

Association between Level of Stress and Somatic Symptoms among Nurses in Jeddah Psychiatric Hospital

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Abstract: Stress in the nursing profession can be very debilitating especially for psychiatric nurses who deal with mentally ill patients. Such patients may aggravate stress by becoming aggressive or violent. High-stress level among nurses caring for psychiatric patients can lead to somatic symptoms that will negatively affect their health, quality of life and quality of care given. Aim: To assess the association between level of stress and somatic symptoms among nurses in Jeddah Psychiatric Hospital. Methods: A correlational descriptive design with a convenience sampling technique was implemented to access 138 nurses in Jeddah psychiatric hospital using a self-reported questionnaire. A perceive stress scales (PSS) which was developed by Sheldon Cohen in 1983 was used to collect data regarding stress level. While, somatic symptoms scale-8 (SSS-8) Gierk et al. in 2013 has been utilized to collect data relating to the somatic manifestation of stress. Results: Nurses level of stress was found to be moderate, while somatic symptoms level was high and there was a statistically significant positive correlation between stress level and somatic symptoms ($r= 0.19$) Conclusion and recommendation: Findings indicates that the higher the stress levels, the more somatic symptoms manifestation among nurses working in Jeddah Psychiatric Hospital which indicates the need for stress management intervention via open communication forms, consulting, community cooperation or work environment modifications.

Keywords: Nurses, Psychiatric Nurses, Somatic, Somatic Symptoms, Stress, Stress level.

I. INTRODUCTION

Stress refers to the state of mental and emotional strain or suspense. Most nurses experience stress in their normal day-to-day activity and this normally hurts both professional performances, as well as the quality of healthcare provided. According to ^[1] stress, is linked to the development of somatic symptoms among nurses. Nurses may exhibit symptoms like back pain, abdominal pain, headache, and nausea ^[2].

The exact pathogenesis of how stress results in somatic symptoms is yet to be resolved but several studies have been done to find the direct correlation between the two aspects. One of them is ^[3] study which tells us that the strong link between neuroticism and somatization results in somatic symptoms. This implies that people with high levels of neuroticism are more likely to develop somatic symptoms when experiencing stress. Also, chronic and overwhelming stress usually has an adverse impact on the physical, emotional, and mental wellbeing of an individual ^[4].

Psychiatric nursing is a specialty within the nursing profession^[4]. Psychiatric nurses work in a challenging environment that is characterized by a high risk of stress^[5]. The constant dissatisfaction and complaints from patient's nurses dealing with and the fact that these nurses operates in a locked ward entrances in an increasing probability of patient conflict and aggression which increases the risk for higher stress levels among them^[6].

There is a need to conduct a study that will identify the extent of stress among nurses situated in Jeddah psychiatric hospital, as stress can negatively affect the quality of healthcare provided, their performance, their health and cause negative and serious implication both on their physical and mental health. This can be done by aiming at assessing the association between level of stress and somatic symptoms among nurses working in a Jeddah psychiatric hospital. For the current research, the topic focuses on stress and how deeply it affects psychiatric nurses (physically & mentally) and their work performance by assessing the nurses level of stress, identifying the somatic symptoms among them and correlating the existence of the relationship between level of stress and somatic symptoms among nurses working in Jeddah psychiatric hospital.

II. MATERIALS & METHODS

A correlational quantitative descriptive design with a convenience sampling technique was implemented to access 138 nurses in Jeddah psychiatric hospital using a self-reported questionnaire. A perceive stress scales (PSS) which was developed by^[6] was used to collect data regarding stress levels. This 5-point Likert scale instrument comes with a scores range from 0 to 40 with the higher scores indicates an increase in stress levels and vice versa. While, somatic symptoms scale-8 (SSS-8) by^[7] has been utilized to collect data relating to the somatic manifestation of stress. This 5-point Likert scale ranged from 0 to 4 where 0 indicates "not at all" and 4 indicates "very much" has a score range from 0 to 32 of which 0-3 points indicates minimal manifestation, 4-7 low manifestation, 8-11 medium manifestation, 12-15 points express a high level of somatic symptoms manifestation and 16-32 indicates a very high level of somatic symptoms manifestation. The reliability has been tested to measure internal consistency of items, using Cronbach alpha coefficient on April/2019 by conducting the internal consistency, and the Cronbach's alpha is used at ($\alpha > 0.7$). The results indicate that there were significant correlations between items for PSS ranged between ($r=0.34$, $p < 0.05$) and ($r=0.45$, $p < 0.05$), and Cronbach's alpha ($\alpha=0.74$). Also, SSS-8 achieved a good result, there were significant correlations between the items ranged between ($r=0.45$, $p \leq 0.05$) and ($r=0.68$, $p \leq 0.05$), and Cronbach's alpha ($\alpha=0.83$).

Before embarking on the actual study, a survey from 13 nurses included in pilot study was collected according to the estimated study sample size and no modification was done. The printed research questionnaires were distributed during 31-08 to 05-10 of 2019 to the head nurses in each department, then the head nurses distributed the questionnaires to the nurses to be filled and re-collected after 8 hours in which the researcher was present for any questions.

Data entry and statistical analysis was done using the SPSS tool version 23. The research used statistical methods that included inferential and descriptive methods in analyzing the collected data, among them mean value, frequencies, standard deviations, chi square test and Pearson correlation test to determine the correlation of stress levels and somatic symptoms.

III. RESULTS

A total of 138 nurses had participated in the study including 92.8% female and only 7.2% male, their age ranged between 23 and 52 years old. The majority of them are married (57.2%) and 51 single (37%) and only 5.8% were divorced. Most of the participants were Saudi 90.6% and only 9.4% were non-Saudi. Close to a half of the participants had an experience between 6 and 10 years (48.6%) and 23.9% nurses had work experience between 11 and 15 years, 18.8% of nurses had 1-5 years of experience, and only 12 nurses (8.7%) had an experience of 16 years and more. As working in psychiatric hospital experience ranged between less than a year for 5 nurses (3.6%) and only 2 for 16 years and above, 59.4% of nurses had psychiatric hospital experienced for 1-5 years, 28.3% nurses had psychiatric hospital experienced for 6-10 years, and 7.2% nurses had experienced for 11-15 years. Also 100 nurses (72.5%) were patient-side nurse and only 38 nurses (27.5%) were in administrative, managerial or educational position. The study is conducted in four departments: Administration, Emergency Room (ER), Out-patient (OPD) and In-patient (three male and two female wards) with a percentage ranged from 21.7% to 30.4%. The nurses worked in two shifts, 54.3% nurses worked in fixed morning shift and 45.7% nurses worked in rotational shifts. More than a half (52.2%) were satisfied with their salary, while 40.6% nurses were unsatisfied and only 6.5% nurses noticed that their salary was more than enough for them.

Table I: Distribution of the mean scores of participants' level of Perceived Stress Scale (n=138)

levels of Perceived Stress Scale	Study Participants (n=138)				
	n	Min	Max	Mean	±SD
Low Stress	1	12	12	12.00	
Moderate Stress	132	15	26	20.81	±2.30
High perceived Stress	5	27	29	27.60	±0.89
				20.99	±2.70

As showed in table: I nurses suffer from stress at a moderate level (M=20.99 ±2.70) with min=12 and max=29. 132 nurses measured their stress as a moderate level (M=8.94 ±1.11). 5 nurses were at a level of high stress (M=27.60 ±0.89), and only one nurse had low stress level (M=12.00).

Table II: the relationship between socio-demographic and work-experience characteristics of participants and Perceived Stress Scale (n=138)

Factor	Category	Perceived Stress Scale				X ² /p
		Low Stress	Moderate Stress	High Stress	Total	
Sex	Male	0	10(100%)	0	10(7.25%)	2.95/0.82
	Female	1(0.78%)	122(95.31%)	5(3.91%)	128(92.75%)	
Age	20-29 Years Old	1(2.56%)	37(94.87%)	1(2.56%)	39(28.26%)	0.49/0.78
	30-39 Years Old	0	78(96.30%)	3(3.70%)	81(58.70%)	
	40-49 Years Old	0	16(94.12%)	1(5.88%)	17(12.32%)	
	50 Years Old and Above	0	1(100%)	0	1(0.72%)	
Marital State	Single	0	48(94.12%)	3(5.88%)	51(36.96%)	2.05/0.73
	Married	1(1.27%)	76(96.20%)	2(2.53%)	79(57.25%)	
	Divorced	0	8(100%)	0	8(5.80%)	
Nationality	Saudi	1(0.80%)	119(95.20%)	5(4.00%)	125(90.58%)	0.65/0.72
	Non-Saudi	0	13(95.20%)	0	13(9.42%)	
Job Title	Director / Supervisor / Educator	0	37(97.37%)	1(2.63%)	38(27.54%)	0.54/0.76
	In/out-patient nurse	1(1.00%)	95 (95%)	4(4.00%)	100(72.46%)	
Years of Work Experience	1-5 Years	0	25 (96.15%)	1(3.85%)	26(18.84%)	3.64/0.88
	6-10 Years	1(1.49%)	64(95.52%)	2(2.99%)	67(48.55%)	
	11-15 Years	0	32(96.97%)	1(3.03%)	33(23.91%)	
	16-20 Years	0	5(100%)	0	5(3.62%)	
	21 Years and above	0	6(85.71%)	1(14.29%)	7(5.07%)	
Years of Psychiatric Work Experience	Less than a year	0	4(80.00%)	1(20.00%)	5(3.62%)	6.84/0.55
	1-5 Years	1(1.22%)	77(93.90%)	4(4.88%)	82(59.42%)	
	6-10 Years	0	39(100%)	0	39(28.26%)	
	11-15 Years	0	10(100%)	0	10(7.25%)	
	16 Years and Above	0	2(100%)	0	2(1.45%)	
Ward	Administration	0	28(85.71%)	2(6.67%)	30(21.745)	5.29/0.51
	ER	0	29(93.55%)	2(6.45%)	31(22.46%)	
	Out-patient	0	35(100%)	0	35(25.36%)	
	In-patient	1(2.38%)	40(95.24%)	1(2.38%)	42(30.43%)	

Work Shifts	Fixed Morning shift	0	72(96.24%)	3(4.00%)	75(54.35%)	1.26/0.53
	Rotational Shifts	1(1.59%)	60(95.24%)	2(3.17%)	63(45.65%)	
Salary	More Than Enough	0	9(100%)	0	9(6.52%)	1.85/0.76
	Enough	0	69(95.83%)	3(4.17%)	72(52.17%)	
	Not Enough	1(1.79%)	53(94.64%)	2(3.57%)	56(40.58%)	
**Chi Square (X^2) is significant						

This study assessed the differences between the socio-demographic and work-experience characteristics of study participants and the perceived stress scale. Although the statistical results indicated no statistical differences, the research findings indicated that married nurses had higher stress levels than their counterparts who are either single or divorced.

Also, nurses with six to ten years of experience in practice had higher levels of stress compared to those nurses with one to five-year experience. Also, the study findings noticed nurses working in an in-patient departments reported significantly increased levels of stress than nurses in other departments, and although there were statistically no differences for the perceived stress scale level of all socio-demographic and work experience characteristics ($p > 0.05$). But the interesting findings indicate that levels of PSS were restricted to moderate stress level.

Table III: Distribution of the mean scores of participants' somatic symptoms scale levels (n=138)

Somatic Symptoms Scale Levels	Study Participants (n=138)				
	n	Min	Max	Mean	±SD
Low	16	0	7	4.69	±2.41
Medium	18	8	11	8.94	±1.11
High	104	12	32	19.20	±4.62
				16.18	±6.79

As shown in Table: III somatic symptoms scale shows a level of high somatic symptoms ($M=16.18 \pm 6.79$) with min= zero and mix=32. 104 nurses showed high somatic symptoms level ($M=19.20 \pm 4.62$). 18 nurses measured their somatic symptoms as a medium level ($M=8.94 \pm 1.11$), and 16 nurses were at a low level of somatic symptoms ($M=4.69 \pm 2.41$).

Table IV: the relationship between socio-demographic and work-experience characteristics of participants and SSS-8 (n=138)

Factor	Category	Somatic Symptoms Scale				X^2/p
		Low	Medium	High	Total	
Sex	Male	1(10%)	1(10%)	8(80%)	10(7.25%)	0.13/0.94
	Female	15(11.72%)	17(13.28%)	96(75%)	128(92.75%)	
Age	20-29 Years Old	4(10.26%)	4(10.26%)	31(79.49%)	39(28.26%)	8.18/0.23
	30-39 Years Old	9(11.11%)	10(12.35%)	62(76.54%)	81(58.70%)	
	40-49 Years Old	3(17.65%)	3(17.65%)	11(64.71%)	17(12.32%)	
	50 Years Old and Above	0	1(100%)	0	1(0.72%)	
Marital State	Single	3(5.88%)	7(13.73%)	41(80.39%)	51(36.96%)	3.46/0.48
	Married	11(13.92%)	10(12.66%)	58(73.42%)	79(57.25%)	
	Divorced	2(25%)	1(12.50%)	5(62.50%)	8(5.80%)	
Nationality	Saudi	13(10.40%)	17(13.60%)	95(76%)	125(90.58%)	2.02/0.36
	Non-Saudi	3(23.08%)	1(7.69%)	9(69.23%)	13(9.42%)	
Job Title	Director / Supervisor / Educator	2(5.26%)	9(23.68%)	27(71.05%)	38(27.54%)	6.49**/0.04

	In/out-patient nurse	14(14%)	9(9%)	77(77%)	100(72.46%)	
Years of Work Experience	1-5 Years	1(3.85%)	2(7.69%)	23(88.46%)	26(18.84%)	17.50**/0.03
	6-10 Years	9(13.43%)	10(14.93%)	48(71.64%)	67(48.55%)	
	11-15 Years	2(6.06%)	3(9.09%)	28(84.85%)	33(23.91%)	
	16-20 Years	2(40%)	0	3(60%)	5(3.62%)	
	21 Years and above	2(28.57%)	3(42.86%)	2(28.57%)	7(5.07%)	
Years of Psychiatric Work Experience	Less than a year	1(20%)	0	4(80%)	5(3.62%)	8.73/0.37
	1-5 Years	9(10.98%)	11(13.41%)	62(75.61%)	82(59.42%)	
	6-10 Years	5(12.82%)	5(12.82%)	29(74.36%)	39(28.26%)	
	11-15 Years	0	1(10%)	9(90%)	10(7.25%)	
	16 Years and Above	1(50%)	1(50%)	0	2(1.45%)	
Ward	Administration	3(10%)	10(33.33%)	17(56.67%)	30(21.74%)	16.46**/0.01
	ER	5(16.13%)	3(9.68%)	23(74.19%)	31(22.46%)	
	Out-patient	3(8.57%)	4(11.43%)	28(80%)	35(25.36%)	
	In-patient	5(11.11%)	1(2.38%)	36(85.71%)	42(30.43%)	
Work Shifts	Fixed Morning shift	9(12%)	14(18.67%)	52(69.33%)	75(54.35%)	4.80/0.09
	Rotational Shifts	7(11.11%)	4(6.35%)	52(82.54%)	63(45.65%)	
**Chi Square (X^2) is significant						

As showed in Table: IV chi square test results indicate that there were statistically no differences for SSS-8 level of all socio-demographic characteristic ($p>0.05$) but there were statistically differences for somatic symptoms level in only 3 categories of work-experience characteristics (job title, years of work experience and ward). The Chie square test for job title category indicate that there were significant differences between its group ($X^2 = 6.49, p<0.05$). The chi square test for years of work experience category indicate that there were significant differences between its group ($X^2 = 17.5, p<0.05$), The chi square test for ward category indicate that there were significant differences between its group ($X^2 = 16.46, p<0.05$). the interesting results show that levels of SSS-8 were restricted to high somatic symptoms level for all socio-demographic and work-experience characteristics categories.

Table: V Chi square and correlation and between somatic symptoms scale and perceived stress scale (n=138).

	SSS-8				Total	X^2/p	Correlation (r)
	Level	Low	Medium	High			
PSS	Low Stress	1 (100%)	0	0	1 (0.72%)	10.73**/ 0.03	0.19*
	Moderate Stress	14 (10.62%)	18 (13.63%)	100 (75.75%)	132 (95.65%)		
	High Stress	1 (20%)	0	4 (60%)	5 (3.62%)		
		16 (11.59%)	18 (13.04%)	104 (75.36%)	138 (100%)		
*Correlation is significant at the 0.05 level (2-tailed).							
**Chi Square (X^2) is significant							

Chi square test results indicate that there was a statistical difference between the group ($X^2=10.73 p<0.05$) as shown in table: V.

A significant result shows that 132 nurses (95.65%) measured them-selves as moderately stressed. Including 100 nurses (75.75%) with high somatic symptoms level, 18 nurses (13.63%) with a medium somatic symptoms level, and 14 nurses (10.62%) with low somatic symptoms level. Only one nurse (0.72%) had low stress level and 5 nurses (3.62%) had high stress level.

Pearson correlation was conducted to test the relationship between PSS and SSS-8 at $p < 0.05$. There was a positive low relationship between PSS and SSS-8 ($r = 0.19$, $p < 0.05$), this means the more Perceived Stress level the more Somatic Symptoms level.

IV. DISCUSSION

The present research showed that the mean score of perceived stress scale of many participants remained at moderate levels. Only a few participants nurses experienced either low or high perceived stress levels. The close analysis showed that no statistically significant differences exist between various demographic factors behind the increased in perceived stress levels among those 138 nurses of interest. The expectation for maximum results in the work environment through the provision of quality of service while under pressure maybe a leading cause of stress among nurses that can be difficult and stressing, for example, it promotes exhausting among them in accordance with ^[8] who stated that the many demands that come with the patient care and decision-making process promotes stress among nurses that in-turn contributes to illnesses among nurses. Another factor leading to increased stress levels among psychiatric nurses in Jeddah Psychiatric Hospital may be the lack of proper staffing combined with poor working environment which may attribute to increase stress among them. One other reason maybe organizational changes or board management changes that may lead to ambiguity about future among nurses which leads to increase their stress levels. This finding is consistent with the finding of ^[9] and ^[10].

The present study showed that the majority of nurses had high somatic symptoms level while around quarter of participant expressed between medium and low somatic symptoms level. One major factor behind high somatic symptoms level among nurses working in Jeddah psychiatric hospital maybe unsupportive work environment, which include poor management, work-overload and work-demand that may contribute to somatic symptoms like anxiety and fatigue which promotes feeling of lack of purpose and support, this finding in agreement with ^[11], ^[9] and ^[12].

As regards the Association between level of stress and somatic symptoms among nurses in Jeddah Psychiatric Hospital, the analysis shows that nurses with high level of perceived stress, have experienced a high level of somatic symptoms. This result indicate that stress level has a direct impact on the somatic symptoms, therefore, there is a positive correlation between the level of perceived stress and somatic symptoms a nurse may experience. A nurse might receive some form of mistreatment or abuse from any untitled source like patient colleagues, administration members or even family situation. Nurses as a defense mechanism may suppress those past ordeals, which will eventually convert to physical symptoms like restlessness, sleeplessness and anxiety which may grow to illness like the depression or backache for instance. These findings agree with ^[12], ^[3], ^[13] and ^[14].

V. CONCLUSION

A nurse's level of stress is directly proportionate to the somatic symptoms the nurse may have or collect from different sectors including the work environment. Psychiatric nurses, for instance, work in a highly unpredictable environment where patients might prove uncooperative, reluctant, or disrespectful during the practice. Such conditions may promote a sense of lack of work fulfillment for the nurse that may set off an entire chain of action leading to increased stress levels at the workplace. Unconducive and unsupportive work environments like those of nurses working at Jeddah psychiatric hospitals also promote increased stress levels among nurses. Somatic symptoms may result in physical or psychological effects like depression on nurses, proving the importance of analyzing their origin for effective mitigation. The result of this study showed that the majority of nurses in Jeddah psychiatric hospitals have moderate stress level and a high level of somatic symptoms. However, there is a statistically significant relationship between nurses' level of stress and the presence of somatic symptoms which indicates the need for stress management intervention via open communication forms, consulting, community cooperation or work environment modifications. This study highlights the need to conduct a detailed and in-depth investigation into this issue in order to get an accurate description of its severity and encourage evidence-based action which can reverse stress and the resulting psychological and somatic effects. Therefor, organization administration needs to periodically check stress level among nurses in their organization for the purpose of early detection of stress level and its negative effect on nurses. Also, actions aiming at increasing nurse's awareness about somatic symptoms and its relationship with stress levels, especially with psychiatric nursing through training programs, is needed in order to provide support, care, and assistance for the nurses. Achieving work-life balance is also necessary throughout the enhance of cooperation between nursing administration and community, including family members by explaining why and how to support nurses to carry out their profession.

REFERENCES

- [1] Adriaenssens J, De Gucht V, Maes S. Causes and consequences of occupational stress in emergency nurses, a longitudinal study. *Journal of Nursing Management*. 2013;23(3):346-358.
- [2] Alenezi A, Aboshaiqah A, Baker O. Work-related stress among nursing staff working in government hospitals and primary health care centres. *International Journal of Nursing Practice*. 2018;24(5):e12676.
- [3] Zunhammer M, Eberle H, Eichhammer P, Busch V. Somatic Symptoms Evoked by Exam Stress in University Students: The Role of Alexithymia, Neuroticism, Anxiety and Depression. *PLoS ONE*. 2013;8(12):e84911.
- [4] Psychiatric-Mental Health Nurses - American Psychiatric Nurses Association [Internet]. *Apna.org*. 2019 [cited 29 March 2020]. Available from: <https://www.apna.org/i4a/pages/index.cfm?pageid=3292>
- [5] Zaki R. Job stress and self- efficacy among psychiatric nursing working in mental health hospitals at Cairo, Egypt. *Journal of Education and Practice*. 2016;7(2):103-113.
- [6] Cohen S, Kamarck T, Mermelstein R. A Global Measure of Perceived Stress. *Journal of Health and Social Behavior*. 1983;24(4):386-396.
- [7] Gierk, B., Kohlmann, S., Kroenke, K., Spangenberg, L., Zenger, M., Elmar Brähler, E. & Löwe, B. The Somatic Symptom Scale–8 (SSS-8). A Brief Measure of Somatic Symptom Burden. *JAMA Internal Medicine*, 174(3), 399-407
- [8] Botha E, Gwin T, Purpora C. The effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol. *JBIR Database of Systematic Reviews and Implementation Reports*. 2015;13(10):21-29.
- [9] Trousselard M, Dutheil F, Naughton G, Cosserant S, Amadon S, Dualé C et al. Stress among nurses working in emergency, anesthesiology and intensive care units depends on qualification: a Job Demand-Control survey. *International Archives of Occupational and Environmental Health*. 2016;89(2):221-229.
- [10] Higashide Y, Izugami S, Takase K. Influence of nurses' work environment on their self-evaluation of nursing work. *Journal of Medical and Dental Sciences*. 2019;66(2):31-42.
- [11] Riaz M, Ahmad N, Riaz M, Murtaza G, Khan T, Firdous H. Impact of job stress on employee job satisfaction. *International Review of Management and Business Research*. 2016;5(4):1370-1382.
- [12] Delgado C, Upton D, Ransie K, Furness T, Foster K. Nurses' resilience and the emotional labour of nursing work: An integrative review of empirical literature. *International Journal of Nursing Studies*. 2017;70:71-88.
- [13] De Gucht V, Fischler B, Heiser W. Job stress, personality, and psychological distress as determinants of somatization and functional somatic syndromes in a population of nurses. *Stress and Health*. 2003;19(4):195-204.
- [14] Gu B, Tan Q, Zhao S. The association between occupational stress and psychosomatic wellbeing among Chinese nurses. *Medicine*. 2019;98(22):e15836.