

Job-Related Stress, Resilience, and Well-Being among Nurses Working in a Tertiary Hospital, Oman: A Cross-Sectional Study

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Abstract. Job-related stress has been identified as the most challenging nursing issue, leading to emotional distress, burnout, and decreased job satisfaction. Nurses who exhibit resilience are better equipped to handle job-related stress and maintain their well-being, which positively impacts the quality of care provided to patients. This study aimed to determine the level of job-related stress, resilience, and well-being of staff nurses in a tertiary governmental hospital in Oman using a descriptive cross-sectional approach. A random sampling technique was used with a total of 145 nurses who completed a self-administered questionnaire consisting of the Perceived Stress Scale (PSS-10), the World Health Organization-Five Well-being Index (WHO-5), and the Brief Resilience Scale (BRS). Results of the study revealed that about 59% of nurses had a moderate perceived stress level, 39% had a low well-being level and 53.8 % had a low resilience level. Significant differences were found in perceived stress and resilience based on nurses' age and experience ($p < 0.05$). Omani nurses showed higher perceived stress levels ($M = 25$, $SD = 6.93$), lower resilience ($M = 2.3$, $SD = 0.77$), and lower well-being ($M = 49.15$, $SD = 20.85$) than nurses from other nationalities. Moreover, a moderate negative correlation was found between job-related stress and resilience ($r_s = -0.44$, $p < 0.01$). These findings strongly suggest implementing educational training plans and intervention programs to reduce stress levels, build resilience, and improve the overall well-being of hospital nurses.

Keywords: job-related stress, perceived stress, nurses well-being, resilience, Oman

Introduction

Job-related stress has been identified as the most challenging nursing issue (Baye et al., 2020), negatively affecting the standard of care (Batan, 2019). Nursing job among healthcare practitioners have been identified as stressful, and stress is a common, widespread problem (Babanataj et al., 2019). It is well-known that nurses play an extensive and critical role in healthcare institutions and provide holistic care to the patient. However, they experience stressful conditions in the daily working environment, which causes a decrease in their efficiency and productivity (Al-Yaqoubi & Arulappan, 2023). Alenezi et al. (2018) estimated that 20% to 40% of nurses worldwide experience job-related stress. In the USA, 93% of nurses report experiencing stress linked to their jobs (Bardhan et al., 2019); whereas in Iran, 69% to 75% of nurses report experiencing stress (Gheshlagh et al., 2017); and in China, 68.3% (Gu et al., 2019). Arab nations have also reported similar findings. As an example, 95% of nurses in the UAE reported varying degrees of stress, and 86% of those nurses were under the age of 36 (Al Rasasi et al., 2015).

According to the World Health Organization (WHO), people may experience job-related stress due to work overload and demands that are incompatible with their skills, knowledge, and insufficient coping strategies (WHO n.d). Dimunová et al. (2021) claim that the quality of performance, job satisfaction, and well-being are all negatively affected by job-related stress. The authors also highlighted that job-related stress affects personal development and causes frequent absenteeism, which ultimately affects the quality of healthcare services. On the other hand, Qattan (2017) stated that a person feels job-related stress when frequently encountering higher demands than their actual work. Based on Sarafis et al. (2016), work overload is one of

the primary sources of stress among nurses. Nurses are often required to work long hours with a limited workforce and have inadequate breaks to refresh themselves and boost their energy levels, which could lead to fatigue and burnout (Alenezi et al., 2018). Moreover, nurses work in high-pressure environments where they must make critical decisions under extreme stress, are exposed to infectious diseases, and may face violence and aggression from patients or their families, which all contribute to their stress levels (Al-Yaqoubi & Arulappan, 2023).

Job-related stress or occupational stress has been described by the National Institute for Occupational Safety and Health (NIOSH) as "the harmful physical and emotional responses which are caused when the requirements of the job do not correspond to the worker's capacity, resources, or needs" (NIOSH, 1999, p. 6). As a result of uncertainty and unforeseen changes in the workplace, stress raises the risk of psychological health issues among nurses, particularly owing to fear of contracting infections and coping with terminally ill patients (Johari & Omar, 2019). The incidence of mental health issues including depressive disorders, stress, and anxiety has also grown as a result of unanticipated global health crises like the COVID pandemic (Khamis et al., 2020).

Studies illustrate that some nurses do not maintain a healthy lifestyle for many reasons, including the high tendency to prioritize patients' health over their well-being, time constraints, and exhaustion (Babanataj et al., 2019; Batran, 2019). In addition, Al-Homayan et al. (2013) stated that job-related stress and work overload are associated with several cardiovascular diseases, low immunity, and neurological disorders. The majority of studies also discovered that nurses with high levels of job-related stress had back discomfort, headaches, nervousness, and despair (Al Hosis et al., 2013; Gorgich et al., 2017 & Batran, 2019). As a result, many nurses prefer to leave their work (Chegini et al., 2019; Ki et al., 2020). Hence, it is essential to understand the ability of nurses to cope with job-related stress, as well as how to maintain psychological well-being and be mindful and resilient to cope with workplace stress (Alenezi et al., 2018).

Resilience is an optimistic psychological and physical status through which the individual regains a state of well-being in an adverse condition. It refers to a person's capability to adjust and bounce back from difficult circumstances and situations (Hartmann et al., 2019). Yilmaz (2017) states that resilience in nursing is vital for various reasons: it is a positive agent for a nurse's physical and mental well-being, an essential proactive factor against emotional exhaustion, and a supportive aspect that helps nurses adjust to their professional challenges and provides the best care for the patient. This is because resilience in nursing practice is linked to nurses' ability to manage their physical and psychological status during job-related stress (Zander et al., 2013 & Ddyess et al., 2015). As a coping mechanism, some nurses may exhibit resilience and coping strategies to manage job-related stress. Nurses who show resilience are better equipped to handle job-related stress and maintain their mental and physical health, which positively impacts the quality of patient care (Ddyess et al., 2015).

Although previous research has been done on work-related stress among nurses in Oman and internationally, no research has been done about job-related stress in relation to levels of resilience and well-being among hospital nurses. Therefore, the present study was carried out to explore job-related stress and its relation to resilience and well-being among nurses in a hospital in Oman.

Methodology

Study Design

A descriptive cross-sectional design was employed in this study. Descriptive cross-sectional designs are specifically suitable for describing the status of phenomena or associations among phenomena at a set point or at a single point in time (Polit & Beck, 2017).

In this study, variables, particularly job-related stress, level of resilience, and well-being among nurses were examined, and data collection was at a single point in time, within one month, from 22nd June 2023 to 22nd July 2023.

Location of the Study

The study was conducted at Al Nahdha Hospital in Muscat, the capital of the Sultanate of Oman. Al Nahdha Hospital is the national tertiary care referral center for several specialties, including Ophthalmology, Dermatology, Gento-Urinary Clinic, Head and Neck Surgery, Otolaryngology, Communication Disorders, Oral/Dental, and Maxillofacial Surgery. It also serves as a secondary referral hospital for the Muscat Governorate, providing Internal Medicine and Pediatrics care. The hospital has 142 in-patient beds, 12 beds for Day care services and 16 beds for Accident and Emergency.

Population and Sampling

The study population consists of staff nurses employed in Accident and Emergency, Male and Female Surgical Wards, Day Care, and Operation Theatre. The participants were Omani and non-Omani male and female nurses with one year or more of experience working at Al Nahdha Hospital during the time of study and who were willing to participate in the survey. Staff nurses with less than one year of experience, newly recruited staff during the study period, and who were still on a training program (Internship) were excluded from the study.

Sampling Technique

The participants were selected through a random sampling approach to ensure equal and unbiased representation. A sample size of 134 was estimated from the population of 205 staff nurses using the Raosoft online sample size calculator (Raosoft, 2004), giving a confidence level of 95% and a margin of error of 5%. With an additional 10% nonresponse rate, the final sample size was calculated to be 147. The randomly selected participants were invited by online invitation through a link that was sent by WhatsApp to the Unit/Ward In-charge who in turn sent to their respective staff nurses who were randomly selected as participants in the study.

Research Tools

The data were collected through a self-administered questionnaire in Google form with four sections. Section A consists of the sociodemographic profile of the participants, like age, gender, marital status, educational attainment, and years of experience. Section B includes the Perceived Stress Scale (PSS-10) by Cohen, Kamarck, and Mermelstein (1983). The scale comprises ten questions that analyze individuals' emotions and thoughts during the past month to evaluate their stress level on a five-point Likert scale with "0 = never", "1 = almost never", "2 = sometimes", "3 = fairly often", and "4 = very often". The total rating ranges from 0 to 40, with scores ranging from 0 to 13 signifying low perceived stress, 14 to 26 signifying moderate perceived stress, and 27 to 40 signifying high perceived stress. With Cronbach's alpha values of 0.754 (Huang et al., 2020), and 0.856 (Berardi et al., 2021), the instrument has been found to have acceptable to good reliability when employed in several investigations. Section C presents the World Health Organization-Five Well-being Index (WHO-5) which was developed by the World Health Organization Regional Office in Europe (WHO, 1998). The questionnaire consists of five questions that ask participants to report their well-being over the past two weeks on a 5-point Likert scale, ranging from "0 = at no time" to "5 = all the time". The total score varies from 0-25 multiplied by four to get a percentage score ranging from 0 (indicating the worst imaginable well-being) to 100 (meaning the best imaginable well-being). However, a score less than or equal to 50% indicates depression. The reported reliability for the Well-being Index (WHO-5) was Cronbach's alpha = 0.91 (Dadfar et al., 2017) and 0.81 to

0.90 (Cabrera et al., 2022). Section D includes the Brief Resilience Scale (BRS) developed by Smith, Dalen, Wiggins, Tooley, Christopher and Bernard (2008) to measure an individual's ability to recover from stress. The BRS comprises six items with a mean score ranging from 1 to 5, and responses are given on a five-point Likert scale, with one denoting "strongly disagree" and five denoting "strongly agree." High resilience is defined as a score between 4.31 and 5.30, whereas normal resilience is 3 to 4.30 and poor resilience is 1-2.99. Reported reliability measured by Cronbach's Alpha ranged from 0.80 to 0.91 Smith et al. (2008) and 0.87 (Sánchez et al., 2021).

Pilot Study

A pilot test was carried out among 15 staff nurses of Al Nahdha Hospital prior to the implementation of the current study to assess the suitability and appropriateness of the tool and as a measure of improving the face validity. No clarification was made on the items and no further modifications were considered necessary. The participants and the outcomes of the pilot test were excluded from the main study. Furthermore, reliability analysis was carried out using Cronbach's Alpha, which showed that the internal consistency of the Perceived Stress Scale (PSS-10) was ($\alpha = 0.80$), the Well-being Index (WHO-5) was ($\alpha = 0.81$), and the Brief Resilience Scale (BRS) was ($\alpha = 0.70$). These values are considered good and acceptable.

Data Collection Process

After obtaining ethical approval from the University Human Research Ethics Committee (EC Ref No.: HREC/19/2023) and the Research and Ethical Review & Approval Committee of the Center of Studies and Research at the Ministry of Health (MOH/CSR/23/27122), as well as a no-objection to start the study from Al Nahdha Hospital, data were collected via the questionnaire that was made available via Google form and sent through a link by WhatsApp to the Unit/Ward In-Charge of Accident and Emergency unit, Male Surgical Ward, Female Surgical Ward, Day Care, and Operation Theater, who in turn sent to all staff nurses in their corresponding units/wards via the participants WhatsApp. The link was easily accessed and used across devices, such as laptops, tablets, or cellphones. A reminder was sent out two weeks after distributing the survey link to enhance the response rate.

The participants were informed that their participation in the study was voluntary and that they had the right to withdraw at any time. They were also assured that their responses would be kept confidential and anonymous, and the questionnaire would be accessible for a month, from 22nd June 2023 to 22nd July 2023. Participants were then requested to provide understanding and agreement by using the "click-if-you-agree" button on the online form. The cover letter of the questionnaire also included a statement to the effect that completion and submission of the online questionnaire by each participant will constitute consent to participate in the study.

Data Analysis and Presentation

The Statistical Package for the Social Sciences (SPSS) software program, Version 24, was used to enter, organize, and analyze the data. The alpha level was set at 0.05 level of significance.

Frequency and percentage (%) distribution were used to present the sociodemographic profiles of the staff nurses. Weighted mean (M) and standard deviation (SD) were used to describe the level of job-related stress, resilience, and well-being of the staff nurses. The Kruskal-Wallis H test was used to determine differences in the level of job-related stress, resilience, well-being, and demographic characteristics of the staff nurses. Post hoc analysis was used after the Kruskal-Wallis H test to determine which specific groups differ significantly from each other. Spearman correlation coefficient (r_s) was used to determine the association

between job-related stress and resilience, job-related stress and well-being, and resilience and well-being of the staff nurses.

Results

Sociodemographic Profile of the Participants

In this study, 145 nurses participated out of the target sample size of 147, with a response rate of 98.6%. Table 1 presents the participant's sociodemographic data: 86.9% (126) are female, 13.1% (19) are male, 84.8% (123) are married, 13.1% (19) are single, 1.4% (2) widowed, and 0.7% (1) divorced. Most participants had a diploma degree (58.6%), while 37.9% had bachelor's degree, and 3.4% had post-graduate degrees in the nursing specialty. According to age, 29.0% are 31-35 yrs., 23.4% are 26-30 yrs., 20.7% are 36-40 yrs., 20.7% are more 40 yrs. and 6% are 22-25 yrs. old. Around 59.3% are non-Omani nurses, while 40.7% are Omani nurses. In terms of years of experience, more than half of the participants had 6 to 15 yrs. (57.3%), 18.6% had 1-5 yrs., 17.2% had 16-20 years, while 6.9% had more than 40 years of experience.

Table 1. Frequency and Percentage Distribution of Participants' Sociodemographic Characteristics (N = 145)

Sociodemographic Factors		Frequency	Percentage (%)
Department	Male Surgical Ward	35	24.1%
	Female Surgical Ward	35	24.1%
	Operation Theatre	35	24.1%
	Day Care Ward	6	4.1%
	Accident and Emergency	34	23.4%
Gender	Male	19	13.1%
	Female	126	86.9%
Age Range	22- 25 years	9	6.2%
	26-30 years	34	23.4%
	31-35 years	42	29.0%
	36-40 years	30	20.7%
	> 40 years	30	20.7%
Marital Status	Single	19	13.1%
	Married	123	84.8%
	Divorce	1	0.7%
	Widow	2	1.4%
Nationality	Omani	59	40.7%
	Non-Omani	86	59.3%
Level of Education	Diploma	85	58.6%
	Bachelor	55	37.9%
	Postgraduate	5	3.4%
Years of Experience	1 to 5 years	27	18.6%
	6 to 10 years	42	29.0%
	11 to 15 years	41	28.3%
	16 to 20 years	25	17.2%
	> 20 years	10	6.9%

Level of Job-Related Stress, Resilience, and Well-Being among Participants

According to Table 2, the mean perceived stress score of the participants is 22.40 (SD=7.41) considered as moderate. More than half of the participants (59.3%) reported moderate perceived stress, 28.3% had high perceived stress, and only 12.4% had low perceived stress. The

mean well-being score of the participants is 53.62 ($SD=19.89$) classified as high, with the majority (60.7%) reporting high level of well-being. In terms of resilience, the mean score is 2.70 ($SD=.714$) considered as low, with 53.8% reporting low level of resilience, while 46.2% with a normal level of resilience.

Table 2. Levels of Perceived Stress, Well-Being, and Resilience among the Staff Nurses in Al Nahdha Hospital ($N = 145$)

Variables		<i>N (%)</i>	<i>Mean</i>	<i>SD</i>
Perceived Stress Scale (PSS-10)	Low Perceived Stress (0-13)	18 (12.4%)	22.40	7.41
	Moderate Perceived Stress (14-26)	86 (59.3%)		
	High Perceived Stress (27-40)	41 (28.3%)		
Well-being Scale (WHO-5)	Low Well-Being ($\leq 50\%$)	57 (39.3%)	53.62	19.89
	High Well-Being ($>50\%$)	88 (60.7%)		
Brief Resilience Scale (BRS)	Low Resilience (1.00-2.99)	78 (53.8%)	2.70	.714
	Normal Resilience (3.00-4.30)	67 (46.2%)		

Differences in the Level of Job-Related Stress, Resilience, and Well-Being among Participants according to their Sociodemographic Characteristics

Table 3 shows significant difference ($H(1) = 4.740$, $p = 0.029$) in the perceived stress level between females ($M=22.92$, $SD=7.38$) and males ($M=19$, $SD=6.90$). Additionally, a significant difference ($H(1) = 14.511$, $p < 0.05$) exists in level of perceived stress according to nationality; Omani participants had a higher perceived stress level ($M=25$, $SD=6.93$) compared to non-Omani participants ($M=20.62$, $SD=7.24$).

The result also indicated a significant difference in the level of perceived stress according to age ($H(4) = 18.195$, $p = 0.001$). Post hoc analysis (Table 4) showed significant differences between the age groups of 22-25, 26-30 and 31-35 ($p = 0.047$), 22-25 and 36-40 ($p = 0.002$) and 22-25 and above age 40 ($p = 0.000$). The 22-25 years age group had a high level of perceived stress ($M=29.33$, $SD=6.80$).

Additionally, the study also revealed a significant difference in the extent of perceived stress according to years of experience ($H(4) = 15.74$, $p = .003$). Comparing the level of perceived stress of those with 1 to 5 years of experience ($M=26.18$, $SD=9.26$) and those with more than 20 years ($M=17.50$, $SD=3.97$) ($p < 0.05$), the results indicate that participants with 1 to 5 years of experience had high perceived stress compared to those with more experience.

However, this study found no evidence of a substantial variation in participants' perceived stress level according to their marital status, area of work, and educational level.

Table 3. The Difference in the Level of Perceived Stress According to Participants' Sociodemographic Characteristics ($N = 145$) Using Kruskal-Wallis H Test

Variables	<i>Mean</i>	<i>SD</i>	<i>Mean Rank</i>	<i>df</i>	<i>H</i>	<i>Sig.</i>
Gender						
Male	19.00	6.90	53.47	1	4.740	.029*
Female	22.92	7.38	75.94			
Nationality						
Omani	25.00	6.93	89.02	1	14.511	.000*
Non-Omani	20.62	7.24	62.01			
Department						
Male surgical ward	23.45	6.86	79.47	4	9.19	.057
Female surgical ward	21.11	7.65	67.20			
Operation theater	24.77	7.37	85.56			
Daycare ward	17.00	4.77	42.08			

Accident & emergency	21.17	7.47	64.84			
Age						
22-25	29.33	6.80	111.22	4	18.19	.001*
26-30	23.88	7.43	80.04			
31-35	23.76	7.99	80.57			
36-40	20.20	6.96	62.47			
> 40	18.96	4.59	53.48			
Marital Status						
Single	24.47	7.77	82.53	3	1.92	.588
Married	21.95	7.25	71.04			
Divorce	26.00	--	96.00			
Widow	28.50	14.84	91.25			
Level of Education						
Diploma	22.16	7.191	71.57	2	0.34	.842
Bachelor	22.89	8.031	75.55			
Postgraduate	21.20	4.207	69.20			
Years of experience						
1 to 5 years	26.18	9.26	90.80	4	15.74	.003*
6 to 10 years	24.21	6.97	83.54			
11 to 15 years	20.31	6.73	61.80			
16 to 20 years	20.68	5.48	65.78			
> 20 years	17.50	3.97	44.65			

Table 4. Post Hoc Analysis Comparing Perceived Stress Levels Among Different Age Groups and Years of Experience

Pairwise comparison		Statistic Test	Std. Error	Sig.
Age				
22- 25 years	26-30	31.178	15.720	.047*
	31-35	30.651	15.404	.047*
	36-40	48.756	15.93	.002*
	> 40	57.739	15.938	.000*
26-30 years	31-35	-0.527	9.675	.957
	36-40	17.577	10.505	.094
	> 40	26.561	10.505	.011*
31-35 years	36-40	18.105	10.025	.071
	> 40	27.088	10.025	.007*
36-40 years	> 40	8.983	10.828	.407
Years of experience				
1 to 5 years	6 to 10 years	7.261	10.344	.483
	11 to 15 years	28.991	10.394	.005*
	16 to 20 years	25.016	11.640	.032*
	> 20 years	46.146	15.524	.003*
6 to 10 years	11 to 15 years	21.731	9.207	.018*
	16 to 20 years	17.756	10.593	.094
	> 20 years	38.886	14.756	.008*
11 to 15 years	16 to 20 years	-3.975	10.641	.709
	> 20 years	17.155	14.791	.246
16 to 20 years	> 20 years	21.130	15.691	.178

Note: * The mean difference is significant at the 0.05 level.

In terms of the level of well-being, Table 5 shows no significant difference in the level of well-being between male ($M=47.36$, $SD=24.88$) and female ($M=54.57$, $SD=18.96$) participants ($H(1) = 1.444$, $p = 0.229$). In contrast, a significant difference was found in the level of well-being between Omani ($M=49.15$, $SD=20.82$) and non-Omani ($M=56.69$, $SD = 18.73$) participants ($H(1) = 4.439$, $p = 0.035$).

Table 5 also shows significant difference in the level of well-being among participants in terms of marital status ($H(3) = 8.001$, $p = 0.046$). A post hoc analysis (Table 6) revealed that participants who are married had significantly higher level of well-being ($M=55.31$, $SD=20.12$) compared to those who are single ($M=44.63$, $SD=16.28$) ($p = 0.019$).

The participants' areas of work, age, years of experience, and degree of education did not show any significant difference in their level of well-being.

Table 5. Differences in the Level of Well-being According to Participants' Sociodemographic Characteristics ($N = 145$) Using Kruskal-Wallis H Test

Gender	Mean	SD	Mean Rank	df	H	Sig
Male	47.36	24.88	62.24	1	1.444	.229
Female	54.57	18.96	74.62			
Nationality						
Omani	49.15	20.82	64.15	1	4.439	.035*
Non-Omani	56.69	18.73	79.07			
Department						
Male surgical ward	51.42	19.28	68.43	4	5.72	.221
Female surgical ward	57.02	22.69	83.10			
Operation theater	57.14	18.26	79.31			
Daycare ward	49.33	18.70	60.08			
Accident and emergency	49.52	19.09	63.09			
Age						
22-25	57.33	18.65	80.17	4	1.00	.909
26-30	55.76	19.91	77.06			
31-35	52.76	17.42	69.70			
36-40	52.00	20.98	70.05			
> 40	52.93	23.10	73.82			
Marital Status						
Single	44.63	16.28	52.63	3	8.00	.046*
Married	55.31	20.12	76.90			
Divorce	24.00	--	11.50			
Widow	50.00	2.82	57.25			
Level of Education						
Diploma	54.68	19.96	75.11	2	.913	.634
Bachelor	52.58	19.75	71.03			
Postgraduate	47.20	22.69	58.80			
Years of experience						
1 to 5 years	58.22	19.70	82.91	4	8.95	.062
6 to 10 years	51.80	18.69	68.45			
11 to 15 years	59.41	14.712	83.44			
16 to 20 years	44.80	22.62	56.34			
> 20 years	47.20	28.20	64.20			

Table 6. Post Hoc Analysis Comparing Well-Being Levels among Marital Status Groups

Pairwise comparison		Statistic Test	Std. Error	Sig
Marital status				
Single	Married	19.652	10.324	0.019*
	Widow	-4.618	31.135	0.882
	Divorce	41.132	42.970	0.338
Married	Widow	19.652	29.855	0.510
	Divorce	65.402	42.052	0.120
Divorce	Widow	-45.750	51.295	0.372

Note: * The mean difference is significant at the 0.05 level.

Resilience levels differed significantly according to the participant's gender, as seen in Table 7. Males had a higher resilience level ($M=3.23$, $SD=0.542$) than females ($M=2.62$, $SD=0.70$) ($H(1)=12.811$, $p < 0.05$). A significant difference is also observed in the level of resilience according to participants' nationality; non-Omani participants had a higher resilience level ($M=2.91$, $SD=0.58$) than Omani ($M=2.39$, $SD=0.77$) ($H(1)=19.588$, $p < 0.05$).

According to the participants' area of work, a significant difference was found in the participants' level of resilience ($H(4)=11.68$, $p = 0.020$). Table 8 illustrates additional examination which revealed significant differences between participants who were in the Male Surgical Ward and Day Care Ward ($p < 0.05$), Female Surgical Ward and Day Care Ward ($p = 0.009$), as well as between Day Care Ward and Operation Theater ($p = 0.012$). The result denoted those participants working in Female Surgical Ward had the lowest resilience level ($M=2.52$, $SD=0.824$), while those working in Day Care Ward had the highest resilience level ($M=3.41$, $SD=0.502$).

In addition, the study also revealed a significant difference in resilience level based on the participant's age ($H(4)=50.75$, $p = 0.000$). Among the five age groups, there were significant differences between the ages of 22-25, 31-35, 36-40, and those above 40 ($p < 0.05$). Analysis suggests that participants aged 22-25 had the lowest resilience levels ($M=1.90$, $SD=0.731$) compared to those who were aged 36-40 ($M=3.16$, $SD=0.582$) and above 40 ($M=3.08$, $S=0.409$).

Results also revealed a significant difference in resilience level in terms of total years of experience ($H(4)=38.43$, $p = 0.000$). Analysis in Table 8 revealed a significant difference between participant's years of experience from 1 to 5 years, 11 to 15 years, and above 20 years ($p < 0.05$) and between 6 to 10 years, 11 to 15 years, 16 to 20 years, and above 20 years ($p < 0.05$). The result showed that those with 11 to 15 years ($M=2.99$, $SD=0.612$) and more experience had higher resilience levels than those with 1 to 5 years ($M=2.23$, $SD=0.693$) and those with 6 to 10 years' experience ($M=2.43$, $SD=0.674$).

The level of resilience, however, did not significantly differ based on the participant's marital status or educational background.

Table 7. The Difference in the Level of Resilience According to Participants' Sociodemographic Characteristics (N = 145) Using Kruskal-Wallis H Test

Variables	Mean	SD	Mean Rank	df	H	Sig
Gender						
Male	3.23	.542	105.0	1	12.811	.000*
Female	2.62	.70	68.17			
Nationality						
Omani	2.39	.77	54.45	1	19.588	.000*
Non-Omani	2.91	.58	85.73			

Department						
Male surgical ward	2.60	.726	65.03			
Female surgical ward	2.52	.824	66.49			
Operation theater	2.65	.611	67.99	4	11.68	.020*
Daycare ward	3.41	.502	114.42			
Accident and emergency	2.90	.614	85.76			
Age						
22- 25	1.90	.731	30.56			
26-30	2.30	.706	49.03			
31-35	2.57	.61	61.77	4	50.75	.000*
36-40	3.16	.582	105.38			
> 40	3.08	.409	96.23			
Marital Status						
Single	2.59	.729	66.63			
Married	2.73	.705	74.92	3	3.32	.344
Divorce	2.50	.	45.50			
Widow	1.83	1.178	29.25			
Level of Education						
Diploma	2.75	.684	75.65			
Bachelor	2.60	.781	68.11	2	1.315	.518
Postgraduate	2.90	.302	81.80			
Years of experience						
1 to 5 years	2.23	.693	45.69			
6 to 10 years	2.43	.674	55.43			
11 to 15 years	2.99	.612	91.33	4	38.43	.000*
16 to 20 years	2.92	.589	85.90			
> 20 years	3.33	.384	113.15			

Table 8. Post Hoc Analysis Comparing Resilience levels among Different Areas of Work, Age Groups, and Years of Experience

Pairwise comparison		Statistic test	Std. Error	Sig
Department				
Male Surgical Ward	Female Surgical Ward	-1.457	9.993	.884
	Day Care Ward	-49.388	18.472	.008*
	Operation Theatre	-2.957	9.993	.767
	Accident and Emergency	-20.736	10.067	.039*
Female Surgical Ward	Day Care Ward	-47.931	18.4720	.009*
	Operation Theatre	-1.500	9.993	.881
	Accident and Emergency	-19.279	10.067	.055
Day Care Ward	Operation Theatre	-46.431	18.472	.012*
	Accident and Emergency	28.652	18.512	.122
Operation Theatre	Accident and Emergency	-17.779	10.067	.077
Age				
22-25	26-30	-18.474	15.671	.238
	31-35	-31.218	15.356	.042*
	36-40	-74.828	15.888	.000*
	> 40	65.678	15.888	.000*
26-30	31-35	-12.744	9.644	.186
	36-40	-56.354	10.472	.000*

	> 40	-47.204	10.472	.000*
31-35	36-40	-43.610	9.993	.000*
	> 40	-34.460	9.993	.001*
36-40	> 40	9.150	10.794	.397
Years of experience				
1 to 5 years	6 to 10 years	-9.743	10.312	.345
	11 to 15 years	-45.644	10.361	.000*
	16 to 20 years	-40.215	11.603	.001*
	> 20 years	-67.465	15.476	.000*
6 to 10 years	11 to 15 years	-35.901	9.178	.000*
	16 to 20 years	-30.471	10.560	.004*
	> 20 years	-57.721	14.710	.000*
11 to 15 years	16 to 20 years	5.429	10.608	.609
	> 20 years	-21.821	14.744	.139
16 to 20 years	> 20 years	-27.250	15.642	.081

Note: * The mean difference is significant at the 0.05 level.

Significant Relationship Between Job-Related Stress, Resilience, and Well-Being of Participants

Table 9 presents the Spearman correlation coefficient analysis results, showing a significant moderate negative relationship ($r_s = -0.44$, $p < 0.01$) between perceived stress and resilience. The analysis revealed that participants resilience decreased with increasing levels of stress.

The result showed no significant correlation between perceived stress and well-being ($r_s = -0.110$, $p > 0.01$) and between resilience and well-being ($r_s = 0.128$, $p > 0.01$).

Table 9. Correlation Between Perceived Stress, Well-being, and Resilience

	Perceived stress	Well-being	Resilience
Perceived stress	-	- 0.110	- 0.44**
Well-being		-	0.128
Resilience			-

Note. ** Correlation is significant at the 0.01 level (two-tailed).

Discussion

The main objectives of this study were (1) to assess the job-related stress, resilience, and well-being of staff nurses in Al Nahdha Hospital, (2) to determine differences in the level of job-related stress, resilience, and well-being among the staff nurses when grouped according to their sociodemographic characteristics, and (3) to identify the relationship between job-related stress, resilience, and well-being.

According to the study's findings, nurses in Al Nahdha Hospital experienced moderate stress level perceived by them. The result of this study is consistent with several studies. Safiya and Arulappan (2022) conducted a study in tertiary hospitals in Muscat and found that 39 nurses from Al Nahdha Hospital, had a moderate level of perceived stress with a mean score of 19.21 ($SD = 3.621$), which is lower than the mean score of the current study population of 22.40 ($SD = 7.41$). Similarly, a study conducted by Alharbi and Alshehry (2019) found similar results in Saudi Arabia, whereas in India, a study conducted by Kannappan and Veigas (2021) among 65 nurses working at hospitals in Mangalore, found to had moderate perceived stress level.

It was evident that Al Nahdha Hospital nurses in this study experienced higher job-related stress compared to the result found by Safiya and Arulappan (2022), where nurses in the same hospital experienced stress due to increased work demands, inadequate staffing, and a lack of resources. Stress can lead to burnout and depression, mental and physical health issues. To support nurses in reducing stress levels, healthcare organizations must develop and implement strategies to reduce nurses' stress. These strategies include providing more resources, support, and stress management training, eventually improving psychological well-being and enhancing nursing care quality (Alharbi & Alshehry, 2019).

According to the present study's findings, 60% of participants had a high level of psychological well-being, while 39.3% had a low level of well-being. According to Khamis et al. (2020), nearly half (45.3%) of the female physicians and nurses scored equal to or less than 50% on the WHO-5 well-being index; nurses had lower levels of psychological well-being than physicians, possibly due to having higher patient loads, administrative responsibility, multitasking and emotional labor, which can lead to emotionally and mentally draining. These findings suggest that nurses are at a higher risk of experiencing low psychological well-being than other healthcare professionals.

This study indicates that staff nurses at Al Nahdha Hospital had a low level of resilience. This finding is consistent with research conducted by Rushton et al. (2015) on resilience levels among intensive care unit nurses in the United States, which discovered that these nurses' resilience was low, contributing to high levels of burnout. Similar findings were also reported by Ren et al. (2018), who aimed to assess resilience factors among nurses in China and found a low resilience level among nurses working in Chinese hospitals.

Rushton et al. (2015) and Ren et al. (2018) found that resilience is crucial for nurses to cope with stressful situations, reduce mental fatigue, and improve psychological well-being, which essentially influences the risks of nurse burnout. Resilience is also essential for nurses to manage stress, maintain job satisfaction, and handle difficult situations (Foster et al., 2019). Building resilience is important for nurses to stay healthy and productive in their workplace. As a result, nursing managers and hospital administrators need to pay attention to the work environment of the nurses and identify practical ways to increase their resilience. Regular training and support programs should be organized to assist nurses. Also, a healthy work environment should be ensured to provide nurses with the resources and support they need to stay resilient (Ryder et al., 2020).

In terms of differences in job-related stress, resilience, and well-being among the staff nurses according to their sociodemographic characteristics, the current study found that age and years of experience significantly differ in job-related stress and resilience levels. Nurses younger than 36 years were more stressed and had lower resilience levels than nurses who were 36 and above. Older nurses with more years of experience are used to the working environment and are competent in supporting other healthcare professionals. Experience improves nurses' stress management and coping mechanisms. Al Rasasi et al. (2015) and Alenezi et al. (2018) similarly found that age was also an indicator of stress among nurses working within government hospitals and primary healthcare facilities. These studies found that younger nurses were more prone to experiencing intense reactions to loss or trauma. The studies suggested that nurses with more experience may have better coping skills and are less disposed to job-related stress than younger nurses having comparatively lesser experience.

According to this study, there was a significant difference in the resilience levels of nurses working in various departments. Particularly, nurses working in the Female Surgical Ward showed lower resilience levels than those working in other departments. This may be explained by different nursing tasks and working conditions in hospital departments, which expose nurses to different sources of stress, which might hinder their ability to cope and impact their resilience level (Al-Ruzzieh & Ayaad, 2021). Although nurses in the Female Surgical

Ward had moderate stress level and fewer critically ill patients to deal with than in other departments, the researcher could not justify the reason for their low resilience. This indicates a need for further investigation. However, a study by Jamebozorgi et al. (2022) found no significant variation in the resilience levels of nurses working in different departments in Iranian Hospitals.

Based on the current study, there were significant differences between perceived stress and resilience levels according to the gender of the participants. Male nurses reported lower perceived stress and normal resilience level than female nurses based on the Brief Resilience Scale. This finding was supported by the findings of Kwiatosz-Muc et al. (2018) and Afshari et al. (2021). The researchers reveal that female nurses experienced higher levels of job-related stress and lower resilience than male nurses. These results contradict previous studies by Ang et al. (2018) and Alharbi and Alshehry (2019), who discovered that there were no significant variations in gender in terms of level of stress and resilience. The differences in findings across studies may be attributed to varying cultural and contextual factors. However, in the present study, most nurses were female, which limits the ability to identify if stress and resilience levels are affected by gender. To conduct such an analysis, a substantial number of male nurses must be included in future research.

The study revealed that unmarried nurses had a lower level of well-being than married nurses. Alenezi et al. (2017) suggest that this could be due to their fewer family responsibilities, resulting in being assigned with more duties and fewer opportunities for official leaves. Wu et al. (2021) emphasized that being married provides an additional layer of social connection in one's support system, leading to improved well-being.

The study's results additionally demonstrated that Omani nurses had low well-being and resilience and moderate perceived stress levels. Similarly, a study conducted by AbuAlRub et al. (2023) among 1,796 nurses working in different hospitals across Oman's governorates discovered that Omani nurses had higher stress levels than their non-Omani counterparts. The cause of this could be attributed to their lower levels of job satisfaction and negative perceptions of their work environment. These findings were consistent with previous studies conducted by Alenezi et al. (2017), Almazan et al. (2019), and Safiya and Arulappan (2022). Berlanda et al. (2020) added that nurses who encounter such circumstances often struggle to maintain well-being, which can impact their resilience.

The findings of the study conducted by Almanzan et al. (2019) highlighted that prolonged exposure to high-stress levels during work could result in detrimental consequences for nurses' physical and psychological well-being, regardless of sociodemographic and occupational variables, ultimately leading to burnout. As a proactive approach to address this issue, it is crucial to implement measures that promote nurse's resilience, thereby minimizing the adverse effects of stress and increasing psychological well-being.

This study reported that there is a moderate negative correlation between job-related stress and resilience, indicating that higher job-related stress levels are associated with lower resilience levels. This result is supported by Shirali et al. (2021) in a case-control study among Iranian nurses during the COVID-19 pandemic, which is intended to assess the ability of nurses to remain resilient despite experiencing job stress. The results showed that the target and control groups had significantly different mean scores for job-related stress and resilience. A noteworthy, strong negative association between resilience and job-related stress was also found in the target group. Furthermore, Yilmaz et al. (2017) studied the impact of resilience as a strategy to face workplace challenges among nurses. The result presented that nurses who display resilience were more able to adapt and adjust to their workplace adversity and maintain a healthy psychological state.

The recent study found no significant correlation between job-related stress and well-being. The findings of this study contrast with those of a study carried out in Iran by Gorgich

et al. (2017), which sought to assess the psychological well-being and job-related stress of nurses employed in educational hospitals. The results showed a positive correlation between job-related stress and mental well-being. Similarly, a study by Sarafis et al. (2016) found that excessive job-related stress negatively impacts psychological well-being among healthcare workers. This influenced nurses' behavioural, emotional, and cognitive levels, which reduced their work efficacy. However, differences in scores could be attributed to the sample size, populations' different life experiences, and cultural characteristics.

This study indicated that there was no significant relationship between well-being and resilience. Elghabbour et al. (2023) suggest that resilience is essential for promoting psychological well-being. This claim was supported by Sagone and Caroli's (2014) study, which found that individuals who could resist stress tended to have higher psychological well-being scores. However, the inconsistencies in results could be due to different assessments of resilience based on various psychological, mental, and behavioural attributes in nurses and their unique environmental and personal factors.

Conclusion

The current study aimed to assess the stress, resilience, and well-being levels among Al Nahdha Hospital staff nurses to determine how these factors relate to their sociodemographic data. The findings indicated that the nurses had a low level of resilience, and moderate level of perceived stress, and 39.3% were reported to have lower levels of well-being. Based on the study result, it was discovered that age and professional experience were linked to stress and resilience, indicating that experienced nurses might be more capable of handling stressful situations and more resilient. In addition, Omani nurses showed higher perceived stress levels and lower resilience than nurses from other nationalities. It is significant to notice a negative relation between job-related stress and resilience, which raises the possibility that nurses may require more organizational resources and assistance to manage stress and build resilience. It is recommended to conduct additional studies to address the knowledge gap, educate staff on stress management strategies, and enhance well-being and resilience since limited studies were conducted in Oman that focused on such topics. This will ultimately result in providing quality and safe care to the patient.

Limitations

This study was conducted only in the five departments of Al Nahdha Hospital; therefore, it is difficult to generalize the findings of this study to all nurses in the hospital and other hospitals as well. The random sampling and cross-sectional study only establish association between the variables without a direct cause. Time constraints limited the study as it was part of a student's graduation project. In addition, the study relied on self-reported data, which may not reflect the nurses' actual level of job-related stress, well-being, and resilience. Nineteen male nurses, representing 13.1% of the total participants, limit the generalizability of the result in comparison between the genders. Furthermore, there was a lack of control over extraneous variables that may have influenced the outcomes, such as alteration in staffing levels in a department and workload.

Recommendations

The researcher recommends expanding the research to more than one hospital and includes nurses from different specialties to generalize the research results. It is also recommended to conduct other studies to explore the factors associated with high stress and what self-management strategies nurses use to alleviate the stress and enhance resilience and well-being. Nurse managers need to recognize any nurses who may be susceptible to high-stress levels and decreased resilience. Additionally, nursing administration should have strategies, policies and

intervention programs that reduce stress levels, build resilience, and improve coping skills, such as stress management, self-confidence, clinical decision-making, communication skills, and conflict management. Furthermore, psychological counselling should be made easily accessible and available to nurses who are affected. Moreover, nurses should undergo comprehensive training to equip them with the necessary skills to handle stressful situations before being assigned to their respective departments.

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