Nurses' Workload Perception and Its Relationship with Their Job Control, and Emotional Exhaustion

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Abstract
　　Background: The amount of work perceived as a workload and time pressure were described as the major stressors for healthcare providers, when physical and psychological demands exceed resources with a low level of Job control, healthcare providers become stressed and are more likely to develop emotional exhaustion. Aim: The study aimed to assess nurses' workload perception and its relationship with their job control, and emotional exhaustion. Settings: The study was conducted at Fever and Hepatology Hospital which is affiliated with the Ministry of Health and Population with a bed capacity of 215 Beds. The total number of units included in the study was 16 units. Subjects: Included all nursing staff (n =235) who were assigned to the previously mentioned settings were either professional nurses (n =76) or technical nurses (n =159), who were available during the period of data collection and agreed to participate in this study. Tools: Three tools were used for data collection; Workload questionnaire, developed by Hoonakker et al. (2011), Job Control Questionnaire, developed by Sasaki et al. (2020) ,and Emotional exhaustion scale developed by Martínez-Líbano et al. (2022). Results: There was a strong positive correlation between workload and emotional exhaustion (r = 0.766**P =.000), and between job control and workload (r = 0.771**P =.000.). Furthermore, there is a moderate positive correlation between job control and emotional exhaustion (r = 0.572**P =.000). Conclusion: It appears that job control shields workers from emotional burnout as workloads rise. Recommendations: Workload and job control are important factors in enhancing the working environment; low workload and low exhaustion are signs of an improved working environment, which can also be linked to increased job control. Organizational administrators and nurse managers should develop strategies to lower employees' workload and increase their sense of control by promoting workplace autonomy.
Key words: Nurses Workload, Job Control, Emotional Exhaustion.

Introduction

　　Nursing is a high workload profession, and excessive workload has been shown to have an adverse effect on patient care. Nurses face many challenges due to the unclear job description, and, the excess and unequal nurses' workload. Nurses' workload was considered as the ratio of demands or the 'task load' for available resources (Atefi et al., 2014). Workload refers to the amount of work performed or capable of being usually performed within a specific period (Hoonakker et al., 2011).

　　In the nursing profession, the nurse's workload is the amount of time and care that a nurse performs (directly or indirectly) to patients, the work setting, and professional development. Therefore, it considers the whole time of nursing that nurses need to perform in both nursing and non-nursing activities (Heydari & Sharifi, 2017). Nurses' workload can be classified into Mental Demand (MD), physical demand, temporal demand, frustration, effort, and performance (Nur et al., 2020).

One of the main concerns in healthcare settings has been the burden of nurses, who frequently express their dissatisfaction with their excessive workloads.The excessive workload may arise when nurses are asked to fulfill too many duties in a limited time with limited resources (Li et al., 2020).

Chang et al. (2021) reported that the excessive workload increases the stress at work, increases in stress levels of nurses undermines the physical and mental systems, increases absenteeism, the rate of making mistakes and accidents; reduces the job satisfaction of nurses; and reduce the efficiency of nurses and the organization.

Job control may include control over work tasks, control over the work pace and physical movement, control over the social and technical environment, and freedom from supervision (Mohammadian et al., 2022).

Moreover, when nurses are emotionally exhausted then they are no longer staying in personal or professional positions (Bruyneel et al., 2021). Hence this study aims to assess nurses' workload and its relationship with their job control, and emotional exhaustion.

Aims of the Study

This research aims to assess nurses' workload perception and its relationship with their job control, and emotional exhaustion

Research Question

What is the relationship between nurses' workload perception with their Job control, and Emotional exhaustion?

Materials and Method
Materials
Design: A descriptive correlational research design was used to accomplish the aim of the study.
Settings: This study was conducted at Fever and Hepatology Hospital which is affiliated with the Ministry of Health and Population with a bed capacity of 215 Beds.

The total number of units that included in the study were 16 units which are classified into Intensive Care Unit (n =4), Isolation I.C.U. (n =2), Hepatic Care Unit (n = 1), General Ward Unit (n =7), Dialysis unit (n = 1), and Emergency unit (n = 1). The majority of patients whom entered the hospital have life-threatening situations, especially during Covid19 pandemic.

Subjects: The Target Population of this study is all nursing staff around (n =235) who were assigned to the previously mentioned settings, either professional nurses (n =76) or technical nurses (n =159). The study subjects were determined based on the inclusion criteria of being responsible for direct and indirect activities for inpatient units, having no administrative responsibilities, being willing to participate in the study, and having experience not less than 6 months in the hospital to be familiar with the hospital system. The convenience sampling technique was used to obtain the study sample

Tools: In order to collect the needed data for this research three tools were used:

Tool one: "Workload questionnaire"
It was developed by Hoonakker et al. (2011), it was used to assess the workload among nursing staff. It consists of two parts, namely;
Part I. General Working Hours Characteristics:
Includes working hours, number of shifts, working full-time or part-time, and working in a governmental or private hospital.

Part II. The NASA Task-Load Index (TLX:)
The NASA-TLX is a multidimensional instrument to assess nurses' perception of their workload. It consists of six subscales each subscale having one item; Mental Demand (MD), Physical Demand (PD) and Temporal Demand (TD), Frustration (FR), Effort (EF), and Performance (PE). A response used a continuum starting from low workload = zero and high workload =100. Total workloads range from 0-600 where;

- Low workload ranges from 0 <200.
- Moderate workload ranges from 200< 400.
- High workload ranges from 400≤600.
- The reliability of the tool was tested to measure the internal consistency of the items composing it employing Cronbach's alpha coefficient. The Cronbach's alpha reliability test of the NASA Task-Load Index workload scale in the current study was (.720).

Tool two: "Job Control Questionnaire"

It was developed by Sasaki et al. (2020) and It was adapted by the researcher . It was used to assess job control as perceived by nurses. The questionnaire consists of 9 items, divided into two subscales namely; skill discretion (n=6 items) and decision authority (n 3 items). The response measured on a five-point Likert scale ranging from (5) strongly agree to (1) strongly disagree. The overall score will be ranged from 9 to 45 where;

- Low level of JC score ranges from 9 <21.
- Moderate level of JC score ranges from 21< 33.
- High levels of JC ranges from 33≤45.
- The reliability of the tool was tested to measure the internal consistency of the items composing it employing Cronbach's alpha coefficient. The Cronbach's alpha reliability test of the Job Control tool was (.806)

Tool three: "Emotional exhaustion scale"

It was developed by Martínez-Líbano et al. (2022) and It was validated in Klusmann et al. (2016). It includes 10 items to assess emotional exhaustion among nursing staff such as; excessive stress, sleeping time, lack of energy, working hours, excessive work, working relationship, and lack of knowledge. The response used a five-point Likert scale ranging from (1) Strongly disagree to (5) Strongly agree. Total scores range from 10 to 50;

- Low level of Emotional exhaustion score ranges from 10 <24.
- Moderate level of Emotional exhaustion score ranges from 24< 38.
- High levels of Emotional exhaustion range from 38≤50.
- The reliability of the tool was tested to measure the internal consistency of the items composing it employing Cronbach's alpha coefficient. The Cronbach's alpha reliability test of emotional exhaustion was (.860).

Method

Approval from the Ethical Research Committee (ERC), Faculty of Nursing, Alexandria University was obtained.Official permission was obtained from the Dean of the Faculty of Nursing, Alexandria University to the Fever and Hepatology Hospital authority to get an agreement to conduct the study.A written approval was obtained for conducting the study from the hospital administrators after providing an explanation of the aim of the study and collecting the necessary data.Backward-forward translation was done for tool I, II, and tool III The original form was translated from English into Arabic. Back translation was done also. Tools were tested for their content validity by jury of five experts in the field of the study from Faculty of Nursing. Alexandria University and some statements are reworded. They were one professor, two assistant professors, and three lecturer of nursing administration department. A pilot study was carried out on 10% of nurses (n-24) that were included in the study sample, to assess and guarantee the tools' suitability, clarity, and applicability; to pinpoint potential roadblocks and issues during data collection; and to gauge how long it will take to complete the questionnaire. The instruments underwent some modifications and were finalized in accordance with the results of the pilot research.The tools were tested for their internal consistency, reliability using Cronbach's alpha Coefficient which proved to be strongly reliable.Reliability of workload

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questionnaire is .720, Reliability of job-control questionnaire is .806, Reliability of emotional exhaustions is .860.

Ethical considerations:

Written informed consent from the study subjects was obtained after explaining the aim of the study.Confidentiality of the data, the anonymity of the study subjects was maintained.The subjects' right to withdrawal from the study at any time was assured.

Statistical Analysis

Suitable statistical analysis tests were used to determine nurses perspectives toward the extent of the nurses' workload perception and its relationship with their job control, and emotional exhaustion practices in the organization.

After collecting date, the data were revised coded and fed to statistical software IBM SPSS version 25, appropriate statistical analyses were done using two-tailed tests and an alpha error of 0.05. A P-value less than or equal to 0.05 was considered to be statistically significant. frequency tables and cross-tabulation were used to illustrate the results. Quantitative data were summarized by the arithmetic mean, standard deviation, and mean score percent.

Results

Table 1 pointed that the studied nurses perceived high level of total workload and each of mental demand, physical demand, temporal demand, effort demand, frustration level with **Mean± SD=** (80.52±6.20, 80.84±5.35, 80.24±5.54, 80.45±7. 45, 70.97±7.08) respectively while they perceived low level of performance workload with **Mean± SD=**30.34±9.86.

Table 2 pointed that the studied nurses perceived moderate level of total job control with Mean± SD=17.24±2.98 while they perceived low level of decision authority job control with Mean± SD=4.74±1.58.

Table 3 pointed that the studied nurses perceived moderate to high level of emotional exhaustion (70%) with **Mean± SD=**35.33±1.64.

Table 4 revealed that, there is a strong positive correlation between workload and emotional exhaustion (r = 0.766**P =.000), Furthermore, there is a moderate positive correlation between job control skill discretion and emotional exhaustion (r = 0.572**P =.000).

On other hand, it can be seen that there is a strong positive correlation between job control skill discretion and workload (r = 0.771**P =.000.).In addition there is a strong positive correlation between job control decision authority and skill discretion (r = 0.678**).The p-value is significant at the 0.01 level, indicating a highly significant relationship between job control decision authority and skill discretion (p < 0.01).

Table 5 reveals that there was statistically significant relationship between workload and age, sex, educational qualification and years of experience in hospital (F = 5.165, p = 0.002, t = 11.647, p < 0.001, F = 3.658, p = 0.027, F = 4.439, p = 0.005) respectively while there was no significant relationship between workload and marital status, having children, numbers of children and complaining from any chronic disease (F= 1.561,P=0.200 - t= 1.240,P=0.217 - F= 0.662,P=0.619 - t=0.191,P=0.849) respectively. Moreover there was statistically significant relationship between job control and sex, number of children, educational qualification and years of experience in hospital (t =11.647*, p>0.001* - F=5.238*, p>0.001*- F=4.877*, p = 0.009*- F=9.518, p =.000*) respectively while there was no significant relationship between job control and age, marital status, having children and complaining from any chronic disease (F=0.878, P=0.000 - F= 1.772,P=0.154 - t= 1.240,P=0.217 - t=0.191,P=0.849 respectively). Additionally there was statistically significant relationship

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between emotional exhaustion and age, marital status and years of experience in hospital (F=14.505*, p>0.001*-F=4.045*, p =0.008*-F=10.762*,p>0.001*) respectively while there was no significant relationship between emotional exhaustion and sex, having children, number of children, educational qualification and complaining from any chronic disease (t =1.088, P=0.279 - t=1.240,P=0.217 - F=2.386,P=0.052 - F=2.386,P=0.052 - t=0.191,P=0.849).

Discussion

Nurses' workload is a critical factor in healthcare settings, as it directly impacts patient care quality, nurse job satisfaction, and overall patient outcomes. High nurse workload, often characterized by understaffing, excessive patient assignments, and extended work hours, can lead to emotional exhaustion, stress, and increased risk of medical errors (Hellín Gil & Ruiz Hernández, 2022).

Emotional exhaustion is often associated with feelings of depletion, cynicism, and a reduced ability to empathize with patients, which can result from the demanding emotional labor required in nursing roles (Mudallal et al., 2017).

The current study results indicate that nurses perceive a high level of total workload, including various dimensions such as mental demand, physical demand, temporal demand, effort demand, and frustration. These results can be attributed to nurses working for more than 36 hours a week, caring for a high number of patients in their shift (1:7), and managing highly critical care patients with both direct and indirect care responsibilities. Additionally, they are often required to perform duties that fall outside their job description. On the other hand, they perceive a low level of performance workload due to the lack of guidelines for their practice and engaging in routine care that requires less effort.

These results are in the same line with Phillips (2020) who reported that more than half of the study subjects reported a high workload level. Also, Ebrahimi et al. (2021) noted that nurses under study had high workloads in the dimensions of time need, frustration demand, physical, mental, effort, and performance. Conversely, Zhang et al. (2021a) reported that front-line nurses perceived low stress and workload, but high work engagement. Also, Al Ma'mari et al. (2020) reported low workload among the studied nursing population affects patient safety and quality of care.

Job control is an important factor in job characteristics, it involves control of the job environment, job tasks, job methods, job efficiency, and job resources (Li et al., 2020). The studied nurses perceived a moderate level of total job control, this may be due to that they mastered their performance in their units, autonomous in their plan of patient care. On the other hand, they perceived a low level of decision authority job control, this may be due to the lack of nurses' ability to make autonomous decisions especially related to their daily management issues such as time schedules, and sick leaves, also they don't engage in the planning of patient treatment.

This result suggests that the nurses have some level of control over their work, but they have limited decision-making authority. This finding is consistent with, Zhao and Yin (2023) who reported a high level of job control by nurses and other healthcare providers that impacted their safety performance and the hospital safety climate. On the other hand, previous research Negussie and Kaur (2016) has shown that nurses often reported having limited control over their work environment.

On the same line study Rostami et al. (2020) showed that higher job satisfaction and less workload are correlated with higher job control levels. Therefore, increasing the task control of nurses can enhance working conditions by lowering the mental workload and raising job satisfaction. Regarding the correlation between job control and skill discretion, the current study results revealed

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that there was a strong positive correlation between job control and skill discretion. This finding indicates that higher levels of job control are associated with higher levels of perceived skill discretion among nurses. Skill discretion refers to the ability to use one's skills and knowledge in the workplace. Moreover, this result is on the same line with Dall'Ora et al. (2020) who reported a Strong positive correlation between job control and skill discretion. Overall, these results highlight the complex relationships between workload, job control, skill discretion, and emotional exhaustion among nurses.

Concerning the correlation between EE, workload, and job control.

The current study results revealed that there was a strong positive correlation between workload and emotional exhaustion. This finding suggests that as workload increases, nurses are more likely to experience higher levels of emotional exhaustion. Different shift work systems have the potential to have a stressful effect on shift workers.

This result is consistent with results reported by Portoghese et al. (2014) who reported a strong positive correlation between these study variables.

As regards the correlation between job control and emotional exhaustion

Surprising the current study revealed that job control has a moderate positive significant effect on emotional exhaustion with an increase of one unit of job control will lead to an increase of .578 in emotional exhaustion, Furthermore, job control is responsible for 33 % of the variation in emotional exhaustion This means that as job control increases, nurses may experience higher levels of emotional exhaustion. This may be due to the fact that nurses have low control over their work, which can lead to the depletion of their mental and physical resources, resulting in a state of exhaustion and health problems. They may feel like they have lost control over their patient care plan and have to

follow the physician's orders, leading to feelings of helplessness and exhaustion.

These findings are consistent with Portoghese et al. (2014) results, which also yielded similar findings. Conversely, Lam et al. (2017) study demonstrated a negative correlation between job control and emotional exhaustion, highlighting the potential for increased job control to decrease emotional exhaustion levels.

Regarding the Correlation between Job control and workload

The current study findings revealed a negative correlation between job control and workload. This may be due to an increase in working hours and caring for a large number of patients, which can decrease the ability to make decisions and develop plans to control their work. This is consistent with the findings of Konze et al. (2017), who argued that job control buffers the adverse effects of quantitative workload. The study aligns with the buffering theory of job stress, which postulates that workplace discontent is caused by a very demanding workload coupled with a lack of job control (Kowalski et al., 2010).

Relationship between socio-demographic characteristics, job control, and workload

Regarding the statistical relationship between workload, job control, and emotional exhaustion with various demographic characteristics of healthcare workers the current study results revealed that there was a statistically significant relationship between workload and age, sex, educational qualification, and years of experience in the hospital. These results were in line with the studies conducted by Moghadam et al. (2021), Cremasco et al. (2013). While these results are inconsistent with Ziaei et al. (2015). showed that workload had no significant correlation with age, work experience, and marital status (P≥0.05). On the other hand, the current study results show no significant relationship between workload and marital

status, having children, number of children, and complaining from any chronic disease.

Similarly, job control was significantly related to sex, number of children, educational qualification, and years of experience in the hospital. These findings were consistent with El Ghaziri et al. (2019), Pien and Cheng (2021) findings. While there was no significant relationship between job control and age, marital status, having children, and complaining from any chronic disease. Additionally, emotional exhaustion was significantly related to age, marital status, and years of experience in the hospital. The same results were obtained in the studies conducted by Rhéaume (2022), Zhang et al. (2021b). On the other hand, there was no significant relationship between emotional exhaustion and sex, having children, number of children, educational qualification, and complaining from any chronic disease.

From the researcher's point of view, these findings suggest that demographic characteristics can play a role in the workload, job control, and emotional exhaustion experienced by healthcare workers. For example, younger healthcare workers may experience higher levels of emotional exhaustion, while those with more years of experience may have a better understanding of how to manage their workload. Similarly, healthcare workers with higher levels of education may have more job control, while those with more children may experience more difficulty balancing work and family responsibilities.

Similarly, job control was significantly related to working hours per week, long days per week, number of patients providing care, sleeping hours, working in a private hospital, and type of unit, while there was no significant relationship between job control and working hours per day. Additionally, emotional exhaustion was significantly related to working hours per week, long days per week, number of patients providing care, sleeping hours, working in a private hospital, and type of unit, while there was no significant

relationship between emotional exhaustion and working hours per day.

From the researcher's point of view, these findings suggest that work-related factors can play a role in the workload, job control, and emotional exhaustion experienced by healthcare workers. For example, healthcare workers who work longer hours per week or have more patients to care for may experience higher levels of emotional exhaustion. Similarly, healthcare workers who work in private hospitals may experience higher levels of workload and emotional exhaustion due to the higher demands of private healthcare.

Conclusion:

The nursing profession is known for having a heavy workload, which can negatively affect the health of nurses. Therefore, it's essential to comprehend the working environment and its effects to help nurses mitigate the negative impacts of their workload. The current study aimed to assess how nurses perceive their workload and its relation to their job control and emotional exhaustion. The findings revealed a significant positive relationship between workload and job control, and workload and emotional exhaustion. Moreover, a somewhat favorable association was observed between emotional exhaustion and job control. The study showed that nurses had high levels of workload, job control, and emotional exhaustion.

Recommendations

I. The hospital managers should:
- Providing nurses with job control can be an effective way to improve their working conditions and increase their job satisfaction. To achieve this, organizations should put in place management techniques that facilitate work control.
- Strengthening collaboration with colleagues and supervisors should be implemented to reduce burnout levels.

- Provide training to new graduate nurses to allow them to successfully begin their nursing career.

II. Nurses should:

- Prioritize daily tasks by importance such as identifying your most important tasks and creating a plan; delegate where and when you can Take part in problem-solving and decision-making
- Tune out distractions while trying to accomplish tasks.
- Set boundaries between work and personal   Life

Table 1: Distribution of the studied nurses' perception of their workload

	Min-Max	Mean± SD	Mean %
Total Workload	430-510	453.62±24.04	75.5%
1. Mental demand	80-100	80.52±6.20	80.52±6.20
2. Physical demand	80-100	80.84±5.35	80.84±5.35
3. Temporal demand	80-100	80.24±5.54	80.24±5.54
4. Effort demand	80-100	80.45±7. 45	80.45±7. 45
5. Performance	20-50	30.34±9.86	30.34±9.86
6. Frustration level	70-90	70.97±7.08	70.97±7.08

Low level of total workload 0 <200.
Moderate level of total workload 200< 400
High level of total workload 400≤600.

Table 2: Distribution of the studied nurses according to their perception of job control

	Min-Max	Mean±SD	Mean %
Total Job control	14-24	17.24±2.98	38.31%
Job control Skill discretion	10-16	12.50±1.67	41.66%
Job control Decision authority	3-8	4.74±1.58	31.6%

Low level of total job control 9 <21.
Moderate level of total job control 21< 33.
High level of total job control 33≤45.

Table 3: The distribution of the studied nurses according to their perception of emotional exhaustion

Descriptive Statistics		
Items	**Min-Max**		**Mean± SD**
Tests or evaluations cause excessive stress to you	4	5	4.20±.404
You think you try too hard for the little you get out of it	3	5	3.71±.850
You feel down in the dumps, kinds of sad ,for no apparent reason	1	3	1.42±.702
There are days when you don't sleep will because of studying	1	4	2.63±.838
You have headaches and other discomforts that affect your performance	2	4	2.59±622
There are days when you feel more exhausted and you lack the energy to concentrate	2	4	2.98±.578
You feel emotionally drained by your studies	3	5	3.80±.731
You feel tired at the end of the day	5	5	5.00±.001
Working and / or studding with evaluations in mind because you stressed	3	5	3.99±.656
You lack time, and you feel overwhelmed by your studies	5	5	5.00±.0001
Total emotional exhaustion	33.00	39.00	35.33±1.64
		Mean % 70.66	

Low level of emotional exhaustion 10 <24.
Moderate level of emotional exhaustion 24< 38.
High level of emotional exhaustion 38≤50.

Table 4: Correlation matrix between emotional exhaustion and job control and workload among studied nurses

		Workload	Job control Skill discretion	Job control Decision authority	Emotional exhaustion
Workload	r	1	.771**	.713**	.766**
	P value		.000	.000	.000
Job control Skill discretion	r	.771**	1	.678**	.572**
	P value	.000		.000	.000
Job control Decision authority	r	.713**	.678**	1	.488**
	P value	.000	.000		.000
Emotional exhaustion	r	.766**	.572**	.488**	1
	P value	.000	.000	.000	
. Correlation is significant at the 0.01 level (2-tailed).					

Table (5): Relation between personal demographic data, workload, job control and emotional exhaustion (n = 210).

Socio-demographic data	Workload Mean ± SD	Test of sig.	Job control Mean ± SD	Test of sig.	Emotional exhaustion Mean ± SD	Test of sig.
Age						
20<30	46.03±3.01	F= 5.165* P=0.002*	45.87±2.90	F=0.878 P=0.000	36.17±2.00	F=14.505* P<0.001*
30<40	45.47±2.43		45.90±3.40		35.33±1.63	
40<50	45.20±1.90		46.31±2.98		34.90±0.94	
50-60	44.17±0.74		45.22±3.34		34.28±0.45	
Sex						
Male	43.58±0.90	t = 11.647* P <0.001*	46.26±2.42	t =11.647* P<0.001*	45.47±2.43	t =1.088 P=0.279
Female	46.26±2.42		43.58±0.90		46.03±3.01	
Marital status						
Single	46.32±3.99	F= 1.561 P=0.200	45.87±3.15	F= 1.772 P=0.154	33.75±0.50	F=4.045* P=0.008*
Married	45.28±2.16		45.09±2.58		36.27±2.35	
Widowed	44.25±0.96		47.75±3.95		35.25±1.52	
Divorced	45.14±1.57		47.71±2.87		35.00±1.29	
Do you have children?						
Yes	45.27±2.14	t= 1.240 P=0.217	45.27±2.14	t= 1.240 P=0.217	45.84±3.51	t=1.240 P=0.217
No	45.84±3.51		45.84±3.51		45.27±2.14	
Number of children: No	45.84±3.51		44.81±2.47		35.88±2.08	
1 child	45.56±3.07	F= 0.662 P=0.619	45.22±3.06	F=5.238* P<0.001*	35.61±2.23	F=2.386 P=0.052
2 children	45.38±2.24		45.70±2.97		35.44±1.36	
3 children	45.04±1.83		46.17±3.25		34.93±1.36	
4 children	45.50±1.62		49.25±2.93		34.92±2.15	
Educational qualification						
Bachelor degree in nursing science	44.63±0.78	F=3.658* P=0.027*	45.98±3.63	F=4.877* P=0.009*	35.61±2.23	F=2.386 P=0.052
Institute of nursing school diploma	45.64±2.75		45.70±2.83		35.44±1.36	
Master degree	45.00±0.00		49.67±3.27		34.93±1.36	
Years of experience in hospital						
1<10	45.96±2.93	F=4.439* P=0.005*	44.64±2.90	F=9.518 P=.000*	35.96±1.92	F=10.762* P<0.001*
10<20	45.21±2.30		46.09±3.49		35.39±1.64	
20<30	45.22±1.83		46.43±3.04		34.83±1.07	
30-40	44.14±0.71		45.84±2.92		34.29±0.46	
Do You complain from any chronic disease?						
No	45.37±2.45	t=0.191 P=0.849	45.37±2.45	t=0.191 P=0.849	45.25±1.77	t=0.191 P=0.849
Yes	45.25±1.77		45.25±1.77		45.37±2.45	

Disease the nurses have

No disease	45.37±2.45		51.00±0.00		35.39±1.68	
HTN	45.60±1.95	F=0.579	46.40±3.58	F=2.285*	34.60±0.55	
AF	46.50±2.12	P=0.716	45.84±3.08	P=0.048*	34.50±0.71	F=1.040
ASTHMA	46.00±1.41		48.00±3.83		35.00±1.15	P=0.395
Rheumatoid arthritis	44.00±1.41		43.00±0.00		34.00±0.00	
DM	43.67±1.15		43.33±0.58		34.00±0.00	

F: ANOVA test   t = independent t- test   *: Statistically significant at p ≤ 0.05

References

Al Ma'mari, Q., Sharour, L. A., & Al Omari, O. (2020). Fatigue, burnout, work environment, workload and perceived patient safety culture among critical care nurses. British Journal of Nursing, 29(1), 28-34. https://doi.org/10.12968/bjon.2020.29.1.28.

Atefi, N., Abdullah, K. L., Wong, L. P., & Mazlom, R. (2014). Factors influencing registered nurses perception of their overall job satisfaction: a qualitative study. International Nursing Review, 61(3), 352-360. https://doi.org/10.1111/inr.12112.

Bruyneel, A., Smith, P., Tack, J., & Pirson, M. (2021). Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French speaking Belgium. Intensive & Critical Care Nursing, 65, 103059. https://doi.org/10.1016/j.iccn.2021.103059.

Chang, H. Y., Huang, T. L., Wong, M. K., Ho, L. H., Wu, C. N., & Teng, C. I. (2021). How Robots Help Nurses Focus on Professional Task Engagement and Reduce Nurses' Turnover Intention. Journal of Nursing Scholarship, 53(2), 237-245. https://doi.org/10.1111/jnu.12629.

Choi, B. S., Kim, J. S., Lee, D. W., Paik, J. W., Lee, B. C., Lee, J. W., Lee, H. S., & Lee, H. Y. (2018). Factors Associated with Emotional Exhaustion in South Korean Nurses: A Cross-Sectional Study. Psychiatry Investigation, 15(7), 670-676. https://doi.org/10.30773/pi.2017.12.31.

Cremasco, M. F., Wenzel, F., Zanei, S. S., & Whitaker, I. Y. (2013). Pressure ulcers in the intensive care unit: the relationship between nursing workload, illness severity and pressure ulcer risk. Journal of Clinical Nursing, 22(15-16), 2183-2191. https://doi.org/10.1111/j.1365-2702.2012.04216.x.

Dall'Ora, C., Ball, J., Reinius, M., & Griffiths, P. (2020). Burnout in nursing: a theoretical review. Human Resources for Health, 18(1), 41. https://doi.org/10.1186/s12960-020-00469-9.

Ebrahimi, H., Jafarjalal, E., Lotfolahzadeh, A., & Kharghani Moghadam, S. M. (2021). The effect of workload on nurses' quality of life with moderating perceived social support during the COVID-19 pandemic. Work (Reading, Mass.), 70(2), 347-354. https://doi.org/10.3233/wor-210559.

El Ghaziri, M., Dugan, A. G., Zhang, Y., Gore, R., & Castro, M. E. (2019). Sex and Gender Role Differences in Occupational Exposures and Work Outcomes Among Registered Nurses in Correctional Settings. Annals of Work Exposures and Health, 63(5), 568-582. https://doi.org/10.1093/annweh/wxz018.

Hellín Gil, M. F., & Ruiz Hernández, J. A. (2022). Relationship between Job Satisfaction and Workload of Nurses in Adult Inpatient Units. International Journal of Environmental Research and Public Health, 19(18), 11701. https://doi.org/10.3390/ijerph191811701.

Heydari, A., & Sharifi, H. (2017). The workload of nursing: A concept analysis using walker and avant approach. Journal of Clinical Nursing and Midwifery, 6(2), 37-47.

Hoonakker, P., Carayon, P., Gurses, A., Brown, R., McGuire, K., Khunlertkit, A., & Walker, J. M. (2011). Measuring workload of icu nurses with a questionnaire survey: The nasa task load index (TLX). IIE Transactions on Healthcare Systems Engineering, 1(2), 131-143. https://doi.org/10.1080/19488300.2011.609524.

Klusmann, U., Richter, D., & Lüdtke, O. (2016). Teachers' emotional exhaustion is negatively related to students'

achievement: Evidence from a large-scale assessment study. Journal of Educational Psychology, 108(8), 1193–1203. https://doi.org/10.1037/edu0000125.

Konze, A. K., Rivkin, W., & Schmidt, K. H. (2017). Is Job Control a Double-Edged Sword? A Cross-Lagged Panel Study on the Interplay of Quantitative Workload, Emotional Dissonance, and Job Control on Emotional Exhaustion. International Journal of Environmental Research and Public Health, 14(12). https://doi.org/10.3390/ijerph14121608.

Kowalski, C., Ommen, O., Driller, E., Ernstmann, N., Wirtz, M. A., Köhler, T., & Pfaff, H. (2010). Burnout in nurses - the relationship between social capital in hospitals and emotional exhaustion. Journal of Clinical Nursing, 19(11-12), 1654-1663. https://doi.org/10.1111/j.1365-2702.2009.02989.x.

Lam, C. K., Walter, F., & Huang, X. (2017). Supervisors' emotional exhaustion and abusive supervision: The moderating roles of perceived subordinate performance and supervisor self-monitoring. Journal of Organizational Behavior, 38(8), 1151-1166. https://doi.org/10.1002/job.2193.

Li, X., Zhang, Y., Yan, D., Wen, F., & Zhang, Y. (2020). Nurses' intention to stay: The impact of perceived organizational support, job control and job satisfaction. Journal of Advanced Nursing, 76(5), 1141-1150. https://doi.org/https://doi.org/10.1111/jan.14305.

Martínez-Líbano, J., Yeomans, M. M., & Oyanedel, J. C. (2022). Psychometric properties of the emotional exhaustion scale (ECE) in chilean higher education students. European journal of investigation in health, psychology and education, 12(1), 50-60. https://doi.org/10.3390/ejihpe12010005.

Moghadam, K. N., Chehrzad, M. M., Masouleh, S. R., Mardani, A., Maleki, M.,

Akhlaghi, E., & Harding, C. (2021). Nursing workload in intensive care units and the influence of patient and nurse characteristics. Nursing in Critical Care, 26(6), 425-431. https://doi.org/https://doi.org/10.1111/nicc.12548.

Mohammadian, M., Parsaei, H., Mokarami, H., & Kazemi, R. (2022). Cognitive demands and mental workload: A filed study of the mining control room operators. Heliyon, 8(2), e08860. https://doi.org/10.1016/j.heliyon.2022.e08860.

Mudallal, R. H., Othman, W. M., & Al Hassan, N. F. (2017). Nurses' Burnout: The Influence of Leader Empowering Behaviors, Work Conditions, and Demographic Traits. Inquiry, 54, 46958017724944. https://doi.org/10.1177/0046958017724944.

Negussie, N., & Kaur, G. (2016). The Effect of Job Demand-Control-Social Support Model on Nurses' Job Satisfaction in Specialized Teaching Hospitals, Ethiopia. Ethiopian Journal of Health Sciences 26(4), 311-320. https://doi.org/10.4314/ejhs.v26i4.3.

Nur, I., Iskandar, H., & Ade, R. (2020). The measurement of nurses'mental workload using nasa-tlx method (A case study). Malaysian Journal of Public Health Medicine, 20(Special1), 60-63.

Phillips, C. (2020). Relationships between workload perception, burnout, and intent to leave among medical-surgical nurses. International Journal of Evidence-Based Healthcare, 18(2), 265-273. https://doi.org/10.1097/xeb.0000000000000220.

Pien, L. C., & Cheng, W. J. (2021). Effect of Work-Family Conflict, Psychological Job Demand, and Job Control on the Health Status of Nurses. International Journal of Environmental Research and

Public Health, 18(7), 3540. https://doi.org/10.3390/ijerph18073540.

Portoghese, I., Galletta, M., Coppola, R. C., Finco, G., & Campagna, M. (2014). Burnout and workload among health care workers: the moderating role of job control. Safety and Health at Work, 5(3), 152-157. https://doi.org/10.1016/j.shaw.2014.05.004 .

Rhéaume, A. (2022). Job Characteristics, Emotional Exhaustion, and Work-Family Conflict in Nurses. Western Journal of Nursing Research, 44(6), 548-556. https://doi.org/10.1177/019394592110057 12.

Rostami, F., Feiz Arefi, M., & Babaei-Pouya, A. (2020). The mediating role of job control in the explaining the relationship between job satisfaction and mental workload in nurses. Iranian Journal of Ergonomics, 8(2), 1-7.

Sasaki, N., Imamura, K., Thuy, T. T. T., Watanabe, K., Huong, N. T., Kuribayashi, K., Sakuraya, A., Thu, B. M., Quynh, N. T., Kien, N. T., Nga, N. T., Giang, N. T. H., Tien, T. Q., Minas, H., Zhang, M., & Tsutsumi, A. (2020). Validation of the Job Content Questionnaire among hospital nurses in Vietnam. Journal of Occupational Health, 62(1), e12086. https://doi.org/10.1002/1348-9585.12086.

Zhang, M., Zhang, P., Liu, Y., Wang, H., Hu, K., & Du, M. (2021a). Influence of perceived stress and workload on work engagement in front-line nurses during COVID-19 pandemic. Journal of Clinical Nursing, 30(11-12), 1584-1595. https://doi.org/10.1111/jocn.15707.

Zhang, W., Miao, R., Tang, J., Su, Q., Aung, L. H. H., Pi, H., & Sai, X. (2021b). Burnout in nurses working in China: A national questionnaire survey. International Journal of Nursing Oractice, 27(6), e12908. https://doi.org/10.1111/ijn.12908.

Zhao, G., & Yin, C. (2023). Impact of job control on hospital workers' safety performance: A moderated mediation analysis of the influences of hospital safety climate and social support. Nursing Open, 10(2), 781-789. https://doi.org/10.1002/nop2.1345.