goals of the current one, using simple language to suit all nurses' levels of understanding. During the sessions, enthusiasm and reinforcement methods such as praising were utilized to stimulate active involvement and foster learning.

The sessions were as follows:

First session: During this session, the researchers offered an overview about the educational program, including the purpose, the number of sessions, the duration of each session, determined the place of the meeting, and the scheduling which was two times per week. The pre-test was then given utilizing the data collecting sheet.

Second session: It included a discussion of the concept of compassion satisfaction and compassion fatigue as well as, risk factors, causes, signs and symptoms, and the effect of compassion fatigue on nursing practice. Educating nurses about homework assignments in the form of worksheets with questions regarding compassion fatigue symptoms, methods of expressing unpleasant feelings, and how to record them in the worksheet.

Third session: It began with a review of the previous session and then provided information about preventive techniques of compassion fatigue including relaxation techniques such as breathing exercises, meditation, muscle relaxation, and mindfulness practice.

Fourth session: During this session, the researchers showed some videos that clarified several kinds of relaxation techniques and trained nurses on practicing these techniques during the session. They encouraged nurses to practice these skills daily until the next session.

Fifth session: Included discussion about stress management techniques and various coping strategies such as social support and using humor and laughing as appropriate to relieve stress. It also included problem-solving skills training to be able to deal with any stressful situation.

Sixth session: Nurses were taught therapeutic communication skills, conflict resolution, the necessity of establishing and maintaining boundaries, how to create a peer support network, how to build group cohesiveness, and collaboration, and how to work in a supportive work environment.

Seventh session: During this session, the researchers demonstrated and recommended self-care measures such as good nutrition, sleeping hygiene, relaxation, and regular exercises that may be effective in avoiding and/or counteracting the effects of compassion fatigue.

Eighth session: The researchers revised worksheets completed as a homework assignment as well as summarized all prior sessions, identifying nurses'

points of view, and observations on the intervention's benefit.

Ninth session: During this session, the participants were asked to fill in the post-test interview questionnaire. The researchers expressed gratitude to nurses for their participation and recommendations. They made WhatsApp group for participant nurses to facilitate their communication as well as follow up for any explanation or assistance they need.

4) *Evaluation phase:*

Following the implementation of the program, its effect was assessed by using the same tools of pretest and comparing them. During this phase , the researchers collected data twice a week (Saturday& Sundays) from 10.00 a.m. to 12.00 noon. This phase lasted two weeks, from 16 February to 1 March 2020.

Ethics consideration: the researchers obtained an agreement for carrying out this study from the Human Research Ethics Committee at the Faculty of Nursing, Zagazig University. The committee's reference number is unavailable. Participants who agreed to take part in the study signed an informed consent. The participants voluntary participation and right to withdraw from the study at any time without giving any reasons were confirmed. Confidentiality was established through the use of codes and the absence of personal identification to ensure anonymity. The scale utilized in this study is freely available for research purposes in the public domain.

Statistical Analysis

All data were collected, tabulated, and statistically analyzed with the SPSS IBM Corp., released in 2015. Version 23.0 of IBM SPSS Statistics for Windows. IBM Corp., Armonk, New

Results:

York. The mean standard deviation (SD) and range were used to represent quantitative data, whereas absolute frequencies (numbers) and relative frequencies were used to convey qualitative data (percentage). To compare two dependent normally distributed variables, the paired t-test was utilized. When applicable, percentages of categorical variables were compared using the Chi-square test or the Fisher Exact test. Pearson's and Spearman's correlation coefficients were determined to analyze the relationship between various research variables, with (+) indicating direct correlation and (-) indicating inverse correlation, with values around 1 indicating high correlation and values near 0 indicating weak correlation. All of the tests were two-sided. P-value< 0.05 was regarded as statistically significant, P-value< 0.001 as highly statistically significant, and p-value >0.05 as statistically insignificant (NS). Predictive analysis is multiple linear regression. Multiple linear regression is a statistical technique used to describe data and explain the connection between one dependent continuous variable and one or more independent variable

Limitations of the Study:

*   nurses have limited free time to attend each one of the educational program session completely once a time, therefor the researchers divided each session into two parts and gave break in between to help nurses complete their duties.

*   The study took place in only one psychiatric hospital which is not representative of all psychiatric hospitals in Egypt. Therefore, generalization of the present study results would be difficult.

Table (1): Frequency Distribution of Characteristics of Psychiatric Nurses Under Study (n=105)

Items	Psychiatric nurses	
	No	**%**
Age (in years):		
<30 years	75	71.4
30-40 years	25	23.8
>40 years	5	4.8
Mean + SD	**28.12+3.13**	
gender:		
Male	20	19.0
Female	85	81.0
Marital status:		
Single	12	11.4
Married	93	88.6
Educational level:		
Diploma	7	6.7
Technical institute	74	70.5
Bachelors	21	20.0
Post graduates	3	2.9
Monthly income:		
Sufficient	66	62.9
Insufficient	39	37.1
Years of experience:		
<5 years	36	34.3
5-10	44	41.9
>10	25	23.8
Average working hours/week:		
≤36	69	65.7
>36	36	34.3
Mean + SD	**43.9±13.2**	
Practicing sport:		
Yes	34	32.4
No	71	67.6
Sleep disturbances:		
Yes	57	54.3
No	48	45.7

Table (1): shows that, 71.4% of studied nurses were less than 30 years old, and 70.5% of them had technical institute of nursing education. As well this table indicates that the majority of nurses under study were females, and married, representing 81%, and 88.6%, respectively. The same table also reveals that 62.9% of them have sufficient monthly income. Considering years of experience, they ranged from 5 to 10 years for 41.9% of them. This table also shows that 65.7% of nurses under study work an average of less than or equal to 36 hours/week. Moreover, the present study results indicate that 67.6% of studied nurses don't practice sport and 54.3% of them suffer from sleep disturbances.

Table (2): Frequency Distribution of Compassion Satisfaction and Compassion Fatigue among Studied Nurses at Pre-Post Program (n=105).

Variables	Psychiatric nurses				T-test	P-value	% of improvement
	Pre-Program		Post-Program				
	No.	%	No.	%			
Compassion satisfaction:							
High	61	58.1	90	85.7			
Average	42	40.0	15	14.3	13.3	0.001*	11.6%
Low	2	1.9	0	0.0			
Mean ± SD	41.3±6.5		46.1±3.9				
Compassion Fatigue: **1. Burnout Rate:**							19.2%
High	0	0.0	0	0.0			
Average	74	70.5	36	34.3	12.9		
Low	31	29.5	69	65.7		0.0001*	
Mean ± SD	25.4±6.2		20.6±4.7				
2. Secondary traumatic stress:							
High	9	8.6	0	0.0			
Average	77	73.3	65	61.9	12	0.0001*	22.2%
Low	19	18.1	40	38.1			
Mean ± SD	29.9±8.3		23.2±4.8				

p- value   <0.001 highly significant

Table (2) reveals that there were highly statistically significant differences between scores of compassion satisfaction, burnout, and secondary traumatic stress (compassion fatigue) at pre and post-program. The levels of improvement in compassion satisfaction, burnout, and traumatic stress after implementation of the program were 11.6%, 19.2%, and 22.2% respectively.

Table (3): The Relationship Between Compassion Fatigue and Characteristics of Studied Nurses at The Pre-Program Phase (n=105)

Variables	Compassion fatigue at pre program												
	Burnout level pre program					χ^2	P	Secondary traumatic stress at pre program						χ^2	p
	Average(n=74)		Low (n=31)				(High n=9)		Average (n=77)		Low (n=19)			
	No	%	No	%			No	%	No	%	No	%		
Age (in years):														
<30 years	53	70.7	22	29.3			5	6.7	59	78.7	11	14.7		
30-40 years	18	72.0	7	28.0	0.29	0.86	4	16.0	15	60.0	6	24.0	5.7	0.23
>40 years	3	60.0	2	40.0			0	.0	3	60.0	2	40.0		
Gender	.	.	.	.										
Male	10	50.0	10	50.0	4.9	**0.026**	1	5.0	14	70.0	5	25.0	1.1	0.59
Female	64	75.3	21	24.7			8	9.4	63	74.1	14	16.5		
Marital status														
Single	11	91.7	1	8.3	f	0.105	0	.0	11	91.7	1	8.3	2.5	0.29
Married	63	67.7	30	32.3			9	9.7	66	71.0	18	19.4		
Educational level	.	.	.	.										
Diploma	5	71.4	2	28.6			1	14.3	5	71.4	1	14.3		
Technical institute	53	71.6	21	28.4	2.1	0.56	8	10.8	52	70.3	14	18.9	3.9	0.68
Bachelors	13	61.9	8	38.1			0	.0	17	81.0	4	19.0		
master degree	3	100.0	0	.0			0	.0	3	100.0	0	.0		
Monthly income	.	.	.	.										
Sufficient	36	54.5	30	45.5	21.7	**0.0001**	5	7.6	43	65.2	18	27.3	10.1	**0.006**
Insufficient	38	97.4	1	2.6			4	10.3	34	87.2	1	2.6		
Years of experience	.	.	.	.										
<5	20	55.6	16	44.4			1	2.8	30	83.3	5	13.9		
5-10	38	86.4	6	13.6	9.7	**0.008**	7	15.9	32	72.7	5	11.4	11.7	**0.01***
>10	16	64.0	9	36.0			1	4.0	15	60.0	9	36.0		
Average working hours/ week	.	.	.	.										
≤36	50	72.5	19	27.5	0.38	0.54	7	10.1	49	71.0	13	18.8	0.79	0.67
>36	24	66.7	12	33.3			2	5.6	28	77.8	6	16.7		
Practicing sport	.	.	.	.										
Yes	19	55.9	15	44.1	5.1	**0.023**	6	17.6	21	61.8	7	20.6	5.9	0.052
No	55	77.5	16	22.5			3	4.2	56	78.9	12	16.9		
Sleep disturbance	.	.	.	.										
Yes	44	77.2	13	22.8	2.7	**0.01**	7	12.3	44	77.2	6	10.5	6.2	**0.04***
No	30	62.5	18	37.5			2	4.2	33	68.8	13	27.1		

χ^2 test   f= Fisher exact test   p<0.05   Significant   p<0.001 Highly significant

Table (3) indicates that burnout has statistically significant relationships with gender, monthly income, years of experience, practicing sport, and sleep disturbance at preprogram period (p-value =0.026, 0.0001, 0.008, 0.023, and 0.01 respectively). This study results also display that there were statistically significant relationships between secondary traumatic stress and monthly income, years of experience, and sleep disturbance at preprogram (p-value =0.006, 0.01, and 0.04 respectively).

Table 4: Relation Between Compassion Fatigue and Characteristics of Studied Nurses at Post -Program (n=105)

Variables	Compassion fatigue at post program									
	Burnout level at post program					Secondary traumatic stress level post program				
	Average (n=36)		Low(n=59)		χ^2	p	Average (n=65)		Low (n= 40)		χ^2	p
	No.	%	No.	%			No.	%	No.	%		
Age (in years)												
<30	25	33.3	50	66.7			51	68.0	24	32.0	4.2	0.12
30-40	11	44.0	14	56.0	3.7	0.16	12	48.0	13	52.0		
>40	0	.0	5	100.0			2	40.0	3	60.0		
Gender												
Male	6	30.0	14	70.0	0.2	0.65	7	35.0	13	65.0	7.6	**0.006**
Female	30	35.3	55	64.7			58	68.2	27	31.8		
Marital status												
Single	8	66.7	4	33.3	F	**0.021***	10	83.3	2	16.7	f	0.13
Married	28	30.1	65	69.9			55	59.1	38	40.9		
Educational level												
Diploma	3	42.9	4	57.1			3	42.9	4	57.1		
Technical institute	26	35.1	48	64.9	0.56	0.91	45	60.8	29	39.2	1.9	0.58
Bachelor	6	28.6	15	71.4			15	71.4	6	28.6		
Master degree	1	33.3	2	66.7			2	66.7	1	33.3		
Income												
Sufficient	13	19.7	53	80.3	16.7	**0.0001***	35	53.0	31	47.0	5.9	**0.015***
Insufficient	23	59.0	16	41.0			30	76.9	9	23.1		
Years of experience												
<5	9	25.0	27	75.0			22	61.1	14	38.9		
5-10	18	40.9	26	59.1	2.3	0.32	33	75.0	11	25.0	8.6	**0.016***
>10	9	36.0	16	64.0			10	40.0	15	60.0		
Average working hours/ week												
≤36	29	42.0	40	58.0	5.3	**0.021***	44	63.8	25	36.2	0.29	0.58
>36	7	19.4	29	80.6			21	58.3	15	41.7		
Practice of sport												
Yes	14	41.2	20	58.8	1.1	0.3	19	55.9	15	44.1	0.77	0.37
No	22	31.0	49	69.0			46	64.8	25	35.2		
Sleep disturbance												
Yes	21	36.8	36	63.2	0.36	0.55	40	70.2	17	29.8	3.6	0.057
No	15	31.3	33	68.8			25	52.1	23	47.9		

χ ^{2} test   f= Fisher exact test   p<0.05   Significant   p<0.001 Highly significant

Table (4) displays that burnout has statistically significant relationship with marital status, monthly income, and working hours per week at post program implementation phase (p-value= 0.021, 0.0001, 0.021 respectively). The

same table also indicates that secondary traumatic stress has statistically significant relationships with gender, income, and years of experience at the post program implementation phase (p-value=0.006, 0.015, and 0.016 respectively).

Table (5): Best Fitting Multiple Linear Regression Model for Nurses' Compassion satisfaction at Post-Program (n=105)

Predictors	Regression coefficients		T test	P value	R test	R^2
	B	Std. Error				
(Constant)	51.956					
Burnout score	-0.176	0.082	2.15	0.034	0.505	0.256
Intervention	0.42	0.097	4.33	0.0001		

β = regression coefficients,   R^2 = 25.6 % of predictors   ANOVA model=10.2, p=0.0001

In multivariate analysis, table (5) demonstrates that burnout was a statistically significantly independently negative predictor of compassion satisfaction, while the study intervention was an independent positive predictor.

The model explains 25.6% of the variation in the compassion satisfaction score. None of the other nurses' characteristics had a significant influence on this score.

Table (6): Multiple Linear Regression Model for Compassion Fatigue Among Studied Nurses at Post Program (N=105)

Predictors	Regression coefficients		T test	P value	R test	R²
	B	Std. Error				
Burnout level among nurses						
• (Constant)	34.427					
• Compassion satisfaction	-0.513	.106	4.86	.0001		
• Secondary traumatic stress	0.474	.082	5.76	.0001	0.57	0.33
• Intervention	-0.248	.109	2.28	.025		
R²= 33 % ANOVA model=16.4, p=0.0001						
Secondary traumatic stress						
• (Constant)	2.786					
• Compassion satisfaction	-.291	.104	2.8	.006	0.6	0.36
• Burnout out score	.485	.089	5.47	.0001		
• Intervention	-.142	.070	2.03	.045		
R²= 36% ANOVA model=14.6, p=0.0001						

β = regression coefficients,   R²= 25.6 % of predictors   ANOVA model=10.2, p=0.0001

Table (6) shows that compassion satisfaction and the study intervention were statistically significantly independently negative predictors of burnout, while secondary traumatic stress was a statistically significant independent positive predictor of it. The model explains 33% of the variation in the burnout score. The same table also reveals that compassion satisfaction and the study intervention were statistically significantly independently negative predictors of secondary traumatic stress, whereas burnout was a statistically significantly independently positive predictor of it among studied nurses. The model explains 36% of the variation in the secondary traumatic stress score.

Discussion:

Nurses are frequently exposed to traumatic patients and high-stress levels, which can contribute to the development of compassion fatigue **(Hinderer et al., 2014)**. The high incidence of compassion fatigue among nurses certainly has a negative impact on the quality of care they provide. It can lead to poor judgment, loss of sympathy, and a reduction in productivity. All of this can deprive the patients of the chance to get appropriate nursing care **(Bayo et al., 2020)**. When nurses are not adequately educated on compassion fatigue, their capacity to deliver effective patient care is reduced; therefore, it is critical to educate psychiatric nurses about compassion fatigue in order to enhance their practice **(Rebelo, 2020)**.

The present study finding revealed that more than half of nurses had a high level of compassion satisfaction at pre intervention period. This might be because the hospital arranges teaching sessions for psychiatric nurses on topics such as respecting mental patients, treating them humanely, protecting their rights, and disregarding the stigma associated with working in a psychiatric hospital. Another explanation is that the majority of them were married and they may receive social support from their families. Social support supplied in marriage partnerships has the capacity to reduce work-related stress and increase compassion satisfaction.

This study previous finding is partially in line with a recent research of **(Maila et al., 2020)** about professional quality of life amongst psychiatric nurses which indicated that psychiatric

nurses had moderate compassion satisfaction, moderate burnout and high secondary traumatic stress. As well, **(Mangoulia et al., 2015)** found that almost half of the psychiatric nurses were at high risk of secondary traumatic stress and burnout (compassion fatigue), with less than 10% reported high compassion satisfaction scores.

Regarding compassion fatigue, the current study results indicated that less than three fourths of studied nurses had an average level in the two dimensions of compassion fatigue (burnout and secondary traumatic stress) at preprogram period. This might be due to that nurses caring for mentally ill patients facing numerous challenges, such as increased workload, restricted schedules, conflicts with colleagues and supervisors, and repeated exposure to physical and verbal violence of patients with mental illnesses, which can result in a physical and emotional burden on psychiatric nurses.

Moreover, scarcity of patients' recovery, the complexity of patients' requirements, difficulties associated with dealing with patients who are dependent, at risk for suicide and have distinct language, ideas, and behaviors, all of these factors raise the likelihood of burnout and secondary traumatic stress among psychiatric nurses. Furthermore, the therapeutic manner of listening to traumatic experiences and empathetically responding to them may predispose these nurses to secondary trauma.

These findings are consistent with **(Patel, 2018)** who found that giving treatment to populations with severe and/or persistent mental illness may increase the risk of compassion fatigue among mental healthcare caregivers. Providers who consistently work with clients suffering from severe depression, child abuse, trauma, death, or loss are particularly vulnerable to compassion fatigue. In line with earlier findings, a Taiwanese

study found that the majority of nurses in their study rated modestly on compassion satisfaction, burnout, and secondary trauma **(Lu et al., 2020).**

After implementation of the program, the results of the current study verified both research hypotheses, as nurses who received the educational program reported lower levels of burnout and secondary traumatic stress (compassion fatigue) and higher levels of compassion satisfaction than before the program. There were statistically significant improvements in both compassion satisfaction and compassion fatigue after the program's sessions, which support the effectiveness of the educational program.

This was highlighted in multivariate analysis in which intervention was found to be a negative predictor of compassion fatigue and a positive predictor of compassion satisfaction. The success of the program could be attributed to the simplicity of the material presented to nurses, as well as the teaching methodology, which was interactive. This is consistent with findings of a previous study of **(Best et al., 2020)**.

In line with the aforementioned present study findings, **(Hevezi, 2016)** revealed that the intervention (meditation) resulted in a significant improvement in compassion satisfaction levels as well as a decrease in burnout and secondary traumatic stress. Moreover, The application of mindfulness and self-compassion program was linked to higher levels of resilience and compassion satisfaction, as well as a marked decrease in levels of burnout and secondary traumatic stress **(Delaney, 2018).**

These findings contradict with those of Doctorate thesis carried out at the United States, which revealed that an educational program no compassion fatigue as experienced by psychiatric nurses had no meaningful influence on the feeling or risk of compassion fatigue after four weeks. This

could be due to numerous factors, including the concise intervention, a failure to integrate the information into everyday practice, a lack of in-person reinforcement and support, and a lack of post-test data to adequately evaluate the program's effectiveness **(Boisseau, 2019)**.

The findings of this study showed that burnout has a statistically significant relationship with gender at pre-program and marital status at the post-program period; where female and married nurses experienced more burnout because women are considered primary homemakers and caregivers for their children and families in the Egyptian society. The burden of balancing work and household responsibilities definitely promotes nurses' feelings of burnout and compassion fatigue.

This is congruent with **(Thompson et al., 2014)** study on Greek psychiatric nurses, which found that being female was related to greater levels of compassion fatigue. Similarly, a recent study on Australian nurses revealed that married nurses were more susceptible to compassion fatigue than their unmarried peers **(O'Callaghan et al., 2020)**.

This study showed a statistically significant relationship between secondary traumatic stress and gender at the post-program phase. Female nurses suffered a higher level of secondary traumatic stress. This finding might be attributed to the fact that females are more emotional than males when confronted with distressing experiences. This is consistent with a previous study which indicated that the feminine gender is associated with higher levels of CF **(Cocker & Joss, 2016).**

The current study revealed a statistically significant relationship between two aspects of compassion fatigue (burnout and secondary traumatic stress) and income before and after the intervention. This can be explained by the fact that

nurses' incomes are always low and insufficient to cover their families' requirements. They are always worried about their children's future needs and how they can afford them, which adds to their emotional stress and burnout.

This is consistent with the findings of a Chinese research, which found that lower levels of income, experience, insufficient nursing qualifications, and lengthy working hours per week were all related to burnout **(Wu et al., 2014).** As well, **(Metwaly et al., 2018)** detected a significant positive relation between burnout and insufficient income among psychiatric nurses.

According to the findings of this study, there was a statistically significant relation between compassion fatigue (burnout and secondary traumatic stress) and years of experience, where compassion fatigue is more prevalent among nurses with fewer years of experience.

This could be because nurses with less experience are more likely to be exposed to patients' trauma as staff nurses, spend more time with them, develop a long-term therapeutic relationship with long and frequent sessions, and are possibly exposed to hearing more patients' stories and traumatic history. Additionally, more experienced nurses have developed more effective coping strategies and have better problem-solving skills, making them less prone to develop compassion fatigue.

This is supported by **(Saleh et al., 2021)** who found a negative relationship between nursing experience and compassion fatigue. The risk of compassion fatigue decreased as the length of experience increased. These findings showed that over time, experienced nurses might develop professional resilience abilities and gain the skills and wisdom to be able to cope with workplace stresses. However, this is contradictory with **(Patel, 2018)** who didn't find a significant relationship

between years of experience and compassion fatigue; burnout, secondary traumatic stress; or compassion satisfaction.

The result of this study showed that there were statistically significant relationship between two dimensions of compassion fatigue (burnout component and secondary traumatic stress) and practicing sport, at pre intervention period. This might be because practicing exercise lessens the effect of workplace stress and improves mood among nurses. Exercise and other physical activities generate endorphins; which are chemicals in the brain that serve as natural painkillers and can relieve stress.

This is in line with a recent research of **(Xie *et al.*, 2020)** who revealed that regular exercise can enhance mood. Furthermore, nurses who do not exercise frequently are more likely to experience emotional or physical tiredness. As a result, frequent exercise may help counteract compassion fatigue.

The present study found statistically significant relationships between two measures of compassion fatigue (burnout component and secondary traumatic stress) and sleep disturbance at the pre intervention period. This might be because nurses who work rotating shifts seldom get enough sleep. Inadequate sleep has a negative impact on job performance, and motivation, and increases the risk of burnout and physical complaints.

This is in agreement with a research published in USA which found that poor sleep quality among nurses leads to compassion fatigue, impaired mental abilities, decreased agility, and coordination, resulting in a lower quality of life, patient care errors, and increased risk for long-lasting diseases **(Matey, 2016).** Burnout and secondary traumatic stress were also found to be adversely connected with physical/mental health and positively associated with sleep disturbance as

indicated in a recent study **(Lee & Lee, 2020).**

According to the findings of this study, there was a significant relationship between burnout and working hours per week. It is evident that when nurses work more than 36 hours a week, their level of burnout increases. This might be due to increasing working hours being associated with an increased risk of physical exhaustion and burnout. A previous research backs this up **(Okoli et al., 2020)**.

The multivariate analysis of this study indicated that compassion satisfaction was a statistically significantly negative predictor of compassion fatigue (burnout and secondary traumatic stress).

This is may be related to compassion satisfaction, which results in feelings of pleasure and joy resulting from assisting those who are suffering. It is seen as a source of strength, encouraging nurses to continue working regardless of hazardous working circumstances, high levels of stress, and poor patient status. Furthermore, it acts as a buffer against the negative consequences of burnout. Burnout and the negative effects of assisting others can lead to compassion fatigue, whilst the positive effects of assisting others can promote compassion satisfaction and pleasure. This is supported by previous studies **(Zhang et al., 2018).**

In healthcare providers, higher compassion satisfaction was related to moderate and low secondary traumatic stress and burnout. Based on this research, compassion satisfaction may be a powerful protective factor that lowers the chance of developing psychological distress. It may account for resilience as a natural resource, as well as mitigate the threat of compassion fatigue **(Zakeri et al., 2021).**

According to the study's multivariate analysis, there was a statistically significant

positive correlation between burnout and secondary traumatic stress. This may be due to constant exposure to stress and traumatic events, which are inherent in the nursing profession, greatly contributes to the development of lower job satisfaction, compassion fatigue, and burnout, resulting in a relatively high nursing turnover rate **(Zhang et al., 2018).** This is in line with the findings of a previous study, which indicated that secondary traumatic stress was positively correlated with burnout among nurses **(Munnangi et al., 2018). Conclusions:**

In the light of the current study findings, it can be concluded that:

- The educational program was effective in reducing the level of burnout and secondary traumatic stress (compassion fatigue) and enhancing the level of compassion satisfaction among studied psychiatric nurses.

- Compassion satisfaction has a statistically significant negative correlation with the two dimensions of compassion fatigue (burnout and secondary traumatic stress).

- Burnout has a statistically significant positive correlation with secondary traumatic stress.

Recommendations:

- Educating Nurses about compassion fatigue should be started in their college years (curriculum) and continuing throughout their employment. They should receive information about the risk factors, causes, signs, and symptoms of compassion fatigue, as well as, self-care skills, coping methods, and how they can balance work and life.

- Providing psychosocial counseling to psychiatric nurses who are experiencing compassion fatigue can help them better understand how CF affects different aspects of their lives, allowing them to develop and refine internal coping skills that will help them manage the complicated nature of their work.

- Promoting a healthy work environment through improving communication, and enhancing teamwork cooperation, as well as providing training in conflict resolution, and stress management, may all assist to promote compassion satisfaction and minimize compassion fatigue.

- Creating unit support groups with frequent outside workplace gatherings for recreational activities, especially for younger nurses, so they may meet and discuss their concerns.

- Conducting further research using a larger sample size, and in different psychiatric settings is recommended.

Conflict of interest:

The researchers declare that they have no conflict of interests.

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