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Influence of Social and Professional Characteristics on the Work Efficiency of Secondary Medical Staff (Statistical Indicators)

Turakulov Vali Norkulovich

Centre for the development of professional qualifications of medical personnel. Republic of Uzbekistan. Tashkent city

ABSTRACT

The topic of the article is to provide the primary medical and sanitary care institutions of our country with employees who meet modern requirements in the rapidly changing and developing field of medicine, and for this, the work is being carried out to regularly update and reform the curriculum, teaching strategies and programs adopted in secondary medical education. The data obtained on this topic show that the improvement of professional performance depends on such issues as clinical strategies, improving the work environment, and developing the relationship between the employee and the patient.

Keywords:

secondary medical worker, medical education, distance education, patronage nurse, professional development, qualification category, professional fatigue, stress, PHSCC, quality of work, labor efficiency.

Enter

Nursing practice faces different demands in the 21st century. These include an increase in the number of elderly and critically ill patients, rising health care costs, a growing shortage of staff and nurse educators in the field, and the changing age of the workforce.

At the same time, the impact of distance medical education on the quality of medical services, their economic and social effectiveness has been studied very little. Currently, we have conducted scientific research on the topic of "Improving the activity and training of medical personnel in primary medical and sanitary care institutions" at the Navoi branch of the Republican center for training and specialization of medical and pharmaceutical personnels. The results of the conducted research were implemented as an experiment in the primary system institutions of Navoi region.

This research is one of the tasks set in the 2020 "Year of Science, Enlightenment and Digital Economy Development" state program of the

Republic of Uzbekistan, in particular, 3.14 of the Program and rapid development of the "digital economy", widespread introduction of digital technologies to all areas of human activity, including healthcare and education, automation of production and management systems in the real sector of the economy, ensuring the integrity and stable operation of the information system and information security increased.

As a result, we studied and evaluated the factors related to the social, medical and professional aspects of the medical staff, studied the attitude of the medical staff working in the PHCs to their profession.

Based on the analysis of the collected data, evidence-based recommendations were developed to improve the characteristics and activities of post-graduate training of medical personnel in the field.

The purpose of the research: Based on the obtained results, the purpose of the study was to develop measures aimed at increasing the

professional efficiency of medical personnel. Quantitative experimental, retrospective, statistical and analytical methods were used to achieve the goal of the research and fulfill the tasks.

The scientific novelty of the research:For the first time, a survey was conducted among 1,532 secondary medical workers, including 28 midwives, 42 senior nurses, 1,210 patronage nurses, and 252 auxiliary nurses, working in the primary health care institutions of Navoi region. Next, a total of 1362 secondary medical workers from 25 MTOs in Navoi region were given an in-depth medical examination, and 858 secondary medical workers participated in a study on determining occupational fatigue through the Weisman questionnaire.

All information was visualized in the form of a diagram, as a result of which the level of coverage of some concepts and problems in the field was determined.

Currently, there are many opinions about the influence of psycho-emotional factors observed among the employees working in this field in increasing the effectiveness of nurses and developing this field. In particular, there is a shortage of nurses in foreign countries. When these issues were studied, the main reasons were found to be job dissatisfaction, mental fatigue at work, relationships with customers, and others. Most of the participants cited high workload (38.7%), filling out various statistical documents, forms and forms (30.04%), low salary (18.5%) and lack of practical skills and knowledge as the reason for the deterioration of the quality of services provided by the medical worker showed lack (12.4%) and others.

Mental fatigue has the highest rate among medical staff working in psychiatry, oncology, and emergency departments. Common somatic complaints are characteristic of employees of this profession. Such employees are often subjected to psychological pressure and mobbing¹ appear as an object. As a result of

observations, it was found that mental fatigue is directly related to the employee's seniority and age, and it is systematically observed among employees aged 20-35 and 45-55. According to the results of the research, mental fatigue is closely related to stressful events in nurses, and in the first group (ages 20-35), it appeared mainly due to the influence of things in their social life (change of workplace, starting to study) and in their personal life (marriage, birth of children). Among the second group (45-55 years old), these events are mainly related to age-related changes, mainly due to events such as the health of family members, the marriage of children, and retirement. To the results and studied literature "Mental fatigue syndrome" downloads in work,

During the conducted studies, it was found that the leader of the team (senior nurse) has several positive qualities (fairness, determination, demandingness, good organizer and executive), but if he is only engaged in solving work-related issues and is not interested in the interests of subordinates, then there is a positive psychological effect in the team. those who did not achieve environment formation. Therefore, the head of the department or institution plays a decisive role in the formation of a positive psychological environment in the team.

The research subjects were selected based on the following design Table 1.

¹Mobbing (English mob - aggressive crowd, gang) is a form of psychological violence in the form of intimidation of an employee in a team, usually with the aim

of later dismissal. Mobbing tends to escalate and the victim is usually unable to defend himself.

Table No. 1
Distribution of the research object

Groups	specialty				Total
	midwife	senior nurse	patronage nurse	assistant nurse	
Medical-social questionnaire	28	42	1210	252	n=1532
In-depth medical examination	n=1362				
Weissman Questionnaire for Occupational Fatigue	n=858				
Total number of research objects	n=3752				

In order to determine the level of professional fatigue of secondary medical workers, Weisman's questionnaire was administered. This questionnaire consists of 30 questions and is designed to determine professional stress. Professional or occupational stress develops under the influence of physiological and psychological factors in various situations. The causes of occupational stress can be physical, psychological factors are both real and imagined. Negative external factors can be physical stress: increased physical activity, development of poor ergonomic (working conditions) components, etc. Psychological stress can develop in cases of responsibility, lack or abundance of information, uncertainty of the situation, lack of time, frequent changes or rapid revision of work tasks. The results of determining professional stress and emotional fatigue are evaluated in a 5-point system, with a minimum value of 30 points and a maximum value of 150 points. The answer levels are as follows:

- never (1 point);
- rarely (2 points);
- sometimes (3 points);
- often (4 points);
- almost always (5 points)

Therefore, the highest value of the scores indicates the performance of employees with work fatigue and mental stress. It was found that problems in the activities of these employees negatively affect the work process

and the quality of service. We divided the state of emotional exhaustion into three main groups. Then:

- Work efficiency of employees with a score of 30 to 59 (green scale) indicates the presence of minimal mental fatigue.
- 60 to 89 points (yellow scale) and the collected employees belong to the group with medium level of mental fatigue, so it is necessary to control the work of these employees and take measures not to decrease the efficiency of the activity.
- 90 to 150 points (red scale) and the employees who have collected have a high risk of negative changes in their emotional mental state and the level of mental and professional fatigue of these employees. If the work performance of these employees is not reviewed in time, the quality of service and work efficiency will decrease, the feeling of indifference to their profession will appear, it can lower the reputation of the institution and negatively affect the environment in their family.

From the analysis of the results, it is known that 600 (70%) of the secondary medical workers engaged in labor activity have a moderate level of stress and mental fatigue. Minimum stress level was noted in 22% and high stress level in 8% of respondents Table 2.

Table No. 2

Results of the occupational stress and emotional exhaustion test conducted among employees of PHCC

Participants	Total	Stress and mental fatigue		
		Minimum (30-59 points)	Medium (60-89 points)	High (90-150 points)
absolute number	858	187	600	71
in percent	100%	22%	70%	8%

Next, in order to determine the economic efficiency of training of these employees, a comparative analysis of the costs of traditional education with the costs of distance education was conducted. In order to achieve the goal, the main expenditure types of both forms of education system were formed. These expenses included the following: business travel, accommodation, overtime pay for a local employee (30%), internet connection costs, Table 3. The last type of cost was relevant only for distance education.

In determining the economic efficiency, we consider the amount of money spent by one employee on one-month training courses through an analytical approach. Business trip expenses are approved according to paragraph 3 of the instructions of the Ministry of Finance

of the Republic of Uzbekistan and the Ministry of Employment and Labor Relations of the Republic of Uzbekistan dated August 12, 2019 No. 92 and 34-2019 QQ. is paid in no less amount.

Next, we determine the downward trend in spending:

$$DE / TE * 100\%$$

DEE- Distance education expenses

TEE- Traditional education expenses

S -money saved, Saving

The savings are the difference between these two types of education:

$$S = TTE - DEE$$

With these indicators, we can calculate economic efficiency

$$EER = S * 100 / TTE \text{ and here:}$$

EER- Economic Efficiency ratio

Table No. 3

Estimated expenses for a one-month course

Types of expenses	AT (traditional education)	DT (distance learning)
Business travel expenses $100 * 2 * \text{BXM} 0.08\%$	43 200	0
Dormitory expenses	210,000	0
30% bonus for substitute employee $1601051 * 30\%$	80315	0
Payment for Internet connection is 20GB	0	65,000
Total	523515	65,000

In order to analyze the economic effect, we first calculated the costs of their implementation, where we considered the costs of training one employee in training courses for one month.

According to the research objectives, the sample size was calculated in case of descriptive research. For this purpose, the StatCalc-Sample size and power (visual) package of EpiInfo 7.2 (CDC) statistical program was used. The sample size was calculated using the following formula:

$$\text{Sample size} = \frac{z_{1-\alpha/2}^2 \cdot p(1-p)}{d^2}, \text{ and here}$$

$z_{1-\alpha/2}$ is the standard normal variance, and is entered as 1.96 (for a 5% α -error probability, i.e. $p=0.05$)

p –this is the proportion (frequency) of the studied indicator in the population

d –absolute error, or precision level (entered as 5%)

The statistical population was entered as 400,000 objects. This indicator determined the estimated total number of nurses in Uzbekistan. The relative frequency of the studied indicator was entered as 50%. Taking into account that the employees of the institutions participated in the study, the design (structure) effect was entered as equal to 2.0. As a result, the sample size for this study was at least 768 subjects. The indicator was considered according to the 95% statistical confidence level.

According to the first task of the research, the analysis of indicators specific to the professional activity of secondary medical workers was carried out. For this, the relative indicators (proportion) collected in the sample. A 95% confidence interval (II) was calculated. The 95% confidence interval of the proportion for the statistical population was calculated using the following formula:

$$p \pm z_{1-\alpha/2} \sqrt{p(1-p)/n}, \text{ and here}$$

p –an indication of the proportion found in the sample

$z_{1-\alpha/2}$ – standard normal variance (entered as 1.96)

$$\sqrt{p(1-p)/n} \text{ –standard error (s) indicator}$$

According to the second task of the study, factors related to three aspects of secondary medical personnel were analyzed. For this, dependent variables were selected for each aspect, and predictors with the greatest statistical influence on them were determined. Their statistical relationship was evaluated by constructing a generalized nonlinear model. For this purpose, the logistic multinomial regression analysis method and the following approach were used:

$$f(z) = \log(z/(1-z))$$

Therefore, the logarithmic (logit) transformation of each factor and its influence on the aspect index were evaluated. The parameters of the factors (b) were calculated by Fisher's repeated method, and in the process of testing the statistical hypothesis, Wald statistical significance and p indices were evaluated according to the parameters. Diagnostics of constructed models and their level of reliability were determined by Pearson residuals method.

Descriptive statistical indicators - absolute numbers and relative (percentages), average value, standard deviation and their 95% confidence interval (II) were calculated to determine the amount of data. One-way ANOVA statistical tool was used for the analysis of quantitative indicators. The following non-parametric analytical criteria were used to compare research groups: the Wilcoxon test for comparing two correlated signs, the Friedman test for comparing three or more correlated signs, the Mann-Whitney test for comparing two independent signs, the Kruskal-Wallis test for comparing three or more independent signs. Wallace criterion. In order to compare the frequencies of binary characters in two independent groups, the χ^2 criterion – Pearson square analysis of 2x2 severity level tables was performed. The correlation coefficient ρ was determined using the non-parametric Pearson method to analyze the correlation of signs. Results were considered statistically significant when $r < 0.05$. Statistical analysis of results was performed using STATISTICA 12 (Statsoft Inc.) and Minitab 18 (Minitab Inc.) computer statistical software packages.

The analysis of the questionnaire shows that the age of those employed in the main labor process was 31-35 years old - 22.9%, and respondents aged 26-30 - 18.1%. So, 96.3% of the 1532 secondary medical workers who participated in the survey are women, and their average age is 36.8 years.

In accordance with the purpose of the research, the analysis of indicators specific to the professional activity of medical personnel was carried out. The analysis of the position and workload of the secondary medical worker reflected the following situations. 79% of secondary medical workers

(95%II=76.8%–80.9%) - made up of patronage nurses (Figure 3.1), and 95% of employees (95%II=93.9%–96.1%) operates at a loading rate of 0.5-1.0 (Fig. 1-2).

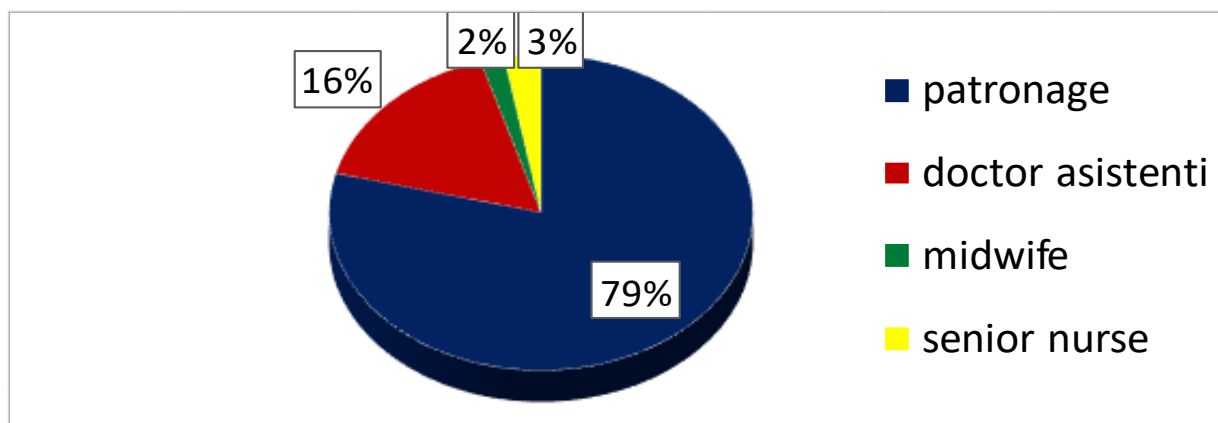


Figure 1. The structure of employees depending on their position

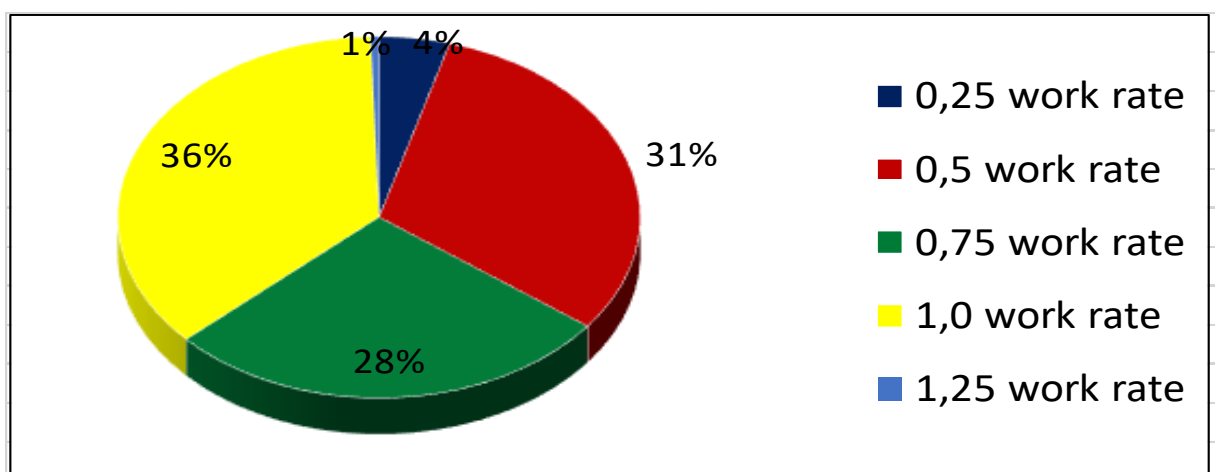


Figure 2. Workload structure of employees

Summary

So, the objective factors that influence the increase in the efficiency of the work of nurses are such factors as improper organization of the workplace, non-use of modern equipment and technologies, non-control of the requirements for the quality of medical services in the treatment facility, non-functioning of the legal framework aimed at the social protection of employees, and the negative impact of the climatic conditions of the regions. can be said.

In conclusion, it should be said that medical workers are not only the most important part of the health care system in the world, but also the main component. Only secondary medical workers have a real chance to meet the important needs and demands of the population for medical assistance. Therefore, it is necessary to radically change the medical education of secondary medical workers, to introduce new standards in the field.

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