

Anxiety and Depression among the Nursing Staff, Saudi Arabia

Khalid A Alharbi¹, Abdulmajeed A Alharbi², Faris S Althunayyan³,
Khalid A Suhaibani⁴, Hamood A Alharbi⁵, Ibrahim S Albahouth⁶, Azzam O Alyahya⁷,
Ahmad A Alrasheedi⁸ & Abdullah M Aljurayyed¹

¹ Psychiatry Department, Ministry of Health, Mental Health and Eradah Center, Qassim, Saudi Arabia

² Internal Medicine Department, Ministry of Health, Qassim Cluster, Saudi Arabia

³ General Pediatric Department, Ministry of National Guard- Health Affairs, Riyadh, Saudi Arabia

⁴ Medical Imaging Department, Ministry of National Guard-Health Affairs, Riyadh, Saudi Arabia

⁵ Cardiology Department, King Fahad Specialist Hospital, Qassim, Saudi Arabia

⁶ Consultant Psychiatry, Ministry of Health, Mental Health and Eradah Center, Qassim, Saudi Arabia

⁷ Psychiatry Department, Ministry of Health, King Fahad Specialist Hospital, Qassim, Saudi Arabia

⁸ Department of Family Medicine, Qassim University, Qassim, Saudi Arabia

Correspondence: Khalid A Alharbi, Psychiatry Department, Ministry of Health, Mental Health and Eradah Center, Qassim, Saudi Arabia. E-mail: Khalidabuharby@gmail.com

Received: April 3, 2023 Accepted: April 27, 2023 Online Published: April 28, 2023

doi:10.5539/gjhs.v15n4p49

URL: <https://doi.org/10.5539/gjhs.v15n4p49>

Abstract

Background: Anxiety and depression are the most common mental problems that may affect workers' productivity. Diagnosing these disorders and determining their predisposing factors helps improving quality and productivity of workers; particularly nurses, with a positive impact on quality of service provided and as a preventive measure would save the cost of management of such disorders.

Participants and Methods: This questionnaire-based cross-sectional study was conducted between December 2021 and March 2022 and anonymously and voluntarily invited 250 nurses. Data were collected included the socio-demographic, anthropometric and life style data of participants and items of hospital anxiety and depression scale questionnaire. SPSS was used for data analysis that were presented as mean \pm SD and frequencies; number (n) and percentage (%).

Results: Consented 215 nurses were enrolled giving a response rate of 86%. The mean \pm SD score of anxiety was 8.4 ± 3.9 and the mean \pm SD score of depression was 6.6 ± 3.9 and varied significantly by gender. The prevalence of anxiety and depression was 28.8% and 16.7%, respectively. There was significant association between anxiety and hospital location, body mass index, physical activity and overtime work.

The hospital location, South Asian ethnicity, smoking, physical activity and night shift were all showed significant association with depression.

Conclusion: Our figures are much lower than some international and national studies but still are higher than others. However, they are alarming to the needs of changes to improve the quality of nurses' life so as to ensure better healthcare services that save both sides the emotional and economic burden.

Keywords: Anxiety, depression, nurses, hospitals, mental problems, Qassim, Saudi Arabia

1. Introduction

Anxiety and Depression are common conditions with prevalence ranging from 10 - 20% in the general population (Center et al., 2003). The global point prevalence of major depressive episode is 4.7%, the annual incidence is 3.0% (Ferrari et al., 2013) and the global prevalence of anxiety disorders is 7.3% (Baxter et al., 2013). The Global Burden of Disease 2010 identified depressive disorders as a leading cause of burden and also a contributor risk factor to suicide and ischemic heart disease (Ferrari et al., 2010). These findings emphasize the importance of considering depressive disorders as a public-health priority and cost-effective interventions to reduce its burden should be implemented.

In Saudi Arabia, 41% of participants were normal based on Beck Depression Inventory (BDI-II) score. The remaining participants had different levels of mood disturbances and 17% had moderate to extremely severe depression (Joury et al., 2014). Many workers with depressive and anxiety disorders had problems with functioning at work. Workers with depressive or anxiety disorders had more absence from work and a poorer on-the-job work performance. However, high job support and reduced working hours were partially related to work functioning in both workers with- and without these disorders (Plaisier et al., 2012).

As these anxiety and depression are difficult to quantify, many efforts have been made trying to operationally define and assess both disorders, either through subjective scale like the State-Trait Anxiety Inventory (STAI) or Hospital Anxiety and Depression (HAD) Scale, or in an indirect objective way through hemodynamic parameters, among others (Zigmond et al., 1983; Lisspers et al., 1997). HAD scale is self-assessment tool which is a dependable tool for discovering anxiety and depression among hospital and also medical outpatient clinic (Zigmond et al., 1983; Lisspers et al., 1997).

Multiple studies done on emergency nurses showed that there was association between working stress and mild psychological illnesses (Stathopoulou et al., 2011). Sleep deprivation, depressed and anxious states were the most usually reported manifestations (Stathopoulou et al., 2011). Based on a study in Brazil using HAD scale, the rate of anxiety and depression symptoms among nurses in surgical units was 31.3% and 24.2%, respectively (Schmidt et al., 2011). Another study was done in Riyadh, Saudi Arabia using the same scale showed anxiety rate was 20% and depression rate was 10% (Abbas et al., 2013). One of the studies showed that mindfulness has a role in decreasing mental health problems (Pezaro et al., 2017).

The current study was carried out to determine the prevalence and associated factors for anxiety and depression using HAD scale among nursing staff of the 4 major governmental hospitals in Qassim Region, Saudi Arabia.

2. Participants and Methods

2.1 Study Design

A cross-sectional study was conducted in the period from December 2021 until March 2022 among nursing staff of governmental hospitals in Qassim Region, Saudi Arabia. These hospitals included Buraidah Central Hospital, King Fahad Specialist Hospital, Maternity and Children Hospital, and Armed Forces Hospital. This research was approved by the Regional Ethical Committee in the Qassim region (Registration No. H-04-Q-001).

2.2 Population and Sample

The study population included consented nurses registered in the 4 major governmental hospitals in Qassim region. The exclusion criteria were nurses in the primary health care and private sector. The estimated sample size was calculated to be 215, assuming that the lowest prevalence was 10% with a confidence interval 95% and desired precision of 0.05.

2.3 Data Collection Instruments

Data were anonymously collected using a structured questionnaire that contained socio-demographic information and HAD scale. The Arabic version was validated by a previous study done on 110 patients and most patients found the HADs questions to be clear and easy to understand and thought the questionnaire items covered all their problem areas regarding their hospital anxiety and depression (Terkawi et al., 2017). The 60 self-administered questionnaires were distributed for every hospital. The scale contains 14 multiple-choice questions, with two sub-scales: anxiety (HADs-A) and depression (HADs-D), with seven items in each domain. Scores for each item ranged from zero to three as follows: (0) not at all, (1) occasionally, (2) lots of the time, (3) most of the time. The global score for each subscale ranges from zero to 21 and interpreted the scores. It was considered that, the higher the score, the greater the chance that the person would develop an anxiety and/or depression disorder (Zigmond et al., 1983). The cut-off point for normal score is ≤ 7 , 8-10 scores are classified as borderline, and, scores ≥ 11 , are tagged as probable clinical case.

2.4 Data Analysis

Statistical Package for Social Sciences (SPSS, version 21) was used for data analysis. Data were described using means \pm standard deviations (SD) for continuous variables and proportions for categorical variables. Chi-square test was used to assess the statistical significance of the difference in the percentages among different groups for categorical data. Comparison of continuous variables among different groups was done using the student's unpaired t-test. A probability (p) value $<$ or equal to 0.05 was considered statistically significant.

3. Results

Out of 250 nurses targeted, a total of 215 of nurses participated in the study (a participation rate of 86%). The mean age of nurses was 30.1 ± 4.9 years. The mean duration of working hours per day was 8.9 ± 1.6 hr and the average length of the working experience at the specified hospital was 3.7 ± 3.9 years. The participants' sociodemographic, work, BMI and relevant lifestyle characteristics are presented in Table 1.

Table 1. Descriptive analysis for socio-demographic, work, BMI and relevant lifestyle characteristics of the study nurses (n = 215). Data presented are frequencies; n (%)

Study variable		n (%)
Age:	$\leq 30 / > 30$ years	142 (66.0%)/73 (34.0%)
Gender:	Male/Female	33 (15.3%)/182 (84.7%)
Hospital location:	Buraidah Central Hospital	59 (27.4%)
	King Fahad Specialist Hospital	52 (24.2%)
	Maternity and Children Hospital	40 (18.6%)
	Armed Forces Hospital	64 (29.8%)
Marital status:	Single/Married	124 (57.7%)/91 (42.3%)
Nationality:	South Asia	119 (55.3%)
	Middle East	73 (34.0%)
	Southeast Asia	20 (9.3%)
	African or Western	03 (01.4%)
BMI, kg/m ² :	Underweight	19 (08.8%)
	Normal	157 (73.0%)
	Overweight/Obese	39 (18.1%)
Physical activity:	Yes/No	158 (73.5%)/57 (26.5%)
Night shift:	Yes/No	95 (44.2%)/120 (55.8%)
Overtime work:	Yes/No	110 (51.2%)/105 (48.8%)

Tables 2 and 3 shows the attitude of nurses towards anxiety and depression item analyzed, respectively.

Table 2. Attitude of nurses towards anxiety (n = 215). Data shown are frequencies; n (%).

Item	Not at all	Occasionally	Lots of the time	Most of the time
1 I feel tense or wound up	27 (12.6%)	120 (55.8%)	39 (18.1%)	29 (13.5%)
2 I get a sort of frightened feeling as if something awful is about to happen	28 (13.0%)	77 (35.8%)	87 (40.5%)	23 (10.7%)
3 Worrying thoughts go through my mind	59 (27.4%)	80 (37.2%)	53 (24.7%)	23 (10.7%)
4 I can sit at ease and feel relaxed	68 (31.6%)	75 (34.9%)	57 (26.5%)	15 (07.0%)
5 I get a sort of frightened feeling like "butterflies" in the stomach	57 (26.5%)	104 (48.4%)	43 (20.0%)	11 (05.1%)
6 I feel restless as I have to be on the move	48 (22.3%)	96 (44.7%)	54 (25.1%)	17 (07.9%)
7 I get sudden feelings of panic	56 (26.0%)	97 (45.1%)	51 (23.7%)	11 (05.1%)

Table 3. Attitude of nurses towards depression (n = 215). Data shown are frequencies; n (%)

Item	Not at all	Occasionally	Lots of the time	Most of the time
1 I still enjoy the things I used to enjoy	82 (38.1%)	75 (34.9%)	49 (22.8%)	09 (04.2%)
2 I can laugh and see the funny side of things	108 (50.2%)	61 (28.4%)	33 (15.3%)	13 (06.0%)
3 I feel cheerful	64 (29.8%)	98 (45.6%)	43 (20.0%)	10 (04.7%)
4 I feel as If I am slowed down	37 (17.2%)	121 (56.3%)	31 (14.4%)	26 (12.1%)
5 I have lost interest in my appearance	83 (38.6%)	60 (27.9%)	60 (27.9%)	12 (05.6%)
6 I look forward with enjoyment to things	100 (46.5%)	63 (29.3%)	41 (19.1%)	11 (05.1%)
7 I can enjoy a good book or radio or TV program	85 (39.5%)	87 (40.5%)	27 (12.6%)	16 (07.4%)

Based on HAD scale, the mean \pm SD of anxiety score was 8.4 ± 3.9 and the mean \pm SD score of depression was 6.6 ± 3.9 , Table 4. The results of anxiety levels among nurses showed that 43.7% were normal, 27.4% were borderline cases and 27.4% were anxious cases. The level of depression revealed that the normal cases were 121 (56.3%), borderline cases were 58 (27.0%), and depressed cases were 36 nurses (16.7%).

Table 4. Prevalence of depression and anxiety among nurses (n = 215). Data shown are mean \pm SD and frequencies; n (%)

Factor	Results
Anxiety total score:	8.4 ± 3.9
Level of anxiety among nurses:	Normal Borderline Abnormal
	94 (43.7%) 59 (27.4%) 62 (28.8%)
Anxiety of nurses:	Probable anxiety/Not anxious
	62 (28.8%)/153 (71.2%)
Depression total score:	6.6 ± 3.9
Level of depression among nurses:	Normal Borderline Abnormal
	121 (56.3%) 58 (27.0%) 36 (16.7%)
Depression of Nurses:	Not depressed/Depressed
	179 (83.3%)/36 (16.7%)

Table 5 reports the comparison between attitude of nurses' towards anxiety in relation to investigated characteristics of participants with the univariate Chi-square test p values which indicates whether the association is statistically significant or not. It was revealed that hospital location ($p < 0.001$), nationality ($p = 0.040$), BMI ($p = 0.014$), physical activity ($p = 0.003$), overtime work ($p = 0.013$) and depression of nurses ($p < 0.001$) were all statistically significant (Figures 1 - 3).

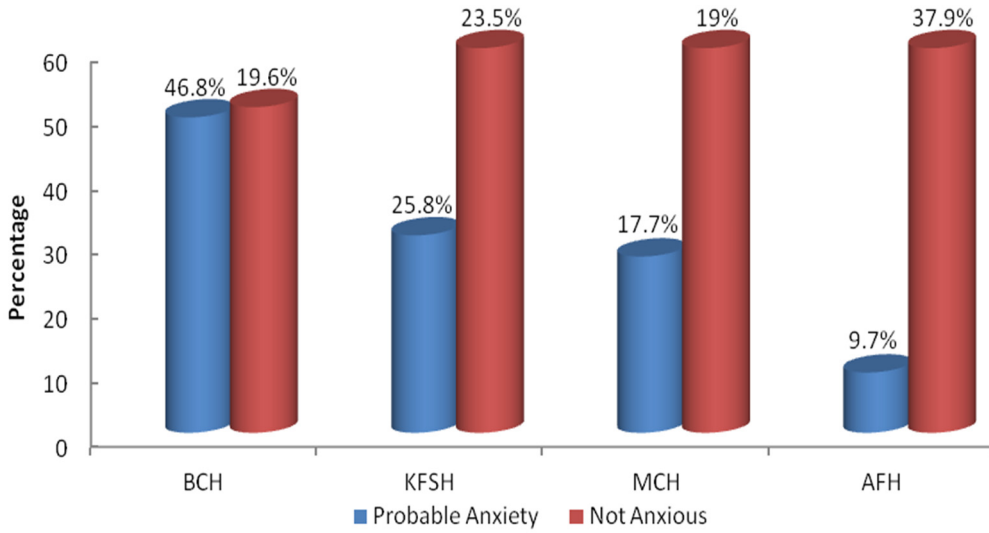


Figure 1. Percentage comparison between hospital locations versus anxiety of nurses

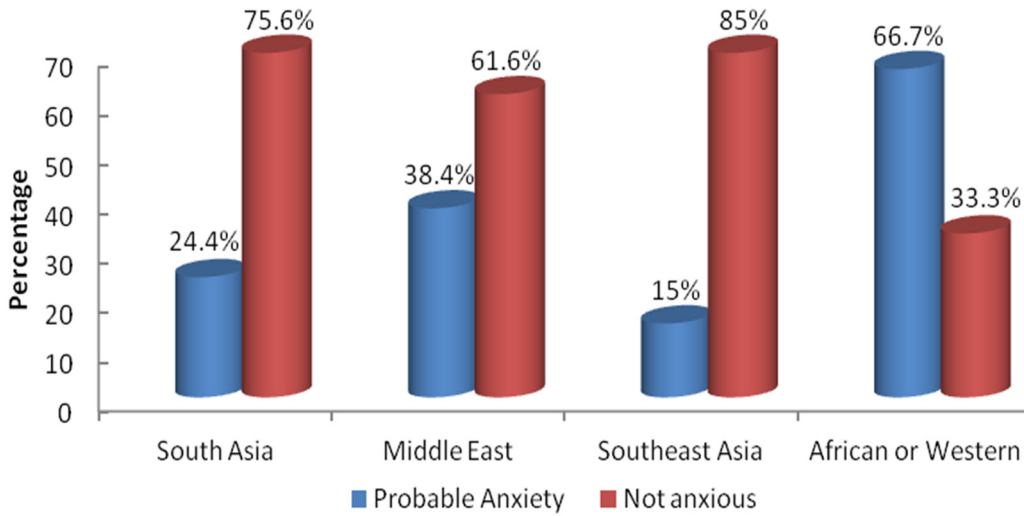


Figure 2. Percentage distribution of nurses' anxiety among their different nationalities

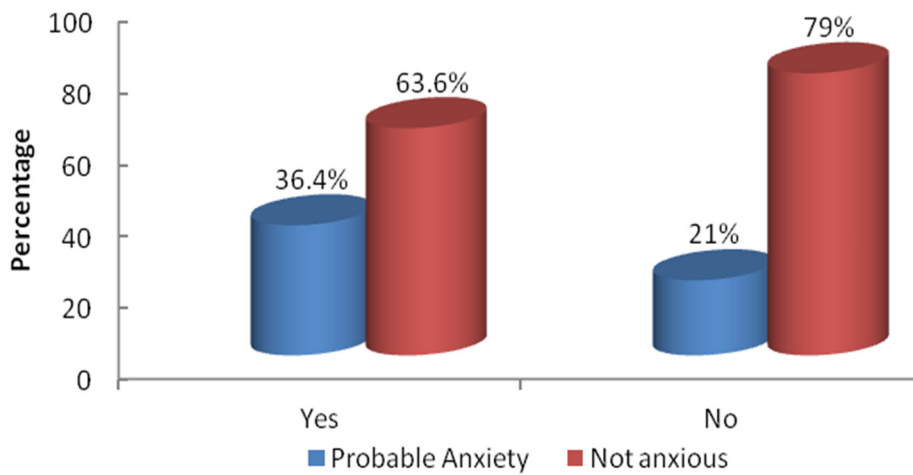


Figure 3. Percentage distribution of nurses' anxiety vs. work overtime (Yes/No)

Table 5. The Association between socio-demographic characteristics vs. attitude of nurses towards anxiety (n = 215). Data shown are frequencies; n (%) and Chi-square test p value

Factor		Probable Anxiety Score ≥10 (n = 62)	Not Anxious Score <10 (n = 153)	P
Age, years	≤30 years old/>30	40 (28.2%)/22 (30.1%)	102 (71.8%)/51 (69.9%)	0.763
Gender	Male/Female	12 (36.4%)/50 (27.5%)	21 (63.6%)/132 (72.5%)	0.300
Hospital	Buraidah Central Hospital	29 (49.2%)	30 (50.8%)	<0.001
	King Fahad Specialist Hospital	16 (30.8%)	36 (69.2%)	
	Maternity and Children Hospital	11 (27.5%)	29 (72.5%)	
	Armed Forces Hospital	6 (09.4%)	58 (90.6%)	
Marital Status	Single/Married	25 (27.5%)/37 (29.8%)	66 (72.5%)/87 (70.2%)	0.705
Nationality	South Asia	29 (24.4%)	90 (75.6%)	0.040
	Middle East	28 (38.4%)	45 (61.6%)	
	Southeast Asia	3 (15.0%)	17 (85.0%)	
	African or Western	2 (66.7%)	1 (33.3%)	
Smoking	Yes/No	08 (32.0%)/54 (28.4%)	17 (68.0%)/136 (71.6%)	0.710
BMI, kg/m ²	Underweight	11 (57.9%)	08 (42.1%)	0.014
	Normal	41 (26.1%)	116 (73.9%)	
	Overweight and obese	10 (25.6%)	29 (74.4%)	
Physical activity	Yes/No	37 (23.4%)/25 (43.9%)	121 (76.6%)/32 (56.1%)	0.003
Night shift	Yes/No	32 (33.7%)/30 (25.0%)	63 (66.3%)/90 (75.0%)	0.163
Overtime work	Yes/No	40 (36.4%)/22 (21.0%)	70 (63.6%)/83 (79.0%)	0.013
Nurse's depression	Depressed/Not depressed	26 (72.2%)/36 (20.1%)	10 (27.8%)/143 (79.9%)	<0.001

Table 6 reports the comparison between attitude of nurses' towards depression in relation to the characteristics of participants with univariate Chi-Squire test p values which indicates whether the association is statistically significant. It was revealed that gender (p = 0.001), hospital location (p <0.001), nationality (p <0.001), smoking (p = 0.030), BMI (p = 0.034), physical activity (p <0.001), and anxiety of nurses (p <0.001) were all statistically significant (Figures 4 - 5).

Table 6. Association between socio-demographic characteristics vs. attitude of nurses towards depression (n = 215). Data are presented as frequencies; n (%) and p value of Chi-Square test

Factor		Depressed (n = 36) Score >10	Not Depressed (n=179) Score ≤10	P
Age, years:	≤30/>30	22 (15.5%)/14 (19.2%)	120 (84.5%)/59 (80.8%)	0.493
Gender:	Male/Female	12 (36.4%)/24 (13.2%)	21 (63.6%)/158 (86.8%)	0.001
Hospital Location	Buraidah Central Hospital	24 (40.7%)	35 (59.3%)	<0.001
	King Fahad Specialist Hospital	6 (11.5%)	46 (88.5%)	
	Maternity and Children Hospital	1 (2.5%)	39 (97.5%)	
	Armed Forces Hospital	5 (7.8%)	59 (92.2%)	
Marital Status:	Single/Married	15 (16.5%)/21 (16.9%)	76 (83.5%)/103 (83.1%)	0.930
Nationality:	South Asia	10 (8.4%)	109 (91.6%)	<0.001
	Middle East	23 (31.5%)	50 (68.5%)	

	Southeast Asia	2 (10.0%)	18 (90.0%)	
	African or Western	1 (33.3%)	2 (66.7%)	
Smoking: Yes/No	Yes/No	8 (32.0%)/28 (14.7%)	17 (68.0%)/162 (85.3%)	0.030
BMI:	Underweight	7 (36.8%)	12 (63.2%)	0.034
	Normal	25 (15.9%)	132 (84.1%)	
	Overweight and obese	4 (10.3%)	35 (89.7%)	
Physical activity:	Yes/No	18 (11.4%)/18 (31.6%)	140 (88.6%)/39 (68.4%)	
Night shift:	Yes/No	20 (21.1%)/16 (13.3%)	75 (78.9%)/104 (86.7%)	0.132
Overtime work:	Yes/No	19 (17.3%)/17 (16.2%)	91 (82.7%)/88 (83.8%)	0.832
Anxiety of nurses:	Anxious/ Not anxious	26 (41.9%)/10 (6.5%)	36 (58.1%)/143 (93.5%)	<0.001

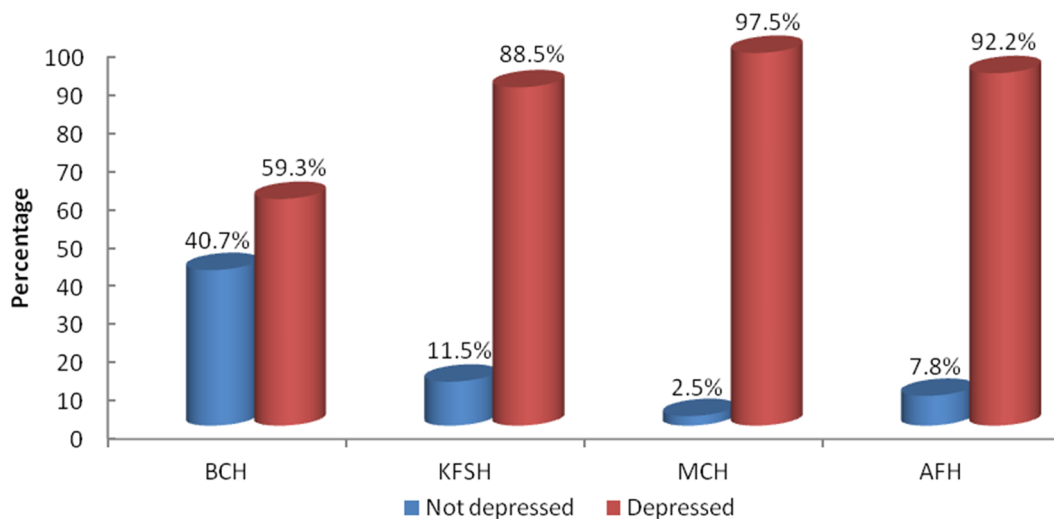


Figure 4. Percentage distribution of nurses' depression among the different hospital locations investigated

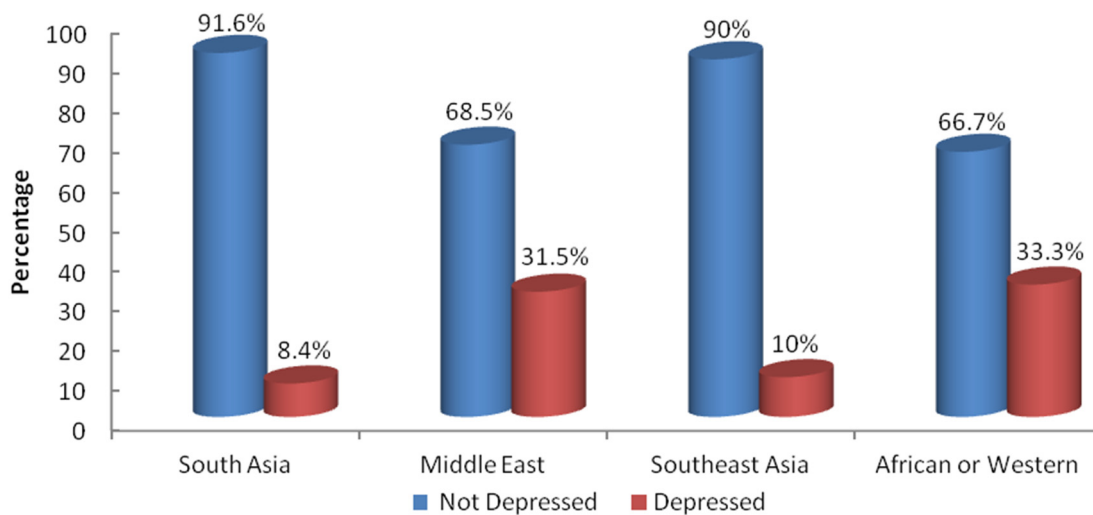


Figure 5. Percentage distribution of nurses' depression among their different nationalities

4. Discussion

In the present healthcare settings, nurses are prone to different risk factors for anxiety and depression due to work load, atmosphere and responsibilities. This affects qualitatively and quantitatively affects their productivity,

emotional health and quality of life. In this study, 28.8% of the nurses had suffered from anxiety symptoms (HAD Score >10). This figure is lower than the study conducted at King Fahad Medical Center at Riyadh (Abbas et al., 2013). They surveyed 715 nurses using HAD scale questionnaires, where, 47% of the nurses had anxiety. Also, another study from Hong Kong reported a higher anxiety prevalence 37.3% among nurses (Cheung et al., 2015). In another study done on Australian midwives in 2017 using DASS scale showed anxiety to be about 20.4% which was higher than ours (Creedy et al., 2017). However, a Greek study surveying 211 professional nurses belonging to eleven hospitals of Londrina-Paraná showed much lower rate of anxiety score (6.3) compared to our study (Schmidt et al., 2011).

In relation to depression, the present study shown that the mean depression score was 6.6 and the depression rate was 16.7% (HAD Score >10). In a study done in 2016, 265 nurses were evaluated regarding their level of stress, anxiety and depression in Tabriz, Iran, showed mild depression among 50.8% female nurses, whereas, significantly lower rate of mild depression (38.6%) among males (Khodadadi et al., 2016). Although male nurses constituted only 15.3% of our participants, rate of depression among males (11.7%) was massively lower than female nurses (88.3%). (Basu et al., 2016) examined 129 nursing students using DASS 21-point scale for the prevalence of depression, anxiety and stress at a tertiary care teaching institution of Kolkata. They found out that about 33.3% of the students suffered from moderate to extreme depression. This is 50% higher compared to the results in our study and despite of population differences.

Our study found and also shown that the depression of nurses was statistically associated with the anxiety of nurses ($p < 0.001$). One of the study conducted in Sri Lanka stated that in their study used Sinhala version of Depression, Anxiety and Stress Scale among undergraduate nursing students in a public university. They had female majority, too (69.6%) and students had mild to extremely severe symptoms of depression in 51.1%, anxiety in 59.8% and stress in 82.6% of the participants. They also reported a significant positive relationship between depression and anxiety ($r = 0.689$, $p < 0.001$), depression and stress ($r = 0.785$, $p < 0.001$) and anxiety and stress ($r = 0.763$, $p < 0.001$) (Rathnayake et al., 2016). These results were similar to our study considering the relationship between anxiety and depression.

5. Conclusions

Our findings had positively identified the predictors of anxiety and depression of nurses in relation to their job function in a healthcare setting. Socio-demographic characteristics such as hospital location, BMI category and nationality were all risk factors for anxiety and depression; individual factors like overtime to work, physical activity, and night shift were all significant factors for anxiety/depression. The findings of this study uncovered the need for the nurses to make adjustment or if necessary, change their dealings on everyday life. The changes should be initiated by the higher management and formulate new and effective ideas to foster nurses' well-balanced lifestyle and restoring their psychological esteem. Nursing management should be proactive in dealings with those nurses who had symptoms of anxiety or depression. Finally, physically and emotionally stabled nurses can serve their patients at their best.

Funding

This study was self-funded.

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

References

- Abbas, M. A. F., Abu Zaid, L. Z., Hussaein, M., Bakheet, K. H., & AlHamdan, N. A. (2012). Anxiety and depression among nursing staff at king fahad medical city, Kingdom of Saudi Arabia. *J Am Sci*, 8(10), 778-94.
- Basu, M., Sinha, D., Ahamed, A., Chatterjee, S., & Misra, R. N. (2016). Depression, anxiety, stress among nursing students of Kolkata: A cross sectional study. *Journal of Preventive Medicine and Holistic Health*, 2(2), 54-60.
- Baxter, A. J., Scott, K. M., Vos, T., & Whiteford, H. A. (2013). Global prevalence of anxiety disorders: a systematic review and meta-regression. *Psychological medicine*, 43(5), 897-910. <https://doi.org/10.1017/S003329171200147X>
- Center, C., Davis, M., Detre, T., Ford, D. E., Hansbrough, W., Hendin, H., ... & Silverman, M. M. (2003). Confronting depression and suicide in physicians: a consensus statement. *Jama*, 289(23), 3161-3166. <https://doi.org/10.1001/jama.289.23.3161>
- Cheung, T., & Yip, P. S. (2015). Depression, anxiety and symptoms of stress among Hong Kong nurses: a

- cross-sectional study. *International journal of environmental research and public health*, 12(9), 11072-11100. <https://doi.org/10.3390/ijerph120911072>
- Creedy, D. K., Sidebotham, M., Gamble, J., Pallant, J., & Fenwick, J. (2017). Prevalence of burnout, depression, anxiety and stress in Australian midwives: a cross-sectional survey. *BMC pregnancy and childbirth*, 17(1), 1-8. <https://doi.org/10.1186/s12884-016-1212-5>
- Ferrari, A. J., Charlson, F. J., Norman, R. E., Patten, S. B., Freedman, G., Murray, C. J., ... & Whiteford, H. A. (2013). Burden of depressive disorders by country, sex, age, and year: findings from the global burden of disease study 2010. *PLoS medicine*, 10(11), e1001547. <https://doi.org/10.1371/journal.pmed.1001547>
- Ferrari, A. J., Somerville, A. J., Baxter, A. J., Norman, R., Patten, S. B., Vos, T., & Whiteford, H. (2013). Global variation in the prevalence and incidence of major depressive disorder: a systematic review of the epidemiological literature. *Psychological medicine*, 43(3), 471-481. <https://doi.org/10.1017/S0033291712001511>
- Joury, A. U., AlAtmi, A. A., AlBabtain, S. A., Alsharif, M., Al Babtain, N. A., Mogbil, A. B., & AlRuwaili, M. A. (2014). Prevalence of depression and its association with socio-demographic characteristics among the general population. *International Journal of Modern and Alternative Medicine Research*, 2(2), 8-15.
- Khodadadi, E., Hosseinzadeh, M., Azimzadeh, R., & Fooladi, M. (2016). The relation of depression, anxiety and stress with personal characteristics of nurses in hospitals of Tabriz, Iran. *International journal of medical research & health sciences*, 5(5), 140-148.
- Lisspers, J., Nygren, A., & Söderman, E. (1997). Hospital Anxiety and Depression Scale (HAD): some psychometric data for a Swedish sample. *Acta psychiatrica scandinavica*, 96(4), 281-286. <https://doi.org/10.1111/j.1600-0447.1997.tb10164.x>
- Montgomery, S. A., & Åsberg, M. A. R. I. E. (1979). A new depression scale designed to be sensitive to change. *The British journal of psychiatry*, 134(4), 382-389. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
- Pezaro, S., Clyne, W., & Fulton, E. A. (2017). A systematic mixed-methods review of interventions, outcomes and experiences for midwives and student midwives in work-related psychological distress. *Midwifery*, 50, 163-173. <https://doi.org/10.1016/j.midw.2017.04.003>
- Plaisier, I., de Graaf, R., de Bruijn, J., Smit, J., van Dyck, R., Beekman, A., & Penninx, B. (2012). Depressive and anxiety disorders on-the-job: the importance of job characteristics for good work functioning in persons with depressive and anxiety disorders. *Psychiatry research*, 200(2-3), 382-388. <https://doi.org/10.1016/j.psychres.2012.07.016>
- Rathnayake, S., & Ekanayaka, J. (2016). Depression, anxiety, and stress among undergraduate nursing students in a public university in Sri Lanka. *International Journal of Caring Sciences*, 9(3), 1020-1032.
- Schmidt, D. R. C., Dantas, R. A. S., & Marziale, M. H. P. (2011). Ansiedade e depressão entre profissionais de enfermagem que atuam em blocos cirúrgicos. *Revista da Escola de Enfermagem da USP*, 45, 487-493. <https://doi.org/10.1590/S0080-62342011000200026>
- Schmidt, D. R., Dantas, R. A., & Marziale, M. H. (2011). Anxiety and depression among nursing professionals who work in surgical units. *Rev. Esc. Enferm. USP*, 45(2), 487-93. <https://doi.org/10.1590/S0080-62342011000200026>
- Stathopoulou, H., Karanikola, M. N., Panagiotopoulou, F., & Papatthanassoglou, E. D. (2011). Anxiety levels and related symptoms in emergency nursing personnel in Greece. *Journal of Emergency Nursing*, 37(4), 314-320. <https://doi.org/10.1016/j.jen.2010.03.006>
- Terkawi, A. S., Tsang, S., AlKahtani, G. J., Al-Mousa, S. H., Al Musaed, S., AlZoraigi, U. S., ... & Altirkawi, K. A. (2017). Development and validation of Arabic version of the Hospital Anxiety and Depression Scale. *Saudi journal of anaesthesia*, 11(Suppl 1), S11-S18. https://doi.org/10.4103/sja.SJA_43_17

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).