

Defense Mechanisms and its relationship to Resilience, Compassion Satisfaction and Fatigue among Nurses Working at El Azazi Mental Health Hospital

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Abstract:

Background: Nurses working in Psychiatric field are exposed to a stressful and emotionally exhausting experience, which results in compassion fatigue. Defense mechanisms, resilience, and compassion satisfaction are all known as facilitators for adaptation and high professional quality of life. This study **aimed** to clarify the relation between defense mechanisms, resilience, compassion satisfaction, and fatigue among nurses working at El Azazi Mental Health Hospital. This research utilized a descriptive correlational design. **Setting/sample:** The composed of 85 nurses working at El Azazi Mental Health Hospital in the Al-Sharkia Governorate participated in this study. In this study, four instruments were employed for data collection: 1) nurses demographic data Questionnaire, 2) Defense Style Questionnaire including 40-items, 3) Professional Quality of Life Scale, and 4) Brief Resilience Scale. **Results:** The nurses' resilience levels and usage of immature defensive mechanisms showed highly significant positive correlation with compassion satisfaction, but with compassion fatigue showed significant negative correlation. Mature defense style predicts burnout and traumatic stress among nurses with a negative predictor on the compassion satisfaction subscale. Furthermore, the neurotic defense style predicts compassion satisfaction while having a negative predictor effect on traumatic and burnout subscales. **Conclusions:** All variables were related to one another, as nurses with high compassion satisfaction had high resilience levels and were more likely to use immature defensive mechanisms than mature and neurotic ones. Also, nurses with high compassion fatigue had low levels of resilience and were more likely to use mature and neurotic defensive mechanisms than immature defensive ones.

Keywords: Defense Mechanisms, Compassion Satisfaction, Resilience.

Introduction:

Compassion is an essential aspect of therapeutic nursing practice in the area of mental health nursing, which is a challenging but satisfying profession (Funk, 2016). Therapeutic nurses-patients relationships are established and maintained by compassion centered on sympathy and concern with suffered patients due to unfortunate life circumstances. However, this not only may increase the vulnerability to psychological strains and work-related resentment among worked nurses in psychiatric hospitals, but also

resulting in poor health care (Camenzuli-Chetcuti & Haslam, 2021). Mirror neurons may contribute to this burden by allowing healthcare workers to experience clients' psychological discomfort indirectly. These mirror neurons allow individuals to react to the physical and emotional suffering of others and share human empathy (Hinderer et al., 2014). Prolonged exposure to those particular scenarios could induce nurses to disengage from compassionate emotions, lessen their capacity for sustained focus, increase self-doubt and incompetence, gradually lessen compassion

over time, and subsequently result in declining efficiency (Lee et al., 2021).

The term "compassion fatigue" describes a state of stress and concern in patients with histories of traumatic events repeatedly. This state makes people want to stay away from individuals and other traumatic reminders as well as harming their ability or desire to endure the suffering of others (Ondrejková & Halamová, 2022).

Also, the meaning of compassion fatigue adds extra concepts. Burnout is the first, which is connected to a feeling of powerlessness in dealing with the workplace, and the second is secondary traumatic stress, which is related to secondhand exposure to stressful or life-threatening events at work (Kelly, 2020).

Burnout is characterized by long-term emotional exhaustion and psychological distress, which could worsen the professional ties with patients, their families, nurses' peers, other healthcare providers, and other coworkers (Parola et al., 2022). Burnout is a consequence of environmental factors including working environment, workplace violence, lengthy hospital stays, an excessive workload, and planning for the irrational patient anticipations and its management (Dall'Orta et al., 2020). In particular, experiencing compassion fatigue could have a long-term effect on a person's ability to function and lead to burnout (Stoewen, 2020).

Secondary traumatic stress is defined as the psychological strain that develops among healthcare workers as a result of being exposed to patients' first-hand accounts of trauma. It's also characterized by symptoms resembling those of post-traumatic stress disorder (PTSD), such as fear, difficulty sleeping, intrusive thoughts, or a desire to avoid notifications of the traumatic event (Jeong & Shin, 2023).

On the other hand, assisting someone in need doesn't always result in compassion fatigue and makes the care provider feel good. The term "compassion satisfaction" describes the psychological benefit of caring for another individual (Gustafsson & Hemberg, 2022). When a nurse succeeds in providing care and

develops an ethical and empathic relationship with their patients, they experience what is known as "compassion satisfaction" (Sacco & Copel, 2018). Compassion satisfaction secures that nursing staff feels good emotionally, connect with and interact meaningfully with the patients they look after, and follow the ethical guidelines when caring for them (Maillet & Read, 2021).

Unsurprisingly, the degree of professional quality of life is determined by the equilibrium between CS and CF (Ruiz-Fernández et al., 2020). Compassion satisfaction in nursing has a variety of benefits, including the capacity to deliver purposeful care, enhancement in job work performance, involvement, provide a competency, beneficial workplace environment, and prevent compassion fatigue (Zakeri et al., 2021). It is anticipated that greater awareness and comprehension of compassion fatigue and satisfaction among such group of nurses will assist in avoiding emotional exhaustion and identifying the most effective interventions (Dewidar et al., 2022).

Prevention techniques for compassion fatigue come in many forms. Maintaining the nurses' physical, mental, emotional, social, and mental health are the aim of these techniques (Gustafsson & Hemberg, 2022). Resilience is one of the key characteristics that nurses need in this condition to recover quickly from the stressful situations (Foster et al., 2020). A person's resilience is their capacity to deal with and succeed in facing variety of stressful situations, such as challenges and uncertainty. The ability of the nurse to bounce back will help them in completing the required tasks, maintaining healthy relationships, and succeed in their careers. Because of this, it is crucial to maintain and enhance nurses' levels of resilience (Yilmaz, 2017).

On the same line, defense mechanisms are a crucial part of an individual's adaptation to the concept of quality of life (Miranda & Louzã, 2015). According to Bell, whereas pathological object associations highlight the absence of such an aptitude, normal object relations reveal the presence of the capacity for mature (healthy) relations (Bell, 2007). In light

of those perceptions and associations, one might predict that object relationships and defense mechanisms are linked to both the person's quality of life and burnout (Vojvodic et al., 2019).

Moreover, defense mechanisms are involuntary regulatory processes that work to lessen cognitive dissonance and smooth out sudden shifts in both external and internal reality by altering how threatening events are perceived (Bailey & Pico, 2020). Relying on the situation and its severity, a defense mechanism may be either adaptive or maladaptive. Additionally, there is a hierarchy of maturity within which defense styles could be classified into three categories: immature, mature, and neurotic defenses. Adult defense mechanisms are viewed as adaptable, typical, and powerful confrontational strategies. They reduce anxiety, moderate painful emotions, and gradually raise awareness about the causes of anxiety so that the person able to reflect on them and resolve problems in an effective way, such as by using humor, sublimation, or seeking out help or assistance and fostering resilience (Di Giuseppe & Perry, 2021).

On the other hand, immature defenses disrupt the conscious processing required for anxiety resolution. The significance and scope of the source of stress or stressful event are frequently exacerbated by them. Notably, lack of awareness and ineffective non-adaptive behavior are consequences of immature defenses (Boldrini et al., 2020). The neurotic defense mechanisms sit in the middle of this spectrum of mature to immature defenses. By altering the meaning or consequence of the threat source; these defense mechanisms try to reduce stress (Di Giuseppe & Perry, 2021). Improving underlying emotion regulation by handling the application of maladaptive defense mechanisms could improve resilience (Prout et al., 2019).

Aim of the study:

The study's goal was to clarify the relation between defense mechanisms, resilience, compassion satisfaction, and fatigue among nurses working at El Azazi Mental

Health Hospital. The following goals have contributed to the achievement of this objective:

-Determine the type of used defense style, level of resilience, compassion satisfaction and fatigue.

-Identify the correlations between defense mechanisms of nurses working in Psychiatric field and their resilience, compassion satisfaction and fatigue.

Methods

Research questions

What is the commonest defensive style used by the nurses at Psychiatric field?

What is the nurses' resilience grade?

What are the nurses' scores of compassion satisfaction, secondary traumatic stress, and burnout?

What are the correlations between the nurses' defense mechanisms and their resilience, compassion satisfaction and fatigue?

Research design

Descriptive correlational design was utilize in the study.

Subjects: A simple random sample of 85 nurses working at the El Azazi Mental Health Hospital, al-Sharkia Governorate, Egypt.

Sample size: The correlation between the nurses' professional quality of life and their resilience at the psychiatric field was 0.3 [26] with a power of the test of 80% and confidence level of 95%, and so the sample size was calculated to be 85 nurses

- The standard normal deviate for $\alpha = Z\alpha = 1.96$
- The standard normal deviate for $\beta = Z\beta = 0.8416$
- $C = 0.5 * \ln[(1+r)/(1-r)]$
- Total sample size = $N = [(Z\alpha + Z\beta)/C]^2 + 3$

Tools of data collection

Data were gathered from participants using demographic characteristics Questionnaire, the Defense Style Questionnaire which included 40-items (DSQ-40), Brief Resilience Scale (BRS), and Professional Quality OF Life Scale (ProQOL).

The tool I: Demographic characteristics Questionnaire:

It contains the nurses' characteristics as age, marital status, sex, and level of education.

Tool II: Defense Style Questionnaire 40-items (DSQ-40):

It's a self-administered scale established by (Andrews et al., 1993). It has 40 questions that assess 20 different defensive mechanism styles; including the immature defensive ones (e.g; rationalization, projection, dissociation, acting out, somatization, isolation, autistic fantasy, devaluation, splitting, passive aggression, denial, and displacement), the mature defensive ones (e.g; suppression, sublimation, anticipation, and humor), and the neurotic defensive ones (e.g; pseudo-altruism, undoing, reaction formation, and idealization). Cronbach's alpha coefficient (α) for that tool was (.584).

Scoring system:

It based on Likert scale response which gave 1 score, with 1 being "strongly disagree," and 9 scores being "strongly agree". Each defensive mechanism style has two questions. Participants in each defensive style receive ratings ranging from 2 to 18. If a person's score rises from 10 to any defense mechanism, it indicates that they had employed such defense. In most cases, the average of each person's scores for each defensive mechanism was calculated and contrasted with the average of other mechanisms' scores for that person. The defensive mechanism style with the highest average score reflects that the individual used such mechanism.

Tool III: Brief Resilience Scale (BRS):

It is a self-reported scale that assesses person's ability to overcome challenges and

handle stress. This tool was developed by (Smith et al., 2008). It consists of 6 elements. Brief Resilience Scale reliability; by using Cronbach's alpha coefficient (α) was (.959).

Scoring system: Each response was ranked on a 5-point Likert scale, started by strongest disagreement (1), to strongest agreement (5). Calculated by summing the responses which varied from 1 to 5 for each of the six items resulting in a range of 6 to 30. Take the total amount and divide it by the full number of answered questions by the participants. A score of 1.00 - 2.99 indicated low resilience, 3.00 - 4.30 denoted normal resilience and 4.31 - 5.00 denoted high resilience level

Tool IV: Professional Quality OF Life Scale (ProQOL) or compassion satisfaction, and fatigue: It was developed by (Stamm,2009) and approved by the researchers, who also translated it into Arabic. It is most frequently used to determine the positives and negatives of the qualified persons working through extremely difficult situations. It assesses the nurse's emotional state over the previous month; Cronbach's alpha coefficient (α) for this tool was (.559). The tool has 30 items and is divided into three sub-scales: burnout, secondary traumatic stress, and compassion satisfaction.

Ten items make up each sub-scale, as follows:

Items that provide compassion satisfaction are (No. 3, 6, 12, 16, 18, 20, 22, 24, 27, and 30), while items that provide Compassion fatigue including both burnout and secondary traumatic stress are (No. 1, 4, 8, 10, 15, 17, 19, 21, 26 and 29) for Burnout, and (No. 2, 5, 7, 9, 11, 13, 14, 23, 25, and 28) for Secondary Traumatic Stress.

Scoring System: Each item is counted using a 5-point Likert scale from 1 to 5; 1=Never,2=Rarely, 3=Sometimes,4=Often, and 5=Very Often. A few of the items, however, had irreversible scores and negative response directions. Scores on every subscale could be categorized as low, moderate, or high (≤ 22 = low; 23–41=moderate; ≥ 42 = high).

Content validity and reliability: The tool's content validity used in this study was asserted by three experts in psychiatric nursing and statistics field. They assessed the tools based on their practicality, clarity, comprehensiveness, comprehension, applicability, and ease of use. To confirm the original validity of the research tools, they were translated into Arabic language and then back translation technique into English language.

The Cronbach's alpha test was used by the SPSS, version 22.0, to assess the tools' reliability.

Ethics approval and consent to participate:

To get the assent to conduct this study, the researchers provided a formal letter from the Zagazig University Faculty of Nursing's Scientific Research Ethics Committee, and the Dean of the Faculty sent an official letter to the Manager of El Azazi Mental Health Hospital. The written informed consent form the participants in this study signed after being informed about the study's objectives and agree to participate. They informed that they could leave the study at any stage without displaying any cause, in addition the delivered data from them was considered private as it was only employed for this research's aim.

Pilot study: The researchers began by conducting a pilot study on 10% of the nurses who participate at the beginning of the actual study. It was carried out to evaluate the study questionnaire's clarification, usability, and viability as well as to determine the time needed to complete the study tools fill on. No changes were made so to the nurses who took parts in the pilot study were incorporated into the study's main sample.

Fieldwork:

After summarizing the study's goals for the selected nurses group, the researchers held an interview to get their oral agreement to participate in this study. The selected nurses were separated into four groups, each with 15 to 20 nurses. The researchers interviewed the nurses, and before asking them to complete the questionnaires, they explained each included

statement in the tools. Each group finished filling in the tools between 30 and 45 minutes. The data was gathered along two months, from 15th September to 15th November, 2022.

Statistical Design :

Statistical software SPSS 22.0 was used for data input and statistical analysis. For qualitative variables, data were offered using frequencies and percentages, and for quantitative variables, means, medians, and standard deviations were used. The Cronbach alpha coefficient was applied to measure the internal consistency of the developed tools to determine their reliability. A chi-square test was employed to contrast qualitative categorical variables (X²). The Fisher exact test was used in place of the chi-square test whenever the estimated values in one or more cells of a 2x2 table were less than 5. The Spearman rank correlation was applied to assess the correlation between ranked and quantitative variables. The independent predictors of the PQOL scores were identified using the multiple linear regression method after the full regression models had undergone tests for normality, homoscedasticity, and analysis of variance. The level of significance was considered using a p-value of < 0.05.

Results:

Table (1) showed that; more than two-thirds (71.8%) of the studied nurses were females and with a mean age of 28.39± 3.74. Concerning their marital status, more than half of them (57.6%) were married. Regarding the educational status, half of the studied nurses (50.6%) possessed a bachelor's degree in nursing sciences.

Table (2) clarified that; the "immature mechanisms" were the commonest defense styles among the studied nurses with a mean of (92.61 ± 20.98), in particular; rationalization was more frequently used with a mean of (12.06±1.37). Regarding the "mature and neurotic defense mechanisms"; it was observed that both suppression and Reaction formation defense styles showed higher means (13.58±2.26 and 11.21 ± 1.85, respectively) comparing to the others styles.

Figure (1) showed that half of the studied nurses (50.6%) had a moderate level of resilience, whilst 30.6% of them had a low level of resilience and only 18.8% had a high level of resilience.

Figure (2) demonstrated that; more than two-thirds (69.4%) of the studied nurses get higher levels of compassion satisfaction, whereas only one-third of them (30.6%) get moderate levels of compassion fatigue.

Table (3) revealed that the average subscale scores of ProQOL; compassion satisfaction was (39.31 ± 8.23), whereas burnout was (24.49 ± 9.04) and secondary traumatic stress was (20.99 ± 6.78). Whilst, the average total score of resilience was (3.34 ± 1.14).

Table (4) illustrated that; there was a significant positive correlation between nurses' age and traumatic stress. Regarding the nurses' gender (being female) and education; with significant positive correlation between defense mechanism styles (mature and neurotic), resilience, and compassion satisfaction. Also, there was a significant positive correlation between immature defense mechanism style and burnout.

Table (5) depicted that; compassion satisfaction had a high significantly positive correlation with immature defense mechanisms ($r = .597$) and resilience ($r = .976$) among the studied nurses. However, burnout and traumatic stress showed significant negative correlation with immature defense mechanisms (ranging from $r = -.619$ to $r = -.634$) and resilience (ranging from $r = -.973$ to $r = -.969$).

Table (6) indicated that; marital status and resilience had a positive predictor effect (.033, .096) on compassion satisfaction. As for defense mechanism styles, the mature defense style had a negative predictor effect equal (-.116) on compassion satisfaction, while, the neurotic defense style had a positive predictor effect equal (.668) on compassion satisfaction.

Table 7 illustrated that marital status only had a negative predictor effect equal (-.023, -.018) on burnout and traumatic stress respectively while resilience had a negative predictor effect equal (-.067) on burnout only. As for defense mechanism styles, the mature defense style had a positive predictor effect equal (.081, and .058) on burnout and traumatic stress, respectively. However, the neurotic defense style had a negative predictor effect equal (-.770, and -.818) on compassion fatigue.

Table (1): Demographic Data of the Studied Nurses (n=85):

Demographic characteristics	No	%
Age:		
• 23-29	58	68.2
• 30-37	27	31.8
	Mean± SD	28.39± 3.74
	Range	(23 – 37)
Gender:		
• Male	24	28.2
• Female	61	71.8
Marital status:		
• Single	34	40.0
• Married	49	57.6
• Divorced	2	2.4
Education:		
• High diploma	36	42.4
• Bachelor	43	50.6
• Postgraduate	6	7.0

Table (2): Frequency of Defense Mechanisms Usage among Participants in the Study Sample (n=85).

Defense Mechanisms Styles	No.	%	Mean \pm SD
Immature	49	57.6	92.61 \pm 20.98
Acting out	0	0.0	6.79 \pm 1.85
Projection	26	30.6	9.54 \pm 1.80
Denial	26	30.6	9.14 \pm 3.24
Dissociation	0	0.0	4.53 \pm 2.31
Devaluation	26	30.6	5.94 \pm 4.06
Somatization	42	49.4	8.79 \pm 1.85
Rationalization	85	100.0	12.06 \pm 1.37
Autistic fantasy	0	0.0	6.02 \pm 1.52
Splitting	0	0.0	5.59 \pm 2.72
Passive aggression	26	30.6	6.53 \pm 2.32
Displacement	85	100.0	10.68 \pm .77
Isolation	0	0.0	7.00 \pm .00
Mature	43	50.6	51.59 \pm 8.39
Suppression	79	92.9	13.58 \pm 2.26
Sublimation	79	92.9	13.39 \pm 3.18
Humor	85	100.0	12.53 \pm 2.51
Anticipation	59	69.4	12.09 \pm 2.19
Neurotic	43	50.6	42.56 \pm 4.45
Pseudo altruism	59	69.4	10.39 \pm .93
Reaction formation	59	69.4	11.21 \pm 1.85
Idealization	59	69.4	10.69 \pm .46
Undoing	85	100.0	10.27 \pm 1.56

*yes percentage

Fig.1. Proportion of the Studied Nurses ' Resilience Levels (n=82)

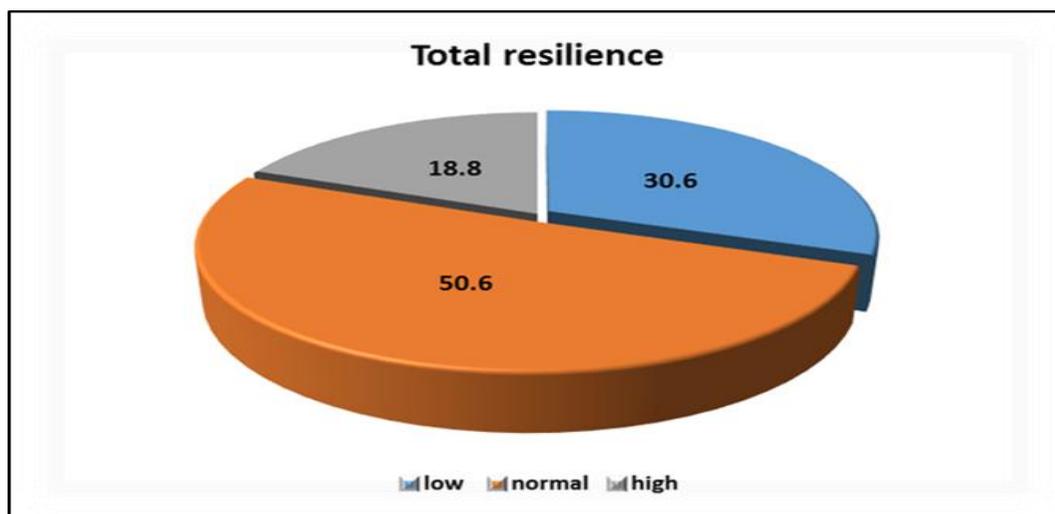


Figure 2: Prevalence of Compassion Satisfaction and Fatigue among the Studied Nurses (n=85).

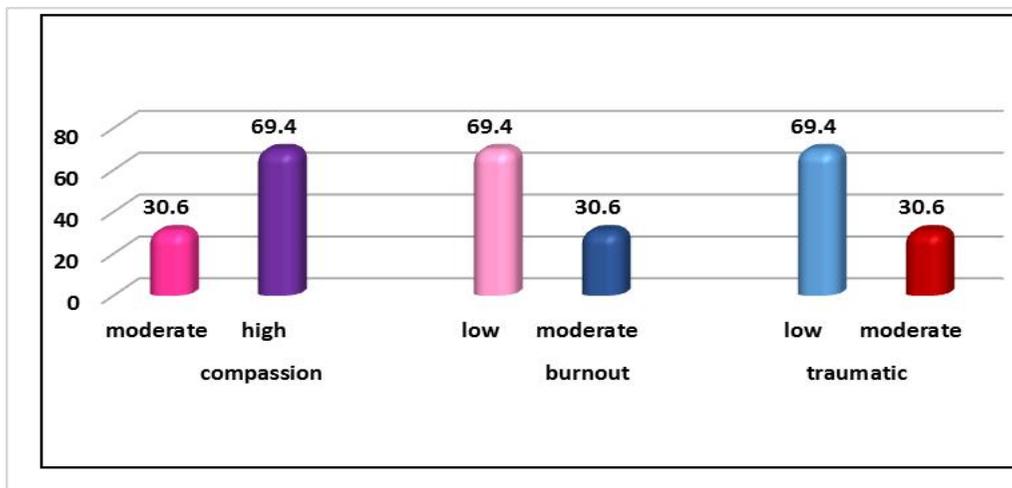


Table (3): Mean and Standard Deviation of Resilience, Burnout, Secondary Traumatic Stress, and Compassion Satisfaction among the Studied Nurses (n = 82)

Variable	Mean ±SD
Resilience	3.34 ± 1.14
Burnout	24.49 ±9.04
Secondary Traumatic Stress	20.99 ±6.78
Compassion satisfaction(CS)	39.31 ± 8.23

Table (4): Correlation Matrix of the Studied Nurses’ Demographic Characteristics Associated with their Defense Mechanism Styles, Resilience, and Professional Quality of Life (n=85):

Personal Characteristics	Defense mechanism styles			Resilience	Professional quality of life		
	Mature	Neurotic	Immature		Compassion	Burnout	Traumatic
Age	-.179	-.196	.199	-.134	-.196	.196	.213*
Gender [Female]	.672**	.825**	-.788**	.772**	.825**	-.825**	-.824**
Marital status [married]	-.610**	-.772**	.767**	-.373**	-.772**	.772**	.767**
Education	.701**	.706**	-.654**	.273*	.706**	-.706**	-.709**

(*) Statistically significant at p<0.05

Table (5): Correlation Matrix between Defense Mechanism Styles, Resilience, and Quality of Life among the Studied Nurses (n=85):

Variables		Defense mechanisms			Resilience	Quality of life		
		Mature	Neurotic	Immature		Compassion	Burnout	Traumatic
Defense mechanisms	Mature							
	Neurotic	1.00**						
	Immature	-.847**						
Resilience		.633**	-.633**	.554**				
	CS	-.705**	-.705**	.597**	.976**			
Quality of life	Burn-Out	.730**	.730**	-.619**	-.973**	-.999**		
	TS	.749**	.749**	-.634**	-.969**	-.998**	.999**	

(r) Correlation coefficient, *p<0.05 significant

Table (6): Best Fitting Multiple Linear Regression Analysis of Compassion Satisfaction Predictors.

Outcome Variables	Explanatory Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		R2	F
		B	Std. Error	Beta			Lower Bound	Upper Bound		
	(Constant)	1.212	13.496		.090	.929	-25.668	28.093		
Compassion Satisfaction	Age	.047	.014	.021	3.440	.001	.020	.074	0.99	4488.88
	Sex	-.033	.321	-.002	-.104	.918	-.673	.607		
	Marital state	.444	.101	.033	4.388	.000	.243	.646		
	Academic level	-.015	.115	-.001	-.130	.897	-.245	.215		
	Resilience score	.689	.188	.096	3.663	.000	.314	1.064		
	Mature score	-.114	.012	-.116	-9.568	.000	-.138	-.090		
	Neurotic score	1.236	.221	.668	5.588	.000	.796	1.677		
Immature score	-.139	.047	-.356	-2.974	.004	-.233	-.046			

Dependent variable: Compassion satisfaction

R-square=0.99

Model ANOVA: F=4488.88, p<0.001 (Marital status, resilience, the neurotic defense style positively predict compassion satisfaction, the mature defense style negatively predicts compassion satisfaction).

Table 7: Best Fitting Multiple Linear Regression Analysis of Predictors of Compassion Fatigue (Burnout and Traumatic Stress).

Outcome Variables	Explanatory Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		R ²	F
		B	Std. Error	Beta			Lower Bound	Upper Bound		
Burnout	(Constant)	79.990	10.382		7.705	.000	59.313	100.668	0.99	9191.31
	Age	-.036	.010	-.015	-3.440	.001	-.057	-.015		
	Sex	.026	.247	.001	.104	.918	-.467	.518		
	Marital state	-.342	.078	-.023	-4.388	.000	-.497	-.187		
	Academic level	.012	.089	.001	.130	.897	-.165	.188		
	Resilience	-.530	.145	-.067	-3.663	.000	-.818	-.242		
	Mature score	.088	.009	.081	9.568	.000	.069	.106		
	Neurotic	-1.566	.170	-.770	-9.205	.000	-1.905	-1.227		
Immature	.107	.036	.249	2.974	.004	.035	.179			
Traumatic Stress	(Constant)	67.387	7.278		9.259	.000	52.892	81.881	0.99	10499.23
	Age	-.011	.007	-.006	-1.455	.150	-.025	.004		
	Sex	-.016	.173	-.001	-.090	.929	-.361	.330		
	Marital state	-.204	.055	-.018	-3.729	.000	-.312	-.095		
	Academic level	-.027	.062	-.002	-.431	.668	-.151	.097		
	Resilience	-.261	.101	-.044	-2.570	.012	-.463	-.059		
	Mature score	.047	.006	.058	7.280	.000	.034	.060		
	Neurotic	-1.247	.119	-.818	-10.455	.000	-1.485	-1.009		
Immature	.063	.025	.195	2.497	.015	.013	.114			

Dependent variable: Burnout & traumatic stress R-square=0.99 Model ANOVA: F=9191.31, p<0.00 (Marital status, neurotic defense style, resilience negatively predict burnout and traumatic stress, mature defense style positively predict compassion fatigue).

Discussion:

Within the medical field, nurses working in psychiatric field were an invaluable asset as they are exposed to verbal and physical violence repeatedly from mentally ill patients which are considered as developing factors of compassion fatigue (Hilton et al., 2022). Hence, nurses are at risk for existential integrity due to the physiological, social, emotional, psychological, and cognitive impacts of compassion fatigue (Nolte et al., 2017). Thus, it is necessary to protect nurses' mental health, through being mindful of compassion fatigue.

This study aims to investigate defense mechanisms and their relation to resilience, compassion satisfaction, and fatigue among nurses among nurses working at El Azazi Mental Health Hospital.

Notably, it was noticed that nurses were more prone to psychological suffering. So they are in need for defensive mechanisms to accomplish some form of adaptation to avoid any mental disturbances (Panfil et al., 2020). Defense mechanisms are psychological techniques for controlling emotions that would promote resilience and so, better coping with both internal conflicts and environmental stressors (Perry, 2014).

This study emerged that the nurses use immature defensive mechanisms, particularly rationalization, more at the expense of mature defensive ones, especially suppression, as indicated by the highest mean score of the immature defensive mechanism. People usually

attempt to control alter unpleasant thoughts and emotions (**Brown et al., 2022**).

Hence the study findings supported that the efficient and incorporated use of the first two mechanisms enables nurses to control troubling thoughts or emotions using logic rather than fantasy.

This finding agrees with study of (**Sumanjali et al., 2018**) who described that nursing students utilized immature defense mechanisms more frequently, followed by a mature defensive style. However, (**Shehata & Ramadan, 2017**) and (**Elyasi et al., 2020**), proved that the mature ego defensive mechanisms were more commonly used by the nurses than the immature styles.

As for the association of defensive mechanisms with resilience, and compassion fatigue; the usage of mature and neurotic defenses was significantly correlated with lower resilience and greater compassion fatigue. These findings suggest that; defense mechanisms could shield the person from external and internal stressors. The root cause of this finding might be related to the ability of neurotic defenses in helping the individual keep his awareness out of the conflict's unwanted feelings and thoughts, in which intolerable anxiety could be caused if the psychological experience is perceived in an integral form. Regarding the mature defenses, it keeps the individual's partial awareness of unwanted thoughts, feelings, and desires associated with an external or internal stressful situation that would affect negatively resilience and so increasing the risk for burnout.

Consistently, (**Hayden et al., 2021**) in their study demonstrated that traumatic events could lead to a decline in general defensive functioning and a rise in neurotic defenses as a means of shielding oneself from the awareness of negative experiences that one cannot fully cope to maintain emotional distance from the feelings or ideas related to the stressful situations.

As an individual's capacity to preserve their mental health, resilience played a critical role in an individual's response to perceived

stress and could enable them to handle stressful situations successfully. Specifically, developing resilience had become highly significant for psychiatric nurses who frequently experience distressing patient feelings and tension on a long-term basis. (**Alhawtmeh et al., 2021**). Hence, in this study, interesting findings regarding resilience and its connection to the nurses' professional quality of life emerged. Particularly, it seems that resilience is negatively correlated with traumatic stress and burnout; nurses with higher resilience levels experienced lower levels of compassion fatigue. Thus, in the light of compassion satisfaction; there was a significantly positively correlated with resilience.

The possible cause of this finding might be; nurses who had high resilience were typically maintaining positive attitudes and consider the traumatic understandings of their patients as an everyday occurrence. This could help them handling compassion frustration more successfully, achieving positive growth and experiencing less burnout as a result of patients' trauma and complicated work conditions. Similarly, (**Ata et al., 2020**) showed a significant positive relation between nurses' resilience and compassion satisfaction scores whilst, a significant negative relation was noticed between resilience and burnout. Additionally, this finding had been confirmed by a study done by (**Yu et al., 2019**) who showed that; improved resilience could allow nurses to decrease emotional exhaustion caused by patients and enhance work satisfaction by aiding nurses in developing coping approaches. However, (**Merlo et al., 2021**) in their study showed that the compassion satisfaction of the subjects were significantly negatively correlated with resilience, whereas the conditions of compassion fatigue were significantly positive correlated with resilience.

Moreover, the current study showed that resilience and compassion satisfaction were significantly negative correlated with both burnout and traumatic stress. Thus, this could suggest that resilience and compassion satisfaction may relieve burnout and traumatic stress. This is confirmed by the result of a study done by (**Artuch-Garde et al., 2017**) who mentioned that compassion satisfaction and

resilience play a mediator role in connecting between stress and burnout, specifically resilience had a higher effect. Furthermore, higher workplace resilience is linked with better mental health, less stress, and overall well-being (Kermott et al., 2019).

Noteworthy, this study revealed that high average score of the nurses' compassion satisfaction, linked with less average score of their resilience. Resilience is a dynamic process used to cope with adverse conditions or adapt positively (Delgado et al., 2020), while compassion satisfaction involves sensations of pleasure and satisfaction related to one's work (Sacco & Copel, 2018). Hence, this finding might suggest that nurses with compassion satisfaction are more satisfied with their profession and less demonstrate capabilities that develop in negative or stressful situations. Also, this might be attributed to increasing the average scores of the nurses' age in this study.

It was interesting to note, that demographic data of the nurses as gender, and education were established to be significant determinants of resilience, specifically among the female nurses were significantly more resilient than their male counterparts. Consistently, the study of (Sull et al., 2015); they found that female healthcare workers had a significant correlation with higher levels of resilience. This could be owned to that; female nurses in this study represented two-thirds of the whole sample. Also, this might be related to the different usage of coping strategies between men and women, such as reported in studies done by (Huang et al., 2019) and (Bezdek, 2010) who reported that; men are more tend to use individualistic methods, whereas women depend more on social support. Such support assists nurses in attaining emotionally healthy states, decreasing stress, anxiety levels, securing their physical and psychological well-being, and thus enhancing their resilience (Kılınç & Sis Çelik, 2021).

Concerning compassion satisfaction (CS) and compassion fatigue (CF), there were significant differences regarding the nurses' gender. CS was significantly higher among females than males, or completely showed the opposite, CF was significantly higher in males

than in females. Notably, this result needs to be interpreted cautiously as the male participants were only one-third of the total studied sample. This finding is supported by an Egyptian study done by (Elias Abdel-Aziz & Saied Adam, 2020) in which they indicated a significant impact on ProQOL scores regarding sex among worked nurses in psychiatric field. Conversely, (Mooney et al., 2017) proved in their study that male nurses displayed significantly higher levels of CS, with significantly lower level of CF than their female counterparts. However, (Hunsaker et al., 2015) in their study did not find any difference between males and females.

As for defensive mechanisms, this study found significant differences regarding nurses' gender. In the mean of; female nurses use more mature mechanisms, such as suppression mechanisms, in contrast to their male counterparts who use more immature mechanisms. This finding needs to be explained cautiously as female participants constituted over two-thirds of the study participants. Also, it might be owned to the truth that females are more emotionally affected than males by nature; hence, females resort to use defense mechanisms for shielding them from experiencing undesirable thoughts or feelings occurring in the workplace or difficult shift work as a novel experience that in turn could lead to a deformation of some parts of reality.

Consistently, (Elyasi et al., 2020) revealed a significant correlation with the gender regarding defensive styles among Irish nurses. As male nurses had used more immature defense mechanisms, while female nurses tended to use more mature and neurotic defense mechanisms. Conversely, Also, (Shehata & Ramadan, 2017) in Egypt found that; males were significantly more probable to acquire mature defenses than females meanwhile, females used neurotic defense mechanisms more than males with non-significant difference between the both.

Moreover, this study demonstrated that nursing education level could instead be a protective factor for the nurses, who seem to be less inclined to use immature defensive mechanisms and less exposed to burnout and traumatic stress. Bachelor-prepared nurses were

significantly more inclined to use mature defensive styles and so, more likely to develop CS in comparison with their counterparts who possess a technical degree in nursing and seems to be more inclined to use immature defensive mechanisms. This finding might indicate that; bachelor-preparation improved nurses' intellectual abilities and thinking skills that in turn lead to lower the usage of immature defensive styles and so, moderate their distressing emotions, gradually with increasing their awareness about anxiety sources, more effectively. Better as handling the challenges at work, to solve problems appropriately which lead to increase satisfaction than nurses with low education.

Consistently, a cross-sectional analysis study done by (Lykins et al., 2021) reported that high nursing education was inversely related to compassion fatigue. Nevertheless, another recent meta-analysis study done by (Zhang et al., 2018) indicated that; bachelor-prepared nurses were positively related to compassion fatigue. Also, another study done by (Settineri et al., 2019) emphasized that; less educated nurses resort to carrying out immature defensive mechanisms during stressful circumstances, such as emotionally challenging, compassionate caregiving. However, the immature mechanisms specifically rationalization and repression may be useful to caregivers in the short term, but if used frequently, they are at risk of neglecting their mental and emotional exhaustion and developing compassion fatigue.

Regarding the nurses' characteristics, this study proposed that elder nurses were significantly more exposed to traumatic stress. Consistently, (Merlo et al., 2021) and (Craig et al., 2010) highlighted the likelihood that the demands of nursing will expand more challenging over time, in contrast to younger nurses who, on the other hand, are happier with their work, feel satisfied and effective. The caregiver's perception of the cost of care seems to be significantly impacted by their age, which experiences a constant feeling of exhaustion, time constraints, and a lack of social chances (Bharti & Bhatnagar, 2017). Even the increase in work demands is viewed as becoming increasingly troublesome, and confronted with

suppressive mechanisms. In this respect, this study revealed that older nurses mostly adopted the usage of immature defensive styles, whilst the mature defensive ones were mostly adopted by younger nurses, with no significant relation.

In terms of familial factors, this study's findings emerged that marital status was negatively correlated with resilience and the mature defensive, particularly the suppressive defensive mechanism, while it was positively correlated with CF. This means that; married nurses were less resilient and tended to use the suppressive mechanisms that in turn, increasing the compassion fatigue than their single counterparts. Socially supported and resilient nurses could manage stressful situations through using the defensive mechanisms, which support them in controlling internal and external stressors. Hence, the root cause of this finding might be owned to that; the perceived support from a stable spouse was not the factor that affects CF or CS within the work context as they almost seek out more carefulness from their co-workers or spiritual thoughts than from their relations.

Consistently, as evidence of the adaptive mechanisms' studies done by (Merlo et al., 2021) and (Metzger, 2014) both noticed that; even people with great social support employed these techniques, which was suggestive of how effective they were at relieving the care burden. As well as, (Ruiz-Fernández et al., 2020) reported that marital status was positively associated with CF. However, (Xie et al., 2020) recognized in the psychiatric field that; the main sources of support for the nurses were parenthood and family ties which in turn, could improve their mental health and lessen the probability of developing compassion fatigue.

Conclusion:

This study concluded that; the "immature defense mechanism" was the commonest style among the studied nurses. Roughly half of the nurses had a moderate level of resilience, while approximately two-thirds of them had high level of compassion satisfaction, and only one-third had a moderate-level of compassion fatigue. These variables were related to one another, as the immature defense mechanism and resilience

were significantly positive correlated with the nurses' compassion satisfaction, whereas they had a significant negative correlation with their both burnout and traumatic stress.

Notably, the "mature defense style" was a positive predictor of the nurses' burnout and traumatic stress, whereas neurotic defense style was a positive predictor of their compassion satisfaction. Marital status and resilience had a positive predictor effect on compassion satisfaction.

Recommendations:

In light of these study findings, the following recommendations are hereby proposed:

Increase the nurses' awareness that working in psychiatric field enables them to use adaptive defensive mechanisms, eliminating maladaptive ones, and objectively regulating their unwanted feelings.

Hence, ongoing assessment of the nurses' professional quality of life and resilience with regularly implementing educational programs focusing on improving their work conditions could help them in optimizing their compassion satisfaction as well as decreasing burnout and secondary traumatic stress.

Additionally, extra researches are required to determine the effectiveness of defense mechanisms and resilience in the workplace.

List of Abbreviations: (PTSD): Post-Traumatic Stress Disorder; (ProQOL): Professional Quality of Life Scale; (BRS): Brief Resilience Scale; (CS): compassion satisfaction; and (CF): compassion fatigue.

References:

Alhawatmeh, H., Alsholol, R., Dalkey, H., Al-Ali, N., & Albataineh, R. (2021): Mediating role of resilience on the relationship between stress and quality of life among Jordanian registered nurses during COVID-19 pandemic. *Heliyon*, 7(11), e08378.

<https://doi.org/10.1016/j.heliyon.2021.e08378>.

Andrews, G., Singh, M., & Bond, M. (1993): The Defense Style Questionnaire. *The Journal of Nervous and mental disease*, 181(4), 246–256. <https://doi.org/10.1097/00005053-199304000-00006>.

Artuch-Garde, R., González-Torres, M. D. C., de la Fuente, J., Vera, M. M., Fernández-Cabezas, M., & López-García, M. (2017): Relationship between Resilience and Self-regulation: A Study of Spanish Youth at Risk of Social Exclusion. *Frontiers in Psychology*, 8, 612. <https://doi.org/10.3389/fpsyg.2017.00612>.

Ata, E.E., Yılmaz, E., & Bayrak, N.G. (2020): Resilience, occupational satisfaction, burnout, and compassion fatigue in Turkish intensive care nurses. 22, 152-158. <http://doi.org/10.32725/kont.2020.028>

Bailey, R., & Pico, J. (2022): Defense Mechanisms. Stat Pearls Publishing. 2020 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK559106/>.

Bell, M. D. (2014): Bell object relations and reality testing inventory: BORRTI. Western Psychological Services. Bell object relations and reality testing inventory: BORRTI. Western Psychological Services. https://www.researchgate.net/profile/Morris-Bell/publication/242282903_Bell_Object_Relations_and_Reality_Testing_Inventory/links/540f25b30cf2df04e75a26a3/Bell-Object-Relations-and-Reality-Testing-Inventory.pdf

Brown, R. L., Innes, P. A., Carter, J. D., Wood, A., Love, S., & Kannis-Dymand, L. (2022): Beliefs about traumatic memories, thought control strategies, and the impact on PTSD symptoms after a natural disaster. *The Journal of Nervous and Mental Disease*, 10-1097. DOI:[10.1097/NMD.0000000000001586](https://doi.org/10.1097/NMD.0000000000001586)

Bezek, E. (2010): Gender Differences in Resilience in the Emerging Adulthood Population: Rochester Institute of

- Technology. Accessed from <https://scholarworks.rit.edu/cgi/viewcontent.cgi?article=10482&context=theses>
- Bharti, J., & Bhatnagar, P. (2017):** Personality and creativity as predictors of psychological well-being in caregivers of a person with chronic mental illness. *Indian Journal of Positive Psychology*, 8(2), 148-153. http://www.iahrow.com/index.php/home/journal_detail/19#list
- Boldrini, T., Buglio, G. L., Giovanardi, G., Lingiardi, V., & Salcuni, S. (2020):** Defense mechanisms in adolescents at high risk of developing psychosis: an empirical investigation. *Research in Psychotherapy: Psychopathology, Process, and Outcome*, 23(1). <https://doi.org/10.4081/ripppo.2020.456>
- Camenzuli-Chetcuti, M. L., & Haslam, M. B. (2021):** Compassion fatigue and mental health nursing: the final taboo? *British Journal of Mental Health Nursing*, 10(4), 1-5. <https://doi.org/10.12968/bjmh.2021.0027>
- Craig, C. D., & Sprang, G. (2010):** Compassion satisfaction, compassion fatigue, and burnout in a national sample of trauma treatment therapists. *Anxiety, Stress, & Coping*, 23(3), 319-339. <https://doi.org/10.1080/10615800903085818>
- Dall’Ora, C., Ball, J., Reinius, M., & Griffiths, P. (2020).** Burnout in nursing: a theoretical review. *Human resources for health*, 18, 1-17. <https://doi.org/10.1186/s12960-020-00469-9>
- Delgado, C., Roche, M., Fethney, J., & Foster, K. (2020):** Workplace resilience and emotional labor of Australian mental health nurses: Results of a national survey. *International Journal of mental health nursing*, 29(1), 35-46. <https://doi.org/10.1111/inm.12598>
- Dewidar, A. E. S., Gado, E. M., & Gemeay, E. M. (2022):** Effect of Training Program about Compassion on Professional Quality of Life of Mental Health Nurses. *International Egyptian Journal of Nursing Sciences and Research*, 2(2), 81-97. DOI: 10.21608/ejnsr.2021.95663.1088
- Di Giuseppe, M., & Perry, J. C. (2021):** The hierarchy of defense mechanisms: Assessing defensive functioning with the Defense Mechanisms Rating Scales Q-Sort. *Frontiers in Psychology*, 12, 718440. <https://doi.org/10.3389/fpsyg.2021.718440>.
- Elias Abdel-Aziz, A., & Saied Adam, S. (2020):** Relationship between resilience, burnout and professional quality of life among nurses working at El-Abbassiya psychiatric-mental health hospital. *Egyptian Journal of Health Care*, 11(2), 551-577.
- Elyasi, F., Hosseininejad, S. M., Parkoohi, P. L., Kamali, M., Azizi, M., Karimi, N., ... & Ghajar, M. (2020):** The relationship between defense mechanisms and nurses’ occupational burnout: a cross-sectional study. *Iranian Journal of Psychiatry and Behavioral Sciences*, 14 (4). e106716. Doi: 10.5812/ijpbs.106716.
- Foster, K., Roche, M., Giandinoto, J. A., & Furness, T. (2020):** Workplace stressors, psychological well-being, resilience, and caring behaviors of mental health nurses: A descriptive correlational study. *International Journal of mental health nursing*, 29(1), 56-68. <https://doi.org/10.1111/inm.12610>
- Funk, A. (2016):** Compassion Fatigue in Mental Health Nurses: Understanding Cause, Effect, Prevention, and Intervention. *Nursing Capstones*. 245. <https://commons.und.edu/nurs-capstones/245>
- Gustafsson, T., & Hemberg, J. (2022):** Compassion fatigue as bruises in the soul: A qualitative study on nurses. *Nursing ethics*, 29(1), 157-170.
- Hayden, M. C., Müllauer, P. K., Beyer, K. J., Gaugeler, R., Senft, B., Dehoust, M. C., & Andreas, S. (2021):** Increasing mentalization to reduce maladaptive defense in patients with mental disorders. *Frontiers*

- in psychiatry, 12, 637915. <https://doi.org/10.3389/fpsy.2021.637915>
- Hilton, N. Z., Addison, S., Ham, E., C Rodrigues, N., & Seto, M. C. (2022):** Workplace violence and risk factors for PTSD among psychiatric nurses: Systematic review and directions for future research and practice. *Journal of Psychiatric and Mental Health Nursing*, 29(2), 186-203. <https://doi.org/10.1111/jpm.12781>
- Hinderer, K. A., VonRueden, K. T., Friedmann, E., McQuillan, K. A., Gilmore, R., Kramer, B., & Murray, M. (2014):** Burnout, compassion fatigue, compassion satisfaction, and secondary traumatic stress in trauma nurses. *Journal of Trauma Nursing | JTN*, 21(4), 160-169. DOI: 10.1097/JTN.000000000000055.
- Huang, Q., Xing, Y., & Gamble, J. (2019):** Job demands–resources: A gender perspective on employee well-being and resilience in retail stores in China. *The International Journal of Human Resource Management*, 30(8), 1323-1341. <https://doi.org/10.1080/09585192.2016.1226191>
- Hunsaker, S., Chen, H. C., Maughan, D., & Heaston, S. (2015):** Factors that influence the development of compassion fatigue, burnout, and compassion satisfaction in emergency department nurses. *Journal of nursing scholarship*, 47(2), 186-194. <https://doi.org/10.1111/jnu.12122>
- Jeong, Y. J., & Shin, S. (2023):** The relationship between secondary traumatic stress and burnout in critical care nurses: The mediating effect of resilience. *Intensive and Critical Care Nursing*, 74, 103327. <https://doi.org/10.1016/j.iccn.2022.103327>
- Kelly, L. (2020):** Burnout, compassion fatigue, and secondary trauma in nurses: Recognizing the occupational phenomenon and personal consequences of caregiving. *Critical Care Nursing Quarterly*, 43(1), 73-80. DOI: 10.1097/CNQ.0000000000000293
- Kermott, C. A., Johnson, R. E., Sood, R., Jenkins, S. M., & Sood, A. (2019):** Is higher resilience predictive of lower stress and better mental health among corporate executives? *PloS one*, 14(6), e0218092. <https://doi.org/10.1371/journal.pone.0218092>
- Kılınc, T., & Sis Çelik, A. (2021):** Relationship between the social support and psychological resilience levels perceived by nurses during the COVID-19 pandemic: A study from Turkey. *Perspectives in Psychiatric Care*, 57(3), 1000-1008. <https://doi.org/10.1111/ppc.12648>
- Lee, H. J., Lee, M., & Jang, S. J. (2021):** Compassion satisfaction, secondary traumatic stress, and burnout among nurses working in trauma centers: a cross-sectional study. *International journal of environmental research and public health*, 18(14), 7228. <https://doi.org/10.3390/ijerph18147228>
- Lykins, A. B., Seroka, N. W., Mayor, M., Seng, S., Higgins, J. T., & Okoli, C. T. (2021):** Compassion satisfaction, burnout, and secondary traumatic stress Among nursing staff at an Academic Medical Center: A cross-sectional analysis. *Journal of the American Psychiatric Nurses Association*, 10783903211066125. <https://doi.org/10.1177/10783903211066125>
- Maillet, S., & Read, E. (2021):** Work Environment Characteristics and Emotional Intelligence as Correlates of Nurses' Compassion Satisfaction and Compassion Fatigue: A Cross-Sectional Survey Study. *Nursing Reports*, 11(4), 847-858. <https://doi.org/10.3390/nursrep11040079>
- Merlo, E. M., Sicari, F., Frisone, F., Alibrandi, A., & Settineri, S. (2021):** Burden and professional quality of life of caregivers: The clinical role of suppression and resilience. *Life Span and Disability*, 24(1), 55-83. http://www.lifespanjournal.it/client/abstract/ENG374_3.%20Merlo.pdf
- Metzger, J. A. (2014):** Adaptive defense mechanisms: function and transcendence.

- Journal of clinical psychology, 70(5), 478-488. DOI: 10.1002/jclp.22091
- Miranda, B., & Louzã, M. R. (2015):** The physician's quality of life: relationship with ego defense mechanisms and object relations. *Comprehensive Psychiatry*, 63, 22-29. <https://doi.org/10.1016/j.comppsyach..2015.07.012>
- Mooney, C., Fetter, K., Gross, B. W., Rinehart, C., Lynch, C., & Rogers, F. B. (2017):** A preliminary analysis of compassion satisfaction and compassion fatigue with considerations for nursing unit specialization and demographic factors. *Journal of trauma nursing*, 24(3), 158-163. <https://doi.org/10.1097/JTN.0000000000000284>
- Nolte, A. G., Downing, C., Temane, A., & Hastings Tolsma, M. (2017):** Compassion fatigue in nurses: A meta-synthesis. *Journal of clinical nursing*, 26(23-24), 4364-4378. <https://doi.org/10.1111/jocn.13766>
- Ondrejková, N., & Halamová, J. (2022):** Qualitative analysis of compassion fatigue and coping strategies among nurses. *International Journal of Nursing Sciences*, 9(4), 467-480. <https://doi.org/10.1016/j.ijnss.2022.09.007>
- Panfil, A. L., Frandes, M., Nirestean, A., Hurmuz, M., Lungeanu, D., Cristanovici, M., ... & Bredicean, C. (2020):** Interrelation between defensive mechanisms and coping strategies in psychiatry trainees in Romania: a multicenter study. *Annals of General Psychiatry*, 19, 1-9. <https://doi.org/10.1186/s12991-020-00307-1>
- Parola, V., Coelho, A., Neves, H., Bernardes, R. A., Sousa, J. P., & Catela, N. (2022):** Burnout and Nursing Care: A Concept Paper. *Nursing Reports*, 12(3), 464-471. <https://doi.org/10.3390/nursrep12030044>
- Perry, J. C. (2014):** Anomalies and specific functions in the clinical identification of defense mechanisms. *Journal of Clinical Psychology*, 70(5), 406-418. <https://doi.org/10.1002/jclp.22085>
- Prout, T. A., Malone, A., Rice, T., & Hoffman, L. (2019):** Resilience, defense mechanisms, and implicit emotion regulation in psychodynamic child psychotherapy. *Journal of Contemporary Psychotherapy*, 49, 235-244. <https://doi.org/10.1007/s10879-019-09423-w>
- Ruiz-Fernández, M. D., Pérez-García, E., & Ortega-Galán, Á. M. (2020):** Quality of life in nursing professionals: Burnout, fatigue, and compassion satisfaction. *International Journal of Environmental Research and Public Health*, 17(4), 1253. <https://doi.org/10.3390/ijerph17041253>
- Sacco, T. L., & Copel, L. C. (2018):** Compassion satisfaction: A concept analysis in nursing. *In Nursing forum* .53(1), 76-83.
- Settineri, S., Merlo, E. M., Frisone, F., Alibrandi, A., Carrozzino, D., Diaconu, C. C., & Pappalardo, S. M. (2019):** Suppression Mental Questionnaire App: a mobile web service-based application for automated real-time evaluation of adolescent and adult suppression. *Mediterranean Journal of Clinical Psychology*, 7(1). <https://doi.org/10.6092/2282-1619/2019.7.2056>
- Shehata, A. M. G. H., & Ramadan, F. (2017):** Relationship between emotional regulation strategies and self-reported ego defense styles among nursing interns at Alexandria Main University Hospital. *Indian Journal of Psychiatric Nursing*, 14(1), 3. DOI: 10.4103/2231-1505.262419
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008):** The brief resilience scale: assessing the ability to bounce back. *International Journal of behavioral medicine*, 15, 194-200. <https://doi.org/10.1080/10705500802222972>
- Hundall Stamm, B. (2009):** Professional quality of life measure: compassion, satisfaction, and fatigue version 5

- (ProQOL). Available at <https://cutt.us/yW7iO>. www.proqol.org.
- Stoewen, D. L. (2020):** Moving from compassion fatigue to compassion resilience Part 4: Signs and consequences of compassion fatigue. *The Canadian Veterinary Journal*, 61(11), 1207. PMID: 33149360; PMCID: PMC7560777.
- Sull, A., Harland, N., & Moore, A. (2015):** Resilience of health-care workers in the UK; a cross-sectional survey. *Journal of Occupational Medicine and Toxicology*, 10, 1-8. <https://doi.org/10.1186/s12995-015-0061-x>
- Sumanjali, S., Joseph, A., Samuel, K., & Jose, S. (2018):** Relationship between Emotional Regulation Strategies and Self-Reported Defense Mechanism of Nursing Students. *Triannual Journal*, 7(2), 37-40. <http://dx.doi.org/10.21088/jpn.2277.9035.7218.1>
- Vojvodić, A. R., Dedić, G., & Dejanović, S. Đ. (2017):** Defense Mechanisms and Quality Of Life in Military Personnel With Burnout Syndrome. *Vojnosanitetski preglad*, 76(3). <https://doi.org/10.2298/VSP170304114V>
- Xie, W., Wang, J., Okoli, C. T., He, H., Feng, F., Zhuang, L., ... & Jin, M. (2020):** Prevalence and factors of compassion fatigue among Chinese psychiatric nurses: A cross-sectional study. *Medicine*, 99(29). doi: [10.1097/MD.00000000000021083](https://doi.org/10.1097/MD.00000000000021083)
- Yilmaz, E. B. (2017):** Resilience as a strategy for struggling against challenges related to the nursing profession. *Chinese Nursing Research*, 4(1), 9-13. <https://doi.org/10.1016/j.cnre.2017.03.004>
- Yu, F., Raphael, D., Mackay, L., Smith, M., & King, A. (2019):** Personal and work-related factors associated with nurse resilience: A systematic review. *International Journal of nursing studies*, 93, 129-140. <https://doi.org/10.1016/j.ijnurstu.2019.02.014>
- Zakeri, M. A., Bazmandegan, G., Ganjeh, H., Zakeri, M., Mollaahmadi, S., Anbariyan, A., & Kamiab, Z. (2021):** Is nurses' clinical competence associated with their compassion satisfaction, burnout, and secondary traumatic stress? A cross-sectional study. *Nursing Open*, 8(1), 354-363. <https://doi.org/10.1002/nop2.636>
- Zhang, Y. Y., Han, W. L., Qin, W., Yin, H. X., Zhang, C. F., Kong, C., & Wang, Y. L. (2018):** Extent of compassion satisfaction, compassion fatigue, and burnout in nursing: A meta-analysis. *Journal of nursing management*, 26(7), 810-819. <https://doi.org/10.1111/jonm.12589>