The Relationship Between Burnout and Turnover among Critical Care Nurses in Tertiary Hospital in Saudi Arabia

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Abstract: Healthcare professionals are at high risk of developing burnout as a result of a stressful working environment, extensive responsibilities and workloads in healthcare sectors. The prolonged exposure to work stress is a potential hazard in healthcare organizations, leading to burnout. There is a knowledge gap specific to burnout among critical care nurses and turnover rate. The Study aimed to identify the relationship between burnout and turnover rate among critical care nurses in tertiary hospital. In this study a descriptive cross-sectional correlational design was used. A convenient sampling technique used to recruit 119 nurses working in different intensive care units at a tertiary hospital in Saudi Arabia with a response rate was 80%. Data were collected using survey that included: (1) a demographic information such as age, gender, education level, marital status, professional title, type of intensive care unit and years of experience and type of shift and number of shifts per month; (2) burnout questionnaire (Maslach burnout inventory); and (3) turnover rate. Institutional Review Board approved the study and descriptive statistics, t test, ANOVA and Correlation used to analyze the data. Most of nurses were in the age group between 26- and 34-years old female and most of them (78.2%) having Bachelor degree or higher. Most of them work in ICU and NICU, have between 3 and 5 years of experience and half of them work more than 10 shifts per month. Nurses perceived low emotional exhaustion and depersonalization with high personal achievement and moderate total burnout. Turnover rate was negatively correlated to nurses' perception of their personal accomplishment. Focusing on identifying the burnout level and its relationship to the actual turnover rate on critical care environment is needed to be validated by series of studies in Saudi Arabia especially that the results are different from other countries which might be because of the multinationalism of nurses' workforce in Saudi Arabia.

Key words: Nurses · Burnout · Turnover · Tertiary Hospital

INTRODUCTION

Healthcare professionals are at high risk of developing burnout as a result of a stressful working environment, extensive responsibilities and workloads in healthcare sectors [1-3]. The prolonged exposure to work stress is a potential hazard in healthcare organizations, leading to burnout.

Today nursing is facing great challenging as a result of complex organizational structure, technology and shortage of qualified nurses. Worldwide the shortage of qualified nurses is a challenge in health care field happening as the results of contributing factors like low job satisfaction, lack of managerial communication skills, high patient acuity, career opportunities and financial pressures and conflict between individuals and job demands. Burnout has extreme effects on nurse's well-being, patient safety and quality of care. Among the contributing factors, job burnout has been indicated as a risk factor for the intention to leave [4-6].

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Critical care nurses are among the highest stressed nurses in the profession [7, 8]. Those stressors are related to rapid inversion in patients; maximum accountability; high role expectations; repeated attack of sorrowfulness related to death rate in Critical care; end of life management; prolonged work hours; and conflicts related to patient care within the critical care units [9, 10].

Maslach [11] defines burnout as "a multi-dimensional construct comprised of emotional exhaustion, depersonalization and diminished personal competence that occurs among those who do 'people work' of some kind". Physical symptoms of burnout might include fatigue, insomnia, muscle tension, headache and gastrointestinal problems [7]. Severe symptoms were found in 33% of critical care nurses and up to 86% had at least one of the three classic symptoms [7]. Financial pressure, prolonged shift working hours, feeling of overwhelmed, job uncertainty and lack of managerial upper management support were significant and linked to burnout [12]. Annually turnover rates among intensive care nurses' units were between 13 and 20%, although the United States average in 2013 for all types of employees was 10.4% [7]. The annual per capita cost to exchange one critical care nurse was projected at $65, 000 [7]. Retreating the effects of burnout in the critical care units is highly crucial not only to the healthcare worker but also for the well-being of nurses and patients and quality of care [7, 13, 14].

Numerous environmental factors contribute to the incidence of burnout syndrome (BOS) for critical care nurses. Those factors are related to inadequate staffing, nurse-to-patient proportions, low levels of independence among nurses and fatigue syndrome [15, 16]. Studies in ICU nurses indicated that BOS was common and preventive strategies were urgently needed [17, 18]. However, these studies did not identify independent risk factors for BOS, which is a crucial step toward developing preventive strategies.

Job turnover is expected to absence and belligerence, within the work environment point [12]. A study done by Mosadeghrad [9] reported that twenty six of workers were classified by their job stress as high, characteristic inadequate pay, difference at work, an excessive amount of work, nurses' shortage, lack of recognition and promotional prospects, time pressure, lack of job security and lack of management support as causes related to their stress. With a threat to quality of employment life, job stress is connected completely to workers intentions to quit.

In Saudi Arabia the researchers supported that phenomena of burnout among Saudi nurses are there and impact the turnover rate, job satisfaction and patient quality of care. In 2019, it was reported that workplace stress and nurses' intention-to-leave have a positive correlation with the development of burnout symptoms. Job satisfaction levels had a negative correlation with the development of burnout symptoms. Overall, nurses' demographics had no significant effect on the development of burnout [19]. As well in 2018, it was reported that high turnover among critical care nurses in King Saudi Military Medical City (KSMMC) especially young nurses; they need stress management and preventive strategies to burnout [20]. Moreover, in a study aimed to explore the prevalence of burnout and job satisfaction among Saudi national critical care nurses, Saudi critical care registered nurses described moderate to high levels of burnout in the areas of emotional exhaustion and depersonalization [21].

In Summary, review of the literature revealed that there is a knowledge gap specific to burnout among critical care nurses and burnout. Burnout is well known in many professions, these areas have not been recognized as a true problem in the nursing profession, as evidenced by increasingly high turnover rates. Burnout underlying causes are associated with nurse turnover [22]. This study explored the burnout and turnover among critical care nurses in tertiary hospital in Saudi Arabia.

MATERIALS AND METHODS

Research Questions:
- To identify the characteristics of the critical care units and nurses participating in the study?
- To explore level of burnout among critical care nurses at who work in tertiary hospital.
- To identify the demographic features (i.e. age, gender and working experience) impacting the development of burnout among critical care nurses who work in tertiary hospital.
- To identify the relationship between burnout and turnover rate among critical care nurses who work in tertiary hospital

Research Design and Setting: A descriptive cross-sectional correlational research design was used for this study at a tertiary hospital in Saudi Arabia to demonstrate the burnout phenomena among critical care nurses and its relation with a turnover rate.

Sampling: A convenient sampling technique was used to include all nurses in the 5 critical care units in the selected setting (n=119). The inclusion criteria for participants included: Staff nurses holding a current nursing license, practicing bedside patient care, can read and write in English, employed in current setting for not less than a year. Response rate was 80%.

Instruments

Demographic Data: Demographic information included age, gender, education level, marital status, professional title, type of critical care unit, years of experience, type of shift and number of shifts per month.

Maslach Burnout Inventory (MBI): MBI is the instrument developed by Maslach and Jackson in 1981[23] commonly across health care organizations among health care professionals and to measure risk of burnout in work places around the world. It consists of three dimensions: Section A: emotional exhaustion (EE), section B: depersonalization (DP) and Section C: personal accomplishment (PA). Sections A and B consist of 7 questions and section C 8 questions. Section A emphases on identifying the presence of burnout manifesting as physical symptoms. A score of 17 and below indicates low level burnout, (average 17 – 26) indicating moderate average according to MBI criteria and a score of over 30 is a high-level burnout.

Section B is manifested by negative feelings towards colleagues, the job and overall depersonalization attitude. This section also measures the loss of empathy towards others. A Score of 5 or less shows low-level burnouts, the (average 7-12) indicating moderate burnout and a score over 12 is high level burnout. Score of 33 in Section C shows high level burnout, (average 32 – 38) reflects moderate burnouts and over 40 low levels of burnout [23]. The MBI has become the gold standard for identifying burnout in the medical research literature which is found to be reliable and valid.

Reliability Cronbach Alpha in the current study was highly reliable as exceeding the recommended .70. It was .88 for emotional exhaustion, depersonalization was .82 and for personal accomplishment was .83.

The validity refers to the extent to which an instrument measures what it supposed to measure. The validity of the instrument was examined by a correlation coefficient measure. The significance of this step is that statistical validity indicated that the positive correlations indicate a positive relationship between two variables, while negative correlation indicate an inverse relationship between the variables analyzed.

Turnover Rate: The turnover rate was calculated by using the below Equation.

Employee Turnover Rate

$$\frac{\text{Number of employees who left during a given period}}{\text{Average number of employees during the given period}} \times 100$$

Data Collection Procedures: The survey was conducted throughout October and November 2019 in a tertiary hospital in East Providence at Kingdom of Saudi Arabia. One hundred and nineteen nurses who work in the 5 intensive care units [ICU-A; ICU–B; CCU- PICU and NICU], in tertiary-level hospital were selected to participate in the current study. After the questionnaire was approved by the project core team members, director of Wellness program communicated the head nurse of each participating ICU to share the project objectives and collect questionnaire to be used according to their scheduled and available time.

The primary data was collected through a web-based questionnaire designed on Survey Monkey. After the head nurses informed the eligible participants about the survey, the head nurse in each ICU also explained that participation was purely voluntary and the survey was anonymous questionnaire addressing demographic data and burnout questionnaires and all collected data was kept confidential and the data was manually checked for completeness.

Ethical Considerations: The researcher obtained approval from the Institutional Review Board (IRB) prior to data collection. Participants were ensured that no personal information would be revealed. No names would be mentioned in any report.

Statistical Analysis Method: Descriptive statistics has been presented as counts, proportions (%), mean and standard deviation whenever appropriate. The comparison between MBI subscales versus socio demographic characteristics of participants had been conducted using Independent t- test (2 categories) and ANOVA test (3 categories). $P < 0.05$ was considered statistically significant. Normality, statistical interactions and collinearity (i.e. variance inflation factor) were also assessed with the correlation, p-value < 0.05 were considered as skewed data. All data analyses were performed using the statistical package for social sciences, version 21 (SPSS, Chicago, IL, USA).

RESULTS

As seen in Table 1, there were 119 nurses who were recruited in this study. Age range was from 18 to 54 years, of whom majority were in the 26–34 years old group (70.6%) with most of them were females (83.2%) and bachelor or higher degree (78.2%). With regards to department unit, slightly more nurses were currently working at ICU A (32.8%), followed by NICU (21.8%) and ICU B (20.2%). Pertaining to years of work experience, many of the nurses were having 3–5 years of work experiences (38.7%), 34.5% were of 6–10 years and 19.3% were of more than 10 years of experiences. Moreover, more than a half them (52.9%) were working during morning shift and the rest were working either on the night shift (31.9%) or straight shift (15.1%). With regards to shift per month, a little over a half of them (52.9%) had more than 10 shifts months while 47.1% had 10 or less shifts per month.

Table 1: Socio Demographics Characteristics of Nurses (N=119)

Study Data	N (%)
Age group	
• 18–24 years	05 (04.2%)
• 25–34 years	84 (70.6%)
• 35–44 years	24 (20.2%)
• 45–54 years	06 (05.0%)
Gender	
• Male	20 (16.8%)
• Female	99 (83.2%)
Marital status	
• Unmarried	47 (39.5%)
• Married	72 (60.5%)
Educational level	
• Diploma	26 (21.8%)
• Bachelor or higher	93 (78.2%)
Department	
• ICU A	39 (32.8%)
• ICU B	24 (20.2%)
• CCU	08 (06.7%)
• PICU	22 (18.5%)
• NICU	26 (21.8%)
Years of experience	
• ≤1 year	02 (01.7%)
• 1–2 years	07 (05.9%)
• 3–5 years	46 (38.7%)
• 6–10 years	41 (34.5%)
• >10 years	23 (19.3%)
Type of shift	
• Morning shift	63 (52.9%)
• Night shift	38 (31.9%)
• Straight	18 (15.1%)
Number of shifts per month	
• ≤10 shifts	56 (47.1%)
• >10 shifts	63 (52.9%)

Table 2 described the outcome of MBI subscale inventory score; it was revealed that the mean score for emotional exhaustion was 19.0 (SD 10.8) indicating an average emotional exhaustion based on MBI criteria (average 17 – 26). On the other hand, the mean depersonalization score was 10.9 (SD 8.53) was also classified as average depersonalization based on MBI criteria (average 7 – 12) whereas the mean score of personal accomplishment was 32.9 (SD 8.44) which was also considered as average personal accomplishment based on MBI criteria (average 32 – 38). Finally, when summing the BMI subscales, the overall mean burnout score was 61.6 (SD 17.9) which indicates a moderate perceived burnout.

The correlation between emotional exhaustion and depersonalization has been conducted at Fig. 5. Based on the results, a highly significant positive correlation was found between emotional exhaustion and depersonalization ($r=0.716$, $p-<0.001$) signifying that when the score of emotional exhaustion was increased the score of depersonalizations also increased.

Fig. 6 presented the correlation between emotional exhaustion and personal accomplishment. Based on the results, a negative correlation was found but it did not differ significantly between emotional exhaustion and personal accomplishment ($r=-0.031$, $p-0.736$).

Fig. 7 depicted the correlation between depersonalization and the personal accomplishment. It was found that a significant inversely correlation had been observed between depersonalization and personal accomplishment ($r=-0.232$, $p-0.011$), suggesting that when score of depersonalizations was decreased the score of personal accomplishment also decreased.

When comparing the score of the three MBI subscales among the socio demographic characteristics of participants, we found that marital status has significant association with emotional exhaustion ($T=2.266$, $p-0.025$) suggesting that unmarried participants were more associated with higher average emotional exhaustion while married participants were more associated with low average emotional exhaustion.

On the other hand, statistical difference was found between the department unit and personal accomplishment ($F=3.306$, $p-0.013$) where those working in CCU were more associated with meeting low personal accomplishment while those working at NICU were more associated of meeting the average personal accomplishment. Other socio demographic variables such

Table 2: Outcomes of MBI Subscale Inventory Score (N=119)

MBI Subscale	Possible Range	Actual Range	Mean ± SD	Mean %
Emotional Exhaustion	0 - 42	0 - 40	19.0 ± 10.8	45.2%
Depersonalization	0 - 36	0 - 36	10.9 ± 8.53	30.3%
Personal accomplishment	0 - 42	5 - 42	32.9 ± 8.44	78.3%
Total Burnout Score	0 - 100	7 - 96	61.6 ± 17.9	61.6%
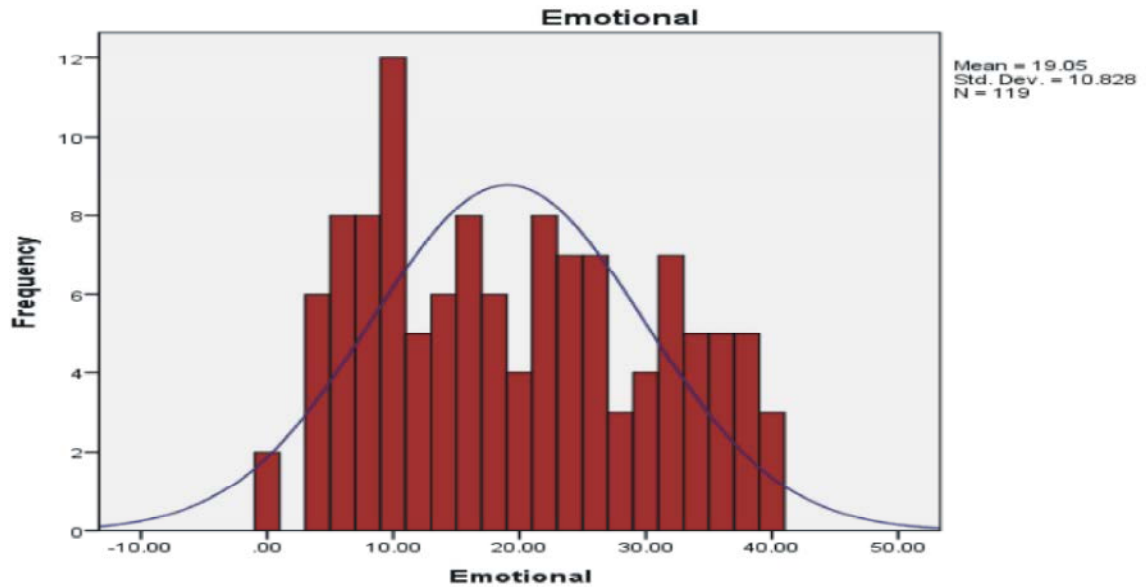
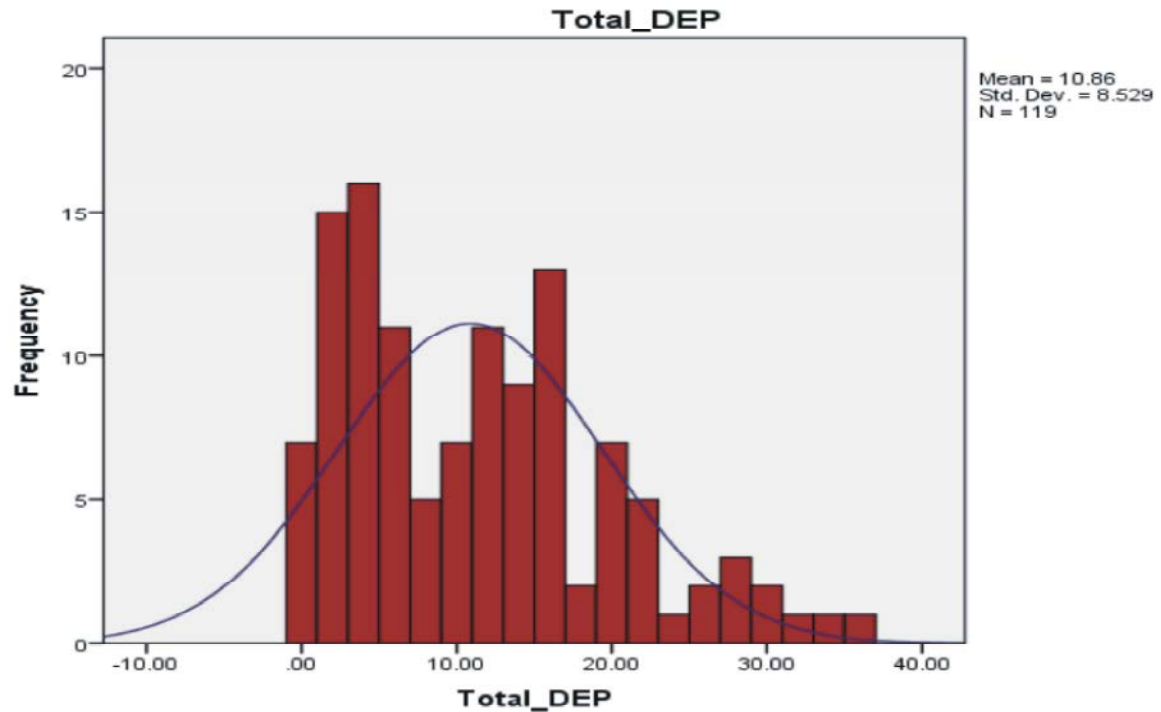Fig. 1: Normal Curve Distribution of Emotional Exhaustion
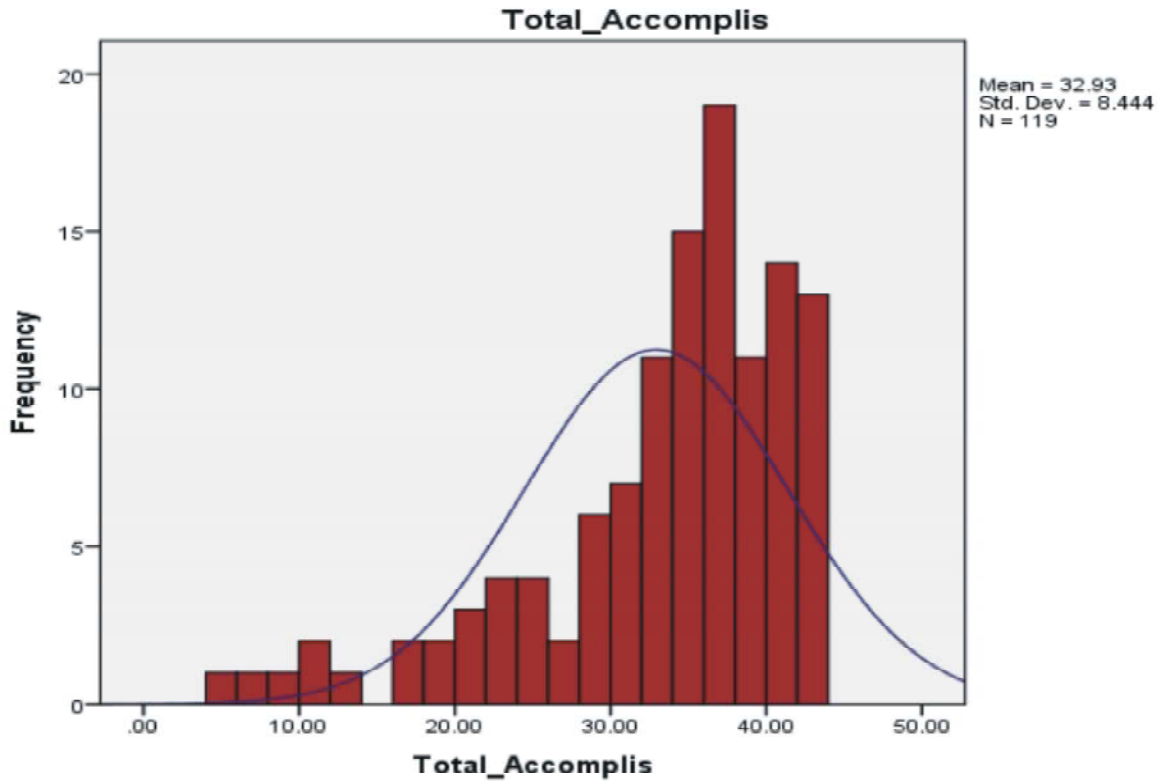

Fig. 2: Normal Curve Distribution of Depersonalization

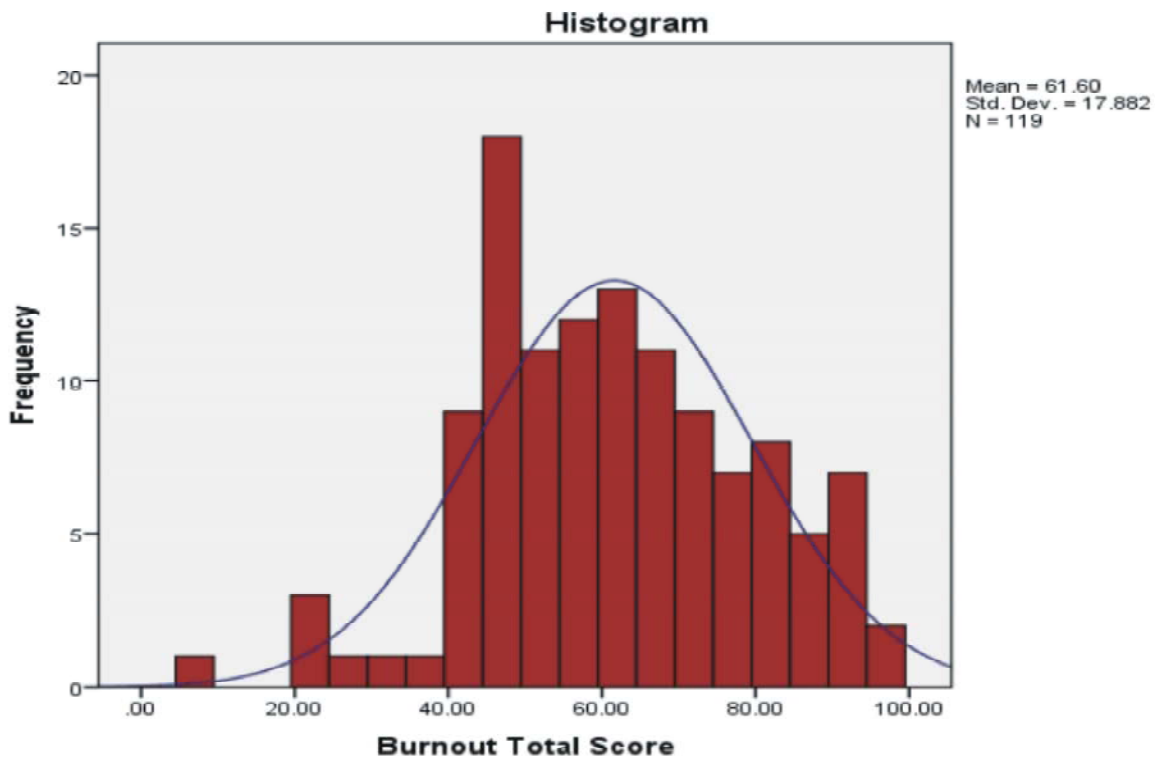Fig. 3: Normal Curve Distribution of Total Accomplishment

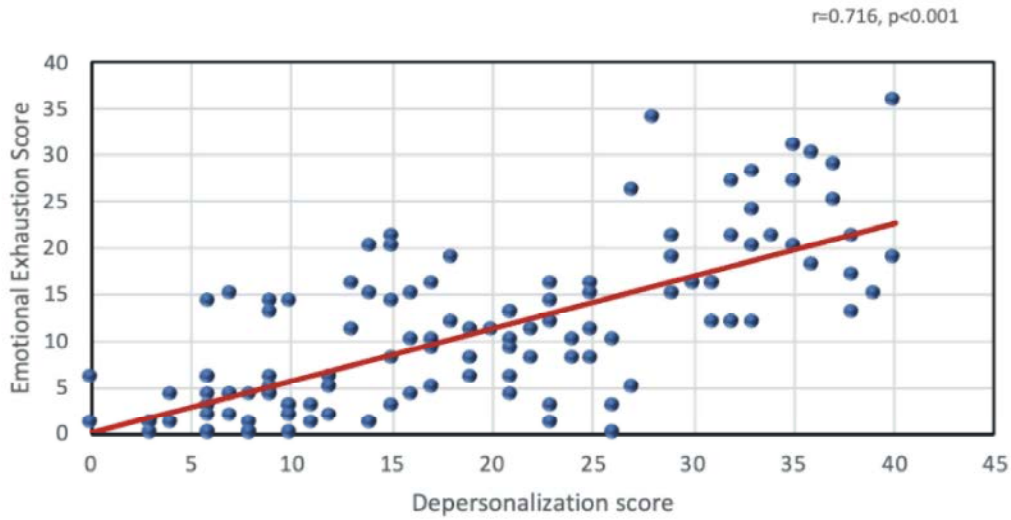Fig. 4: Normal Curve Distribution of Overall Burnout Score

r=0.716, p<0.001

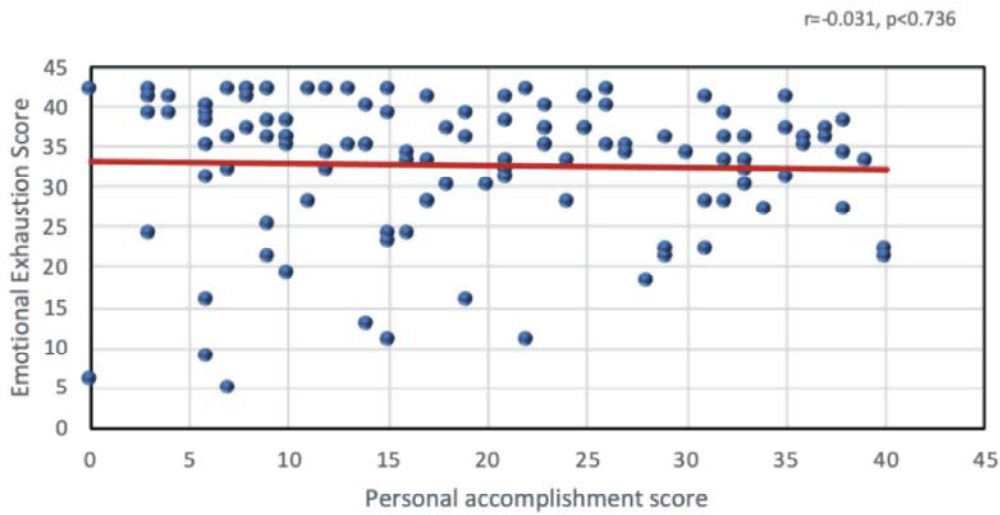Fig. 5: Correlation (Pearson-R) Between Emotional Exhaustion and Depersonalization

r=-0.031, p<0.736

Fig. 6: Correlation (Pearson-R) Between Emotional Exhaustion and Personal Accomplishment
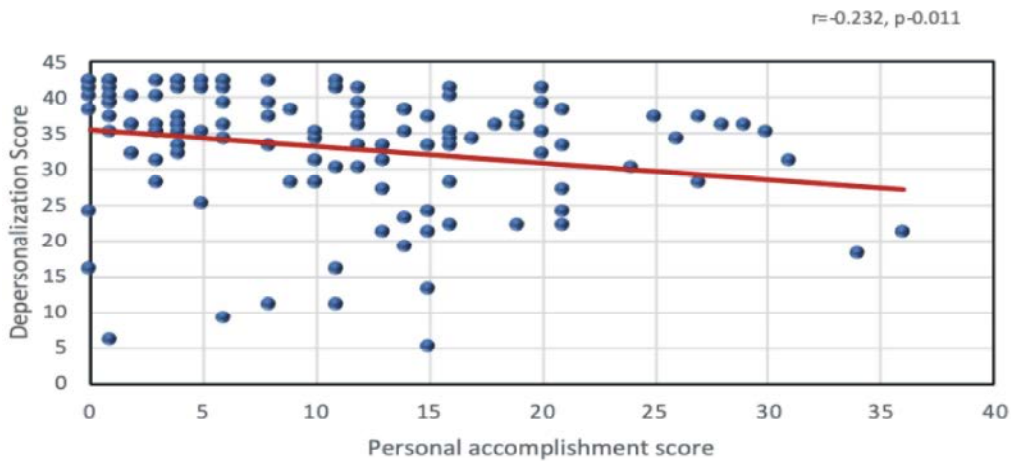
r=-0.232, p-0.011

Fig. 7: Correlation (Pearson-R) Between Depersonalization and Personal Accomplishment

Table 3: Comparison between the MBI Subscales´ Scores and The Socio Demographic Characteristics of Nurses (N=119)

Factor	Emotional Exhaustion Mean ± SD Total Score (42)	Depersonalization Mean ± SD Total Score (36)	Personal Accomplishment Mean ± SD Total Score (42)
Age group [a]			
• ≤35 years	19.6 ± 10.9	11.4 ± 8.54	32.9 ± 8.38
• >35 years	17.3 ± 10.3	9.27 ± 8.45	32.9 ± 8.77
T/F Test	T=1.004	T=1.183	T=0.024
P-value	0.317	0.239	0.981
Gender [a]			
• Male	21.4 ± 11.9	13.0 ± 10.9	31.9 ± 9.61
• Female	18.6 ± 10.6	10.4 ± 7.96	33.1 ± 8.23
T/F Test	T=1.087	T=1.235	T=-0.598
P-value	0.279	0.219	0.551
Marital status [a]			
• Unmarried	21.8 ± 10.6	12.1 ± 8.86	31.3 ± 9.53
• Married	17.3 ± 10.7	10.1 ± 8.27	34.0 ± 7.52
T/F Test	T=2.266	T=1.250	T=-1.767
P-value	0.025 **	0.214	0.080
Educational level [a]			
• Diploma	16.9 ± 10.9	8.27 ± 7.68	33.2 ± 7.64
• Bachelor or higher	19.7 ± 10.8	11.6 ± 8.65	32.8 ± 8.69
T/F Test	T=-1.155	T=-1.766	T=0.203
P-value	0.250	0.080	0.840
Department [b]			
• ICU A	17.9 ± 11.6	10.8 ± 9.83	33.5 ± 8.36
• ICU B	20.6 ± 11.0	11.5 ± 7.49	32.8 ± 7.46
• CCU	16.9 ± 13.7	13.2 ± 8.24	23.2 ± 11.9
• PICU	15.9 ± 7.28	7.86 ± 6.74	33.2 ± 9.02
• NICU	22.7 ± 10.6	12.1 ± 8.71	35.0 ± 6.04
T/F Test	F=1.519	F=1.006	F=3.306
P-value	0.201	0.407	0.013 **
Years of experience [a]			
• ≤ 5 years	17.7 ± 9.65	10.2 ± 7.96	32.4 ± 8.52
• >5 years	20.2 ± 11.7	11.4 ± 9.02	33.4 ± 8.42
T/F Test	T=-1.308	T=-0.778	T=-0.593
P-value	0.194	0.438	0.554
Type of shift [b]			
• Morning shift	20.3 ± 10.9	10.3 ± 8.13	33.0 ± 8.07
• Night shift	17.8 ± 11.0	12.0 ± 9.42	32.7 ± 9.64
• Straight	17.5 ± 10.1	10.4 ± 8.16	32.9 ± 7.40
T/F Test	F=0.850	F=0.499	F=0.016
P-value	0.460	0.608	0.984
Number of shifts per month [a]			
• ≤10 shifts	17.6 ± 10.3	9.54 ± 8.25	31.5 ± 9.54
• >10 shifts	20.3 ± 11.2	12.0 ± 8.66	34.2 ± 7.17
T/F Test	T=-1.393	T=-1.604	T=-1.761
P-value	0.166	0.111	0.081

[a] P-value has been calculated using independent t-test.

[b] P-value has been calculated using One-way ANOVA test.
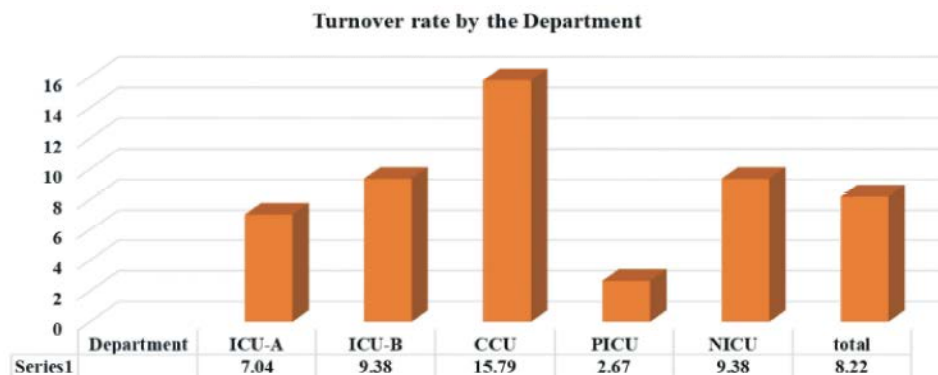
** Significant at p<0.05 level

Fig. 8: Turnover Rate by Department

Table 4: Correlation (Pearson-R) Between Turnover Rate among Burnout Score and Its Subscale (N=119)

Burnout Subscales	Turnover Rate-value	P-value
Emotional Exhaustion	0.110	0.236
Depersonalization	0.174	0.059
Personal accomplishment	-0.182	0.047*

* Significant at p<0.05 level.

An inversely negative correlation has been detected between turnover rate and personal accomplishment (r=-0.182, p-0.047).

as; age group in years, gender, educational level, years of experience, type of shift and number of shifts were all having no significant association among emotional exhaustion, depersonalization and personal accomplishment (Table 3).

Fig. 8 represented the turnover by department and indicated that the highest turnover rate was among CCU nurses.

DISCUSSION

Results of the current study indicated that most of the nurses were in the age group between 26- 34 years old female and having BSN. Most of them work in ICU and NICU, have between 3 and 5 years of experience and half of them work more than 10 shifts per month.

The results indicated that nurses perceive low emotional exhaustion and depersonalization with high personal achievement and moderate total burnout. Emotional exhaustion was higher among unmarried nurses and personal accomplishment was higher among NICU nurses. Total burnout only was higher among nurses who have more than 10 shifts per month. Turnover rate was low but it was higher in CCU in relation to other intensive care units and turnover rate was negatively correlated to nurses' perception of their personal accomplishment.

In contrary to the current study results, A study in Turkey found that the emotional exhaustion was high and the depersonalization and personal achievement were low among 570 of all health care providers working in PICUs and pediatrics emergency departments [24]. They also found that age group from 25-29 and single status have high emotional exhaustion and depersonalization with lower personal achievement. In addition, burnout did not differ between gender groups and years of experience.

Also, in contrary to the current study results, it was found that only 16% have a high degree of burnout, with the highest for emotional exhaustion and depersonalization scores together with a low personal accomplishment score in an observational study done among 431 ICU nurses from 14 ICUs from 10 tertiary hospitals in China [5]. Burnout was associated with

demographic characteristics, such as age, educational level, the kind of clinical setting and years of employment as a nurse or an ICU nurse [5].

In France among 278 ICUs with 2392 returned questionnaires, it was found that one-third of ICU nursing staff had severe burnout. Determinants of sever burnout were including age, scheduling flexibility, participation in research, conflicts with patients, relationship with head nurse and physicians and caring for a dying patient [14].

Unexpectedly, it was found that among 303 ICU nurses from 3 Flemish Hospitals that turnover and burnout prevalence were low [25]. Turnover rate was low among 49.5% of the sample and high among only 6.6 % of them and only 3% of ICU nurses were at risk for burnout [25].

In agreement with the current study results, a study assessed burnout among 270 critical care nurses using simple random sampling from hospital at Saudi Arabia which is similar to the current study environment and culture and found that burnout prevalence was 65.9% which is high medium and significant. In addition, burnout was higher among single nurses. They debated that high moderate results of burnout may be as a result of work overload, nursing staff shortage, compensation and financial causes [20].

Another cross-sectional correlational study in Saudi Arabia [19] among 224 nurses found that workplace stress and nurses' intention-to-leave have a positive correlation with the development of burnout symptoms and nurses' demographics had no significant effect on the development of burnout. However, multinationalism might be a contributing factor for burnout and turnover.

As the current study indicated that the only burnout subscale that is significantly higher among NICU nurses is the personal achievement as well as it was related to decreased turnover rate. Nurses need a motivator such as achievement on the personal level such working in NICU that may help them as being able to understand what are patients' problems effectively; handling emotional problems calmly at work; having a positive influence on people; able to create a relaxed atmosphere with patients and be close to them; and be energetic and accomplish many worthwhile at job.

Limitations of the Study: Self-report questionnaire/survey may induce response bias and social desirability to the results. Nurses may not feel comfortable providing answers that present them in an unfavorable manner. However, the survey was anonymous to decrease this bias.

CONCLUSIONS

Nurses perceived low emotional exhaustion and depersonalization with high personal achievement and moderate total burnout. Turnover rate was low but it was higher among CCU nurses in relation to other intensive care units and turnover rate was negatively correlated to nurses' perception of their personal accomplishment. This is one of few studies that investigated the relationship between nurses' burnout and actual turnover are calculated. Focusing on identifying the burnout level and its relationship to the actual turnover rate on ICU environment need to be validated by series of studies in Saudi Arabia especially the results which are different from other countries which might be because of the multinationalism of nurses' workforce in Saudi Arabia.

Recommendations:

- Using a burnout measurement provides health care decision-makers with clear information about staff adaptation to their environment and stressor.
- Interventions and preventive strategies are needed to burnout that can benefit work environment among ICU nurses with especial attention to CCU nurses.
- Additional research is necessary to confirm the study results and add other contributing factors such as personal stressors that could affect burnout and need more elaboration in a repeated study.

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