

## **Perceived Subjective Workload and its Association with Health Anxiety in Psychiatric Nurses during the Covid-19 Outbreak: A Correlational Study**

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## **Abstract**

**Background:** Health care professionals, especially nurses, experience added workload and psychological impact during the Covid-19 outbreak. This study aimed to investigate perceived subjective workload and its association with health anxiety in nurses working in psychiatric hospital wards.

### **Methods:**

This descriptive correlational study was conducted on 206 nurses working in the different psychiatric wards of Razi Psychiatry Hospital in Tabriz, Iran in 2020-2021. Census sampling was applied and data were collected using the NASA Task Load index, and the Health Anxiety Inventory. Data were analyzed using descriptive statistics, t-tests, and Pearson correlation in SPSS software version 16.

**Results:** The mean (SD) of health anxiety and workload of nurses was 23/22(6/86) score range of 0–54 and 71.46 (12.37) score range of 0–100, respectively. The correlation between the mean of health anxiety and workload was significant only in the temporary dimension.

**Conclusions:** Given the high workload and moderate level of health anxiety and the significant correlation between health anxiety and the temporary dimension of workload and the important role of appropriate workload in the health of nurses and the quality of nursing care, organizations and nursing managers should provide some strategies, like staff shortage management in psychiatric wards and creating a suitable organizational culture.

**Keywords:** anxiety, health, psychiatric nursing, workload

## **Introduction**

Nurses, as the largest group of health care providers, have a unique place in providing health services in primary and acute care settings (1). Nurses provide holistic patient care and their role is integral to quality health care delivery (2). In general, nurses experience heavy workloads on a daily basis (3). Workload and its related stress affect the safety, health, and performance of nurses (4). It is a factor associated with alcohol and drug use, social disorders, depression, anxiety, and suicide among nurses (5).

Working condition is considered a social determinate of health that can affect the physical, mental, social health of employees (6). Different aspects of work including working hours, job control, demands and conditions can positively or negatively affect people's health (7) The workload is a term used to describe the level of production and the amount of cognitive and physical burden placed on a person to perform a task (8). In general, the nursing workload is considered as the ratio of demands or the 'task load' for available resources (9).

Psychiatric nursing is one of the most stressful nursing specialties (10); due to the type and nature of their job, such as patients' lack of insight, interpersonal violence, suicide, escape of patients, a high number of patients, staff shortage, suboptimal treatment of patients and the need for isolation and restraints (11). The recent Covid-19 outbreak added further to stress and workload of nurses working in psychiatric wards. during the COVID-19 pandemic, the psychiatric inpatient wards were found to be the perfect breeding ground for the coronavirus (12), and caring for hospitalized psychiatric patients during the pandemic has posed significant challenges for nurses, including experience of burnout, anxiety, and depression (13).

Health anxiety, first described by Salkovskis and Warwick, is defined as excessive worrying about being ill or becoming ill (14). It is a multidimensional concept encompassing emotional, behavioral, perceptual, and cognitive components. If remained under recognized, health anxiety may lead to depression, headaches, insomnia, and even suicidal thoughts (15). One of the factors which is related to health anxiety is person's occupation (14). Globally, nursing is considered a very stressful profession. The high emotional burden associated with increasing workload, exposure to existing and emerging infectious diseases, the daily confrontation with the suffering of individuals and their families and low social support leads to many stress reactions among nurses (16); these factors were aggravated during the covid-19 pandemic.

According to a review of the literature, limited study was found on workload and health anxiety in psychiatric nurses especially during the COVID-19 pandemic. Therefore, this study investigates workload and its correlation with health anxiety in nurses working in psychiatric wards of Razi psychiatric Hospital in Tabriz-Iran.

### **Methods:**

The current study is a descriptive correlational study with the participation of 206 nurses working in the various wards of Razi Psychiatric Hospital in Tabriz in 2020-2021. It is the largest psychiatric center in northwest of Iran. Inclusion criteria were: being interested to participate in the study, having at least six months of work experience in the psychiatric wards and being involved in direct care of patients. Sampling was done by using census method; at first the list of all nurses working in the psychiatric wards and their telephone number were extracted (n=220). Nurses were contacted about their interest to the study and their eligibility was assessed. The researchers explained the study and its voluntary participation nature and confidentiality of provided data. 206 Nurses who expressed interest to participate in the research were sent an

electronic copy of the questionnaires and 14 nurses rejected to participate. The study was approved by the ethics committee of the Tabriz University of Medical Sciences (IR.TBZMED.REC.1399.106).

Data were collected by a three-section questionnaire: a demographic information checklist was used to collect data on age sex, marital status, work experience in psychiatry, type of shift work, education level and average number of patients in the psychiatric ward. The National Aeronautics and Space Administration (NASA) Task Load Index was used to assess participants' subjective mental workload (17) and the Salkowski and Warwick Health Anxiety Inventory for measuring their anxiety about becoming ill (14). The NASA Task Load Index provides a subjective mental workload (MWL) taking into account the weighted average of different dimensions of a job including mental demand (MD), which indicates the amount of mental and/or perceptual activity needed , such as calculating, thinking, and making decisions; physical demand (PD), which designates the amount of required physical activity, such as pulling, pushing, and turning; temporal demand (TD), which signifies the amount of perceived time pressure from the rate at which tasks take place; overall performance (OP), which shows how successful and satisfied one is in executing a given task; effort (EF) indicates how hard one needs to work to accomplish a certain level of performance; and frustration (FR), which denotes how discouraged versus content one has felt while completing the task (17). The subjective mental workload assessment process consists of three steps: first step is to determine the weight of the load, second step is to determine the rating of each of the six dimensions, and finally, to determine the final mental load score. After determining the load weight of each dimension, participants are asked to grade them and in the last step, the load weight scores and load grades are entered into the NASA loading software, and the final workload score is calculated. Finally, the product of this weighted score multiplied by the

scores of each dimension divided by 15 (the number of comparisons between two dimensions) determines the total score. Total workload can range from 0-100 (17). The total overall workload of participants in this study was divided into five levels, low (0 to 9), medium (10 to 29), somewhat high (30 to 49), high (50 to 79) and very high (80–100). The validity and reliability of the Persian version of this questionnaire has been assessed by Mohammadi et al. previously, with reported Cronbach's reliability of 0.897 (18). In current study, 20 nursing faculties reviewed the Persian version of the questionnaire for face and content validity and corrections were made based on their comments. To determine the internal reliability of the tool, the questionnaire was distributed among 20 nurses working in a psychiatric ward and Cronbach's alpha coefficient for the entire questionnaire was found to be 0.75.

Participants' health anxiety was measured using the Health Anxiety Inventory (HAI). The initial and long form of the tool was first designed by Salkovskis and Warwick Warwick in 1989, who then re-created a shorter version, containing 18 items (14). The participants should choose an item that best describes their condition. Scoring for each item can range from zero to 3. The minimum total score in this questionnaire is 0 and the maximum score 54. A higher score in this questionnaire indicates greater health anxiety. This scale encompasses two subscales of 1) the probability of getting the disease (questions 1-14) and 2) consequences of getting the disease (questions 15-18). The questionnaire has proven acceptable validity and reliability (19,). In current study, 10 nursing faculties reviewed the Persian version of the questionnaire for face and content validity. Also, for internal reliability, the questionnaire was distributed among 20 nurses working in a psychiatric ward with calculated Cronbach's alpha coefficient of 0.929.

Data were analyzed using SPSS v.16 (SPSS16, Inc, USA), and descriptive statistics (mean and standard deviation, frequency, percentage) and inferential statistics (Pearson correlation

coefficient, independent t-tests) were used. *p*-value of 0.05 or less was considered as statistically significant.

## **Results**

The study sample consisted of 206 participants with a mean age of 32.40(5.76) years. Most participant nurses were female (*n* = 124, 60.20%), and had a Bachelor of Science degree (*n* = 186, 90.30%). The mean work experience of participants, as a psychiatric nurse, was  $7.98 \pm 5.75$  years. The demographics of participants are summarized in Table 1.

The mean total subjective mental workload was 71.46(12.37). No statistically significant difference was found in subjective mental workload of participants according to their gender, marriage status, type of shift work, level of education, age, work experience, and average number of patients in the ward.

The mean total health anxiety was 23.22(6.86). Differences in mean health anxiety scores according to gender, work shift, age, work experience, and average number of patients in the ward were statistically significant; however, there were found statistically significant differences in health anxiety scores according to marital status (*p*=0.00) and level of education (*p*=0.00). In that participants who were married and had a master's degree were more anxious about their health than those who were single and had a bachelor's degree (Table 1)

**Table 1. Subjective mental workload and health anxiety according to participants' demographic characteristics (N=206)**

Variable	n (%)	Subjective Mental Health Anxiety				
		Workload				
		Mean (SD)	p-value	Mean (SD)	p-value	
<b>Gender</b>	<b>Male</b>	82(29)	71.32(11.20)	t= -.135	23.05(6.27)	t= -.288
	<b>Female</b>	124(71)	71.56(13.13)	df=204	23.33(7.25)	df=204
				p=0.89		p=0.77
<b>Marital status</b>	<b>Single</b>	78(37.9)	71.47(12.88)	t= -0.51	21.09(7.09)	t= -3.88
	<b>Married</b>	128(62.1)	72.39(11.86)	df=192	24.87(6.32)	df=192
				p=0.60		p=0.00*
<b>Type of shift work</b>	<b>Fix</b>	100(26.70)	71.67(12.935)	t= -0.237	22.56(7.09)	t= -1.339
	<b>Rotating</b>	105(73.30)	71.27(11.85)	df=204	23.84(6.61)	df=204
				p=0.81		p=0.18
<b>Level of Education</b>	<b>BS</b>	186(91.3)	71.12(12.48)	t=-1.21	22.67(6.48)	t=-3.61
	<b>MS</b>	20(8.2)	74.66(11.06)	df=204	28.35(8.31)	df=204
				p=0.22		p=0.00*
<b>Age(year)</b>		32.34(5.76)		r=-0.089		r=-0.077
		) <sup>a</sup>		p=0.26		p=0.270
<b>Work experience(year)</b>		7.98(5.19) <sup>a</sup>		r=-0.065		r=-0.087
				p=0.355		p=0.216
<b>Number of patients</b>		65(53.84) <sup>a</sup>		r=-0.031		r=0.076
				p=0.658		p=0.276

<sup>a</sup> a Mean (SD), P-values of 0.05 or less was considered as statistically significant.



Among the dimensions of the NASA Task Load Index, the most highly rated dimension was the effort dimension and the least rated was the temporal dimension. Similarly, the highest weight was related to the effort dimension and the lowest to the temporal dimension (Table 2).

**Table 2. Mean and standard deviation of subjective mental workload dimensions and health anxiety**

<b>Workload dimensions</b>	<b>Mean(SD) (Intensity )</b>	<b>Mean(SD) (weight)</b>	<b>Dimensions of Health Anxiety</b>	<b>Mean (SD)</b>
<b>Effort</b>	2.73(1.45)	0.178(0.095)	Illness Likelihood	17.91(4.96)
<b>Performance</b>	2.57(1.46)	0.168(0/097)	consequences of illness	5.63(2.55)
<b>Frustration</b>	2.55(1.63)	0.167(0/105)	Total health anxiety	23.22(6.86)
<b>Physical</b>	2.52(1.43)	0.1658(0/108)		
<b>Mental</b>	2.51(1.51)	0.1656(0/095)		
<b>Temporal</b>	2.09(1.42)	0.136 (0/095)		
<b>Total workload</b>		71.46(12.37)		

The correlation between total subjective workload scores and total health anxiety was not statistically significant ( $r=0.01$ ,  $p= 0.70$ ). There were found positive and statistically significant relationships between temporal dimension of workload and total health anxiety ( $p=0.00$ ) and between temporal dimension of workload and the illness likelihood subscale of health anxiety ( $p=0.00$ ). That is, as participants' anxiety increased their required more time to perform their

tasks. Similarly, as participants' anxiety about the possibility of becoming ill increased they spent more time completing their tasks. There were no statistically significant relationships between anxiety and other dimensions of subjective mental workload. (Table 3).

**Table (3):** Correlations between subjective mental workload and health anxiety and their dimensions

Variable	Illness Likelihood		consequences of illness		Total health anxiety	
	r	<i>p</i>	r	<i>p</i>	r	<i>p</i>
<b>Mental</b>	0.01	0.87	-0.06	0.39	-0.01	0.89
<b>Physical</b>	-0.06	0.37	0.03	0.65	-0.08	0.20
<b>Temporal</b>	0.20	0.00*	0.10	0.14	-0.21	0.00*
<b>Performance</b>	-0.05	0.47	-0.07	0.31	-0.03	0.61
<b>Effort</b>	0.09	0.17	-0.01	0.89	-0.03	0.57
<b>Frustration</b>	-0.01	0.81	0.00	0.90	0.00	0.97
<b>Total workload</b>	0.04	0.49	-0.16	0.05	0.01	0.70

*p* values of 0.05 or less were considered statistically significant.

## Discussion

The current study aimed to investigate perceived subjective workload and its correlation with health anxiety in a sample of nurses working in psychiatric wards during the Covid-19 outbreak.

The present study revealed that the mean (SD) of the subjective workload of nurses was 71.46

(12.37) out of 100, which indicates a high perceived subjective workload among the nurses. This result is in line with the findings of some recent studies (25,26). However, some other studies reported the workload mean in the low level (27). This difference in workload in different countries and wards can be related to the ratio of nurses to patients in each shift, the characteristics and type of hospitalized patients and the laws and regulations governing the provision of medical services and care in different countries.

Also, in the present study, the highest mean score was related to the dimension of work effort and the lowest mean score was related to the dimension of temporal. That is, nurses felt that they needed to work hard to accomplish their duties. The reason for this can be attributed to the shortage of nursing staff and the high workload. Nurses, rated relatively lowly on the temporal dimension of their workload, which means they did not feel too much pressure in terms of time in carrying out their duties.

In the current study, the mean (SD) health anxiety of nurses was 23.22(6.86) out of 54, which indicates a moderate health anxiety. This result is in line with the findings of some other studies which reported health anxiety at moderate level (21,22). However, these results were in contrast with the results of the other studies in which health anxiety was high. No specific study was found on psychiatric health anxiety (23, 24). The difference between the results of the

The difference between the results of the present study and another study may be due to differences in the cultural and work context. In the present study, there was a positive and statistically significant relationship between the weight score mean of the temporal dimension with anxiety. Studies have shown that when people experience high levels of anxiety, their working memory capacity suffers, as cognitive energy is spent more on managing anxiety (28).

In the present study, a statistically significant difference was found in health anxiety among the nurses in terms of marital status and education level. Married and highly educated nurses showed high health anxiety. These results were in contrast with the results of the studies in ordinary situations (29, 30). Married individuals may feel greater health anxiety due to perceived responsibility towards their family members, and the risk of transmitting the disease to the family in the COVID-19 pandemic conditions. Nurses with a master's degree felt more health anxiety, possibly due to their ability to access information related to the Covid-19 pandemic.

This study has some limitations. Using self-report questionnaires was one of the limitations. In addition, the online method of data gathering and involving of nurses with Covid-19 pandemic may have impact on the results.

## **Conclusion**

Nurses in this study perceived high workload and reported a moderate level of health anxiety. As the nurses' anxiety increased they needed more time to accomplish their tasks. In addition, as the nurses' anxiety about the possibility of becoming ill increased they spent more time accomplishing their tasks. Organizations and nursing managers should ensure a reasonable workload for nursing staff through a variety of strategies such as staff shortage management and appropriate skill mix. Adequate organizational support and ensuring the workplace safety measures; for example, adequate access to personal protective equipment may help reduce nurses' health anxiety. Implementation of mental health interventions may improve nurses' mental health status and reduce their health anxiety, particularly in the Covid-19 pandemic, which may in turn increase nurses' performance and productivity through reducing perceived temporal workload.

## **Declarations**

- **Ethics approval and consent to participate.**

This study was approved by the Research Council and Ethics Committee affiliated with Tabriz University of Medical Sciences (IR.TBZMED.REC.1399.106). The research was carried out in accordance with relevant guidelines and regulations. Participants received information about the study and its objectives. The survey was conducted anonymously and on a voluntary basis. All participants provided a written consent to the study. They all completed and returned their questionnaires to the research team for analysis and secure filing.

- **Consent for publication**

Not applicable.

- **Availability of data and materials:**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

- **Competing interests**

The authors declare that they have no competing interests.

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We did not receive any funds in relation to this research.

- **Authors' contributions**

HNA has made contributions to the conception, design, data analysis, manuscript preparation, editing and review. MAB has made contributions to the design, data analysis, manuscript editing and review. RA has made contributions to the manuscript preparation, editing and review. MV, MH have made contributions to the conception, design of the work, the acquisition, analysis, and interpretation of data and had drafted the work. LG acted as the

critical reader of the manuscript and contributed to manuscript writing. All Authors read and approved the final manuscript.

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**Authors' information (optional)**

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