Evaluation of the Correlation Between Effort-reward Imbalance and Sleep Quality Among Community Health Workers

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Abstract

Background: A chronic state of imbalance between effort and reward can affect sleep quality. However, few studies have explored the relationship between variables in the ERI model and sleep quality in community health workers in mainland China. We investigated the relationship between effort–reward imbalance and sleep quality in community health workers.

Methods: This cross-sectional study was conducted from September to November 2018 and involved 249 registered doctors and 223 registered nurses. The Pittsburgh Sleep Quality Index (PSQI) was used to evaluate the sleep disorder status of participants. The Effort-Reward Imbalance (ERI) questionnaire was administered to evaluate job-related stress. Multivariate logistic regression was performed to evaluate the factors related to sleep quality.

Results: The ERI ratio of 472 health workers was 1.17 ± 0.22, and 273 health workers (57.84%) had PSQI scores >7. There were statistically significant differences in effort scores, overcommitment scores and the total ERI ratio between the health workers with sleep disorders and those without sleep disorders. The ERI ratio was an independent risk factor for sleep quality; age, education, type of work, shift work, and job title were related to the ERI ratio.

Conclusions: This study found that sleep disorders were prevalent, work effort was greater than reward and a positive correlation between effort-reward and sleep quality among the health workers community in China. Managers should pay attention to the factors that influence sleep disorders among community health workers, balance the efforts and rewards of work, and reduce the incidence of sleep disorders.

Background

Sleep disorder is a common complaint, and the disorder varies across different populations and age groups [1]. The prevalence of insomnia is high worldwide (26.4–39.4% in Asian countries; 10–30% in Western countries) [2–5]. Studies have shown that the prevalence of sleep problems is high among health care workers (30–46% in the USA; 37-63.9% in China)[6–9]. Furthermore, many factors, such as sociodemographic and occupational characteristics and occupational risk factors (e.g., shift work, job-related stress), are related to sleep disorders [10]. Long-term sleep deprivation may result in serious fatigue, thought retardation, memory loss, slow responses, irritability, depression, suicidal ideation, and occupational accidents [11–13]. A previous study revealed that insomnia is a significant risk factor for many chronic diseases, such as diabetes, hypertension, cardiovascular disease, and obesity [14]. Therefore, the prevention and control of occupational injuries are challenges for the field of public health.

An increasing amount of attention has been paid to the development of primary health services in China [15]. Moreover, there is an imbalance in the structural resources. For example, the highest-quality health resources are concentrated in large cities, where Chinese primary health care is still very weak [16]. Most community health workers are busy with basic disease diagnosis and treatment, nursing, chronic disease

management, health care for the elderly, maternal health management, child health management, rehabilitation, health education, the management of patients with infectious diseases, and clinical care. All of these services result in a lack of awareness at the humanistic level and a lack of improvements to medical technology during the process of service [17]. However, residents tend to distrust and misunderstand community health care workers, thus affecting the efficiency of work among these professionals, leading to a decline in their sleep quality and a decrease in the safety of their patients [18, 19].

The effort–reward imbalance model proposes similar factors for explaining burnout, such as lack of reciprocity between efforts and rewards and insufficient levels of respect, esteem, and recognition [20]. The ERI model establishes that workers can feel stress because of an imbalance between perceived efforts and rewards with respect to their work [20]. According to ERI theory, employees expect returns that are aligned with their efforts at work, including income, respect, career development opportunities, and security. The imbalance between effort and rewards has a series of negative effects on employees' physical and mental health [21]. The imbalance between work effort and rewards results in physical and mental impacts, low work efficiency and the dismissal of employees [22]. A chronic state of imbalance between effort and rewards can lead to lassitude, anxiety, depression, and other psychological problems that affect sleep quality [22, 23]. It has been reported that sleep disorders are prevalent among health workers, and occupational stress can lead to sleep problems [24]. Previous studies have suggested that the imbalance between effort [25] and rewards may be a direct or indirect factor leading to poor sleep quality in health care workers.

In recent years, an increasing number of studies have been conducted on occupational stress and sleep quality. However, to date, few studies have explored the relationship between variables in the ERI model and sleep quality among community health workers in mainland China. Community health workers are more likely to receive lower wages for their efforts [26], which may increase the effort-reward imbalance and decrease sleep quality. The present study investigated the association between sleep quality and the effort-reward imbalance among community health workers in mainland China.

METHODS

Study Design

Between September and November 2018, a cross-sectional study using questionnaires was performed among health workers' in Chengdu, China, to assess mental health. All participants were health workers who worked in community hospitals in Chengdu, China. Based on a preinvestigation, there were 20–30 health workers engaged in clinical activities in each community hospital. Twenty community hospitals in Chengdu City with inpatient departments were randomly selected, and a total of 472 health workers were invited to participate in the survey.

The inclusion criteria were as follows: had a signed labor contract with a community hospital; had a doctor's/nurse's license; currently practicing in an inpatient department and providing clinical care; and had one or more years of working experience at community hospital. The exclusion criteria were as follows: did not work in inpatient departments or provide clinical care; was pregnant or sick or had other personal affairs; had sleep disorder due to alcohol use, disease, or pharmacotherapy; had a family history of sleep disorders; or was not willing to participate in the survey.

For data collection, three questionnaires were given to each participant: one questionnaire assessing demographic data, the Effort-Reward Imbalance (ERI) scale, and the Pittsburgh Sleep Quality Index (PSQI). Members of the research team interviewed each participant at their respective work location. The investigator explained the purpose, significance, and relevant instructions for the study and obtained the signed consent form before administering the survey. The questionnaires were provided to participants electronically, and the respondents completed the questionnaires and submitted them online by themselves.

The data were input into the EpiData 3.1 software (EpiData – Comprehensive Data Management and Basic Statistical Analysis System, EpiData Association, Odense, Denmark). The data entry was checked by two people, and incomplete questionnaires (> 20% missing data) were eliminated.

Demographic Data

This questionnaire was self-designed after a literature review. The participants provided information about their sex, age, race, education background, marital status, chronic illness, type of work, type of contract, work shift, years of working, job title, manager position, personal monthly income and family monthly income.

Effort-Reward Imbalance

Studies of occupational stress have considered various theoretical approaches, including the ERI model [21, 22]. The ERI model emphasizes the nonreciprocal social exchange between costs and gains at work and considers overcommitment, which can cause a state of emotional distress and lead to adverse health outcomes.

The Chinese version of the ERIscale was translated and verified by Li et al. [27].The Cronbach's α coefficient of this questionnaire was 0.71, which indicates good reliability and validity [27]. The questionnaire assesses external effort (referring to job demand and job duties; 6 items), rewards (referring to money, respect, and job opportunity; 11 items), and overcommitment (referring to the internal pressure of the individual in the process of work; 6 items). These three factors were scored on a scale from 1 to 4 (1 = strongly disagree, 4 = strongly agree). The total score for each component was the sum of the scores for each item; higher scores indicated greater levels of effort/rewards/overcommitment [27]. The overall imbalance between effort and rewards was obtained using the ERI ratio. The ERI ratio was calculated by [(effort score/reward score) × 0.5454], where 0.5454 is a correction factor. The correction factor is the ratio of the number of items for effort and rewards and is used to adjust for unequal items on the

subscales. The ERI ratio reflects a perception of imbalance between effort and rewards. In particular, an ERI ratio > 1 indicated that the individual's effort outweighed their rewards, i.e., was stressful; an ERI ratio = 1 indicated that the effort was equal to the rewards; and an ERI ratio < 1 indicated that the individual's rewards outweighed their effort.

Pittsburgh Sleep Quality Index

The Chinese version of the PSQI was used to assess subjective sleep quality. The PSQI was developed by Buysse et al. and Liu et al. [28, 29], who translated the index and verified its reliability and validity. The Cronbach's α was 0.845 [28]. The PSQI is a scored 18-item self-reported questionnaire that assesses sleep patterns and sleep quality over the previous month. The 18 questions were grouped into seven clinically derived component scores: sleep quality; sleep latency; sleep duration; habitual sleep efficiency; sleep disturbance; usage of sleep medication; and daytime dysfunction. Each component was scored on a Likert-type 4-point scale (0 to 3); the components were equally weighted, with higher scores indicating worse sleep quality. The seven component scores were summed to obtain a global score ranging from 0 to 21. Other researchers have reported that participants with a score of 7 or more are often considered to have a sleep disorder [29]. Thus, in the present study, normal sleep quality was defined as PSQI ≤ 7, and poor sleep quality was defined as PSQI > 7.

Statistical Analysis

SPSS software (Version 20.0. IBM Inc., Armonk, NY) was used for the statistical analyses. Quantitative data, such as the ERI score and PSQI score, are presented as the arithmetic mean and standard deviation, and between-group differences were compared with t-tests, analysis of variance, or nonparametric tests. Qualitative data, such as the proportion of participants with a PSQI score > 7, are represented as percentages. Multivariate logistic regression was performed to estimate the association between sleep quality and ERI scores, age, education, marital status, health status, type of work, shift work, years of work experience, job title, manager position, type of contract and income, as these variables are likely associated with sleep quality. Multiple regression was conducted using the forward method to screen the independent variables by gradually introducing variables into the model and then removing variables with a $P > 0.2$ when new variables are introduced. The odds ratios and 95% confidence intervals (CIs) were obtained by logistic regression. A P-value < 0.05 was considered statistically significant.

Results

Participants

Data from 249 doctors and 223 nurses who were community health workers were analyzed. All completed questionnaires were valid. The rate of validity of the questionnaires for this study was 100%. The ages of the 472 health workers ranged from 18 to 54 years old, with an average age of 36.07 ± 11.31 years. The sample also had the following characteristics: female, 70.8%; age 25 to 44 years, 72.2%; college or above, 92.6%; married, 86.0%; good health, 86.9%; 5–29 years of work experience, 80.5%; and primary/intermediate doctors or nurses, 78.0%.

Demographic Characteristics of Participants, ERI Ratios and PSQI Scores

The basic characteristics of the participants, the ERI ratios and the PSQI scores are summarized in Table 1. The overall ERI ratio was 1.17 ± 0.22; 370 (78.39%) health workers had occupational stress (ERI ratio > 1), and the scores for the overcommitment dimension were 17.03 ± 2.28. The total PSQI score was 8.51 ± 3.38, and 273 (57.8%) health workers had a PSQI > 7 (median, 7). There were statistically significant differences in the ERI ratio among community medical workers across the following variables: sex, age, education, marital status, chronic illness, type of work, shift work, years of work experience, job title, manager position and personal/family monthly income ($P < 0.05$). That is, the following factors led to a greater ERI ratio among community health workers: male, 35–44 years of age, undergraduate education, married, chronic illness, doctor, night shift, 10–19 years of work experience, an intermediate job title, group leader and personal/family monthly income > 10,000 yuan. There were statistically significant differences in PSQI scores among community medical workers across the following variables: sex, chronic illnesses, type of contract, shift work, and years of work experience ($P < 0.05$). That is, males, health workers with chronic diseases, those with authorized strength contracts, those working night shifts and those working ≥ 30 years had greater PSQI scores. No significant differences in other variables were observed, as indicated in Table 1.

Table 1
Demographic characteristics of the participants and total scores for the PSQI and ERI.

	N (%)	PSQI score	t/F	*P*	ERI ratio	t/F	*P*
Gender			6.233	0.013		9.968	0.002
Male	138 (29.2)	9.11 ± 3.67			1.21 ± 0.24		
Female	334 (70.8)	8.26 ± 3.22			1.15 ± 0.21		
Age range, y			2.476	0.061		11.458	0.000
18–24	42 (8.9)	7.21 ± 2.91			1.03 ± 0.18		
25–34	164 (34.7)	8.48 ± 3.38			1.14 ± 0.20		
35–44	177 (37.5)	8.70 ± 3.32			1.23 ± 0.23		
45–54	89 (18.9)	8.79 ± 3.59			1.16 ± 0.20		
Race			0.334	0.564		3.621	0.058
Ethnic Han	453 (96.00)	8.49 ± 3.40			1.17 ± 0.22		
Others	19 (4.00)	8.94 ± 2.71			1.07 ± 0.28		
Education			1.009	0.389		7.670	0.000
Polytechnic school	35 (7.4)	8.14 ± 3.61			1.09 ± 0.13		
College	228 (48.3)	8.30 ± 3.33			1.13 ± 0.21		
Undergraduate	202 (42.8)	8.82 ± 3.40			1.22 ± 0.23		
Graduate	7 (1.5)	8.14 ± 2.79			1.20 ± 0.24		
Marital status			3.907	0.452		3.087	0.002
Married	406 (86.0)	8.55 ± 3.46			1.18 ± 0.22		
Single	66(24.0)	8.26 ± 2.81			1.10 ± 0.17		

	N (%)	PSQI score	t/F	*P*	ERI ratio	t/F	*P*
Chronic illness			7.748	0.006		5.991	0.015
Yes	62 (13.1)	9.61 ± 3.51			1.23 ± 0.19		
No	410 (86.9)	8.34 ± 3.33			1.16 ± 0.22		
Type of work			3.717	0.054		28.627	0.000
Doctor	249 (52.8)	8.79 ± 3.48			1.22 ± 0.24		
Nurse	223 (47.2)	8.19 ± 3.24			1.11 ± 0.18		
Type of contract			3.937	0.020		2.766	0.064
Long-term contract	186 (39.4)	8.21 ± 3.21			1.14 ± 0.21		
Permanent contract	39 (8.3)	7.54 ± 3.02			1.13 ± 0.19		
Authorized strength	247 (52.3)	8.89 ± 3.51			1.19 ± 0.23		
Shift work			9.862	0.002		29.256	0.000
Day shift	327 (69.3)	8.19 ± 3.33			1.13 ± 0.21		
Night shift	145 (30.7)	9.23 ± 3.39			1.25 ± 0.22		
Years of work experience			4.810	0.001		8.341	0.000
< 5	65 (13.8)	6.92 ± 2.86			1.03 ± 0.20		
5–9	127 (26.9)	8.90 ± 3.52			1.18 ± 0.20		
10–19	150 (31.8)	8.81 ± 3.10			1.21 ± 0.22		
20–29	103 (21.8)	8.40 ± 3.55			1.18 ± 0.23		
≥ 30	27 (5.7)	9.26 ± 3.69			1.14 ± 0.15		
Job title			2.268	0.080		12.587	0.000

	N (%)	PSQI score	t/F	*P*	ERI ratio	t/F	*P*
Registered	39 (8.3)	7.49 ± 3.25			1.05 ± 0.18		
Primary	225 (47.7)	8.34 ± 3.36			1.13 ± 0.21		
Intermediate	143 (30.3)	8.86 ± 3.39			1.23 ± 0.22		
Subsenior	65 (13.8)	8.94 ± 3.37			1.22 ± 0.24		
Manager position			2.164	0.116		6.483	0.002
No	314 (66.5)	8.28 ± 3.34			1.14 ± 0.21		
Group leader	38 (8.1)	8.89 ± 3.62			1.23 ± 0.22		
Director/Head doctor, nurse	120 (25.4)	8.98 ± 3.36			1.21 ± 0.23		
Personal monthly income, yuan			1.542	0.189		7.073	0.000
≤ 3,000	59 (12.5)	7.73 ± 3.86			1.07 ± 0.22		
3,001–5,000	197 (41.7)	8.64 ± 3.21			1.14 ± 0.21		
5,001–8,000	165 (35.0)	8.80 ± 3.42			1.21 ± 0.22		
8,001–10,000	36 (7.6)	7.94 ± 3.20			1.21 ± 0.19		
> 10,000	15 (3.2)	7.93 ± 3.17			1.29 ± 0.17		
Family monthly income, yuan			0.335	0.854		2.688	0.031
≤ 3,000	52 (11.0)	8.60 ± 3.67			1.13 ± 0.22		
3,001–5,000	129 (27.3)	8.77 ± 3.36			1.18 ± 0.22		
5,001–8,000	112 (23.7)	8.46 ± 3.13			1.16 ± 0.23		
8,001–10,000	90 (19.1)	8.32 ± 3.40			1.12 ± 0.18		

	N (%)	PSQI score	t/F	*P*	ERI ratio	t/F	*P*
> 10,000	89 (18.9)	8.33 ± 3.53			1.21 ± 0.22		

The Comparison between Doctors and Nurses with Different Demographic Characteristics on ERI and PSQI Measures

There were statistically significant differences between the doctors and nurses in effort scores, rewards scores, overcommitment scores and the total ERI ratio (Table 2). Additionally, nurses perceived more rewards, less effort and less overcommitment than the doctors ($P < 0.01$). The doctors had a higher ERI ratio than the nurses ($P = 0.001$). The PSQI scores were similar between the doctors and nurses.

Table 2
A comparison of the ERI and PSQI measures between doctors and nurses

	Doctors	Nurses		
Characteristics	M ± SD	M ± SD	*t*	*P*
Effort (points)	19.31 ± 3.34	18.19 ± 3.03	14.427	0.000
Reward (points)	29.37 ± 2.93	30.09 ± 2.39	8.451	0.004
Overcommitment (points)	17.28 ± 2.30	16.75 ± 2.23	6.472	0.011
ERI ratio	1.22 ± 0.24	1.11 ± 0.18	28.627	0.000
PSQI score	8.79 ± 3.48	8.19 ± 3.24	3.717	0.054

Associations between ERI Scale Scores and Sleep Disturbances

Across the four factors of the ERI, we found that the effort score, the overcommitment score, and the total ERI ratio were significantly different ($P = 0.000$, Table 3) between the health workers with poor sleep quality (PSQI > 7) and those with normal sleep quality (PSQI ≤ 7).

Table 3
ERI factors and sleep disturbances.

	Nonsufferers [A] (Mean ± SD)	Sufferers [B] (Mean ± SD)	*t*	*P*
Effort (points)	17.32 ± 3.00	19.84 ± 3.00	-9.013	0.000
Reward (points)	29.46 ± 2.49	29.89 ± 2.84	-1.741	0.082
Overcommitment (points)	15.88 ± 2.06	17.86 ± 2.07	-10.292	0.000
ERI ratio	1.08 ± 0.20	1.22 ± 0.21	-7.496	0.000

[A] Non-sufferers is the indicator of whose PSQI scores ≤ 7; [B] sufferers is that of whose PSQI scores > 7.

Logistic Regression Analysis of Multiple Factors Related to Sleep Quality

The dependent variable in the logistic regression was the presence or absence of sleep disorders. The independent variables include the ERI ratio and the variables from the single-factor analysis with a $P<0.2$, including sex, age, marital status, chronic illness, type of work, type of contract, shift work, years of work experience, job title, manager position and monthly income. The results of the logistic regression analysis showed that the ERI ratio was the main risk factor for sleep disorder in community health workers (Table 4).

Table 4
Logistic regression analysis of factors related to sleep quality.

	β	Wald	*P*	OR (95% CI)
ERI ratio	3.536	44.209	0.000	34.334 (12.107, 97.367)
Constant	−3.751	37.576	0.000	

Linear Regression Analysis of Multiple Factors Related to the ERI ratio

The dependent variable in the linear regression analysis was the ERI ratio. The independent variables were the variables from the single-factor analysis with a $P<0.2$, including sex, age, race, education, marital status, chronic illness, type of work, type of contract, shift work, years of work experience, job title, manager position and monthly income. The results of the linear regression analysis showed that age, education, type of work, shift work and job title were the main factors that affected the ERI ratio among community health workers (Table 5).

Table 5
Linear regression analysis of factors related to the ERI ratio.

	Unstandardized Coefficients		standardized regression coefficient	t	*P*
	β	standard error			
Constant	0.832	0.071		11.669	0.000
Age	0.028	0.014	0.115	2.006	0.045
Education	0.043	0.016	0.127	2.711	0.007
Type of work	-0.073	0.019	-0.167	-3.784	0.000
Shift work	0.122	0.020	0.257	5.965	0.000
Job title	0.041	0.015	0.157	2.790	0.005

Discussion

The present study showed that sleep problems were prevalent among community health workers in China. In addition, we found a higher risk of sleep disorder among those who were males, had chronic illness, had authorized strength contracts, worked night shifts, and had worked ≥ 30 years. More

importantly, the study indicated that as health workers' ERI ratios increased, sleep quality became progressively worse (Table 1). It has been recognized that job stress affects the sleep quality of health workers [6, 8, 30].

Our research showed that community doctors perceived higher levels of effort and overcommitment and lower levels of rewards than community nurses. This is inconsistent with other research [31, 32]. The rewards score comprises three components: financial and career-related aspects, esteem-related rewards, and the gratification of job security [22]. As the primary providers of health services, doctors have a heavy burden. Some general practitioners (GPs) came from general hospitals, and they are exposed to a range of factors that are inferior to those of general hospitals, such as work overload, time pressures, role conflicts, lower compensation and fewer career development opportunities. Promotions and other normal conditions also limit GPs' development and effort-reward imbalances, so they experience more job stress than nurses, and their job satisfaction is not high. In contrast, the jobs of nurses are relatively clear in the community, so their job satisfaction is higher than that of GPs [26, 33]. Regardless of the unsafe clinical environment, health workers are always committed to providing timely health services without any hesitation or reservations in China, which contributes to the imbalance between effort and rewards and contributes to higher job stress [34, 35]. Our results showed that the ERI ratio of the community health workers was 1.17 ± 0.22, indicating that the community health workers generally perceived more effort than rewards. We found a higher ERI ratio among those with the following demographic characteristics: males, 35–44 years old, undergraduate, married, chronic illness, doctors, worked night shifts, working ≥ 30 years, intermediate job title, group leader, and monthly income > 10,000 yuan. This is consistent with other studies [36, 37]; the occupational task and stress response for males were higher than those for females and higher in those with a high education level than in those with a low education level. The scores on the overcommitment dimension were 17.03 ± 2.28, which was higher than the scores found in previous research [37, 38]. Inadequate compensation is a concept incorporated into the ERI model: high effort and low compensation lead to high stress [30]. In the present study, 370 (78.39%) health workers had a high ERI (ERI ratio > 1), which was associated with insomnia, consistent with previous studies [39]. Moreover, a large number of previous studies have shown that effort–reward imbalance can lead to adverse health outcomes [28, 40].

With health system reforms, the connotation and work volume of community health workers have continuously increased, and occupational stress will inevitably increase. The participants in this study had higher levels of occupational stress, possibly because of the study being conducted in southwestern China, which is less economically developed; thus, the rewards for community health workers are far lower than those in coastal areas. In addition, doctor-patient relationships are becoming increasingly fragile in China [41]. It is unfair to use doctor-patient relationships to evaluate the costs and rewards of a doctor's professional and emotional investment, as these fragile relationships results in resource depletion, which is closely related to job stress, burnout and depression in health workers [42]. Therefore, managers should take measures to reduce the incidence of occupational stress among health workers in community hospitals.

The results of this study showed that health workers with poor sleep quality had higher levels of perceived effort, higher levels of perceived overcommitment, and higher ERI ratios than those with good sleep quality (Table 3). This is consistent with existing research [43]. Table 4 shows that the ERI ratio was the main risk factor for sleep disturbances in community health workers ($P = 0.000$, $OR = 34.334$). Further analysis indicated that age, education, type of work, shift work and job title were the main risk factors for a higher ERI ratio in community health workers (Table 5). If the efforts and rewards at work cannot be balanced, professionals will find their jobs difficult, which will cause occupational stress and affect sleep quality. Overcommitment and effort–reward imbalance have been identified as important occupational stress factors that negatively contribute to the psychological and physical health and well-being of employees [44]. Community health workers report higher levels of ERI, resulting in occupational stress, which leads to sleep disorders. Therefore, organizational interventions such as increasing rewards and improving doctor-patient relationships should be considered in China.

Conclusions

This study found that sleep problems were prevalent among health workers in community hospitals in Southwest China. The main risk factor for sleep disturbances in health workers was the ERI ratio. The ERI affects sleep quality in Chinese health workers, such that higher ERI ratios lead to worse sleep quality. Sleep disturbances may lead to a lower quality of life and lower levels of work efficiency for health workers, in turn leading to the potential for errors or medical malpractice. Awareness and interventions are therefore required to reduce job stress in community hospitals. Additional research on this topic is also required.

Limitations

This study had several limitations that may have affected the outcomes. First, the stratified cluster sampling method limits the generalization of the results. It may be important to assess community health workers for serious sleep disorders and compare the results across individuals with different professional functions. Second, the study data were obtained from a single city in southwestern China, and although the health workers worked in several different community hospitals, it may not be possible to generalize the findings to other cultures and geographic regions. Third, the participants were from urban communities, and health workers in rural community hospitals were not included.

Abbreviations

PSQI
Pittsburgh Sleep Quality Index; ERI:Effort-Reward Imbalance.

Declarations

Ethics approval and consent to participate: The ethics committee of West China Hospital of Sichuan University approved this study and its methods in August 2017 (approve number 2017(46)). All participants provided signed informed consent.

Consent for publication: Written informed consent for publication was obtained from all participants.

Availability of data and materials: We are grateful to all doctors and nurses who participated in the study. Data will not be shared because study participants did not give their approval via an informed consent form.

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