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Harmful factors at the workplace of an operating nurse

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Abstract

Introduction: Operating theatre is a very specific work environment. The staff employed in this organizational unit, apart from specific professional qualifications, must have the ability to make quick decisions as well as the skills to utilize highly specialized medical apparatus and equipment. Operating theatre nurses are exposed to various harmful factors, thus strain resulting from this type of work can be both mental and physical.

The aim of this paper was to assess the level of knowledge of surgical nurses about harmful factors at their workstations.

Material and methods: The study was performed in a group of 625 nurses working in different types of operating rooms of public hospitals in Poland. An original questionnaire survey was used to characterize the harmful factors occurring at the operating room nurse's workstation.

Results: The results obtained prove that according to the nurses surveyed, the main problem associated with working in the operating theatre is constant exposure to harmful factors that have a significant impact on workload.

Conclusions: There are factors identified by the staff at the operating theatre nurse's workstation that affect the level of strain both physically and mentally. Shaping the right working conditions, affecting the efficiency and safety of employees should be a priority for hospital managers and directors.

Keywords: surgical nurse, work environment, risk factors, mental workload, physical workload,

Introduction

Health care workers, by virtue of their duties, are exposed to a number of occupational hazards, especially various harmful and burdensome factors that pose a risk of undesirable health consequences. This is due to the fact that in their daily work they are exposed not only to dangerous factors of biological, chemical and physical nature, but also to situations in which they often make decisions about the health and life of others. Workload is defined as "a system of external and internal forces actively affecting a person in a work situation, which results in the expenditure of his/her psychophysical energy and fatigue". Depending on the type of activities performed, physical and mental workloads are distinguished, while their magnitude depends on the effort put into the performed activity [1,2]. Working conditions are a set of factors present in the work environment, resulting from the work process and its performance. In certain situations they can be onerous or pose a threat to employees' health [3,4,5].

Shaping of proper work conditions is essential to ensure safety and hygiene at work. It includes a number of elements related to the work process, starting from technical infrastructure, i.e. proper selection of rooms depending on their purpose; meeting the professional and sanitary requirements in-cluded in appropriate specific regulations; taking into account their nature, residence time and number of workers; selection of technical devices, means of transport and equipment in accordance with the principles of ergonomics; selection of individual protection measures through factors of the material work environment; meeting the hygienic standards and formation of organizational conditions of work to ensure efficiency; effective and efficient work; maintaining the maximum safety of personnel [6]. Clinical work in the operating room is dynamic, complex, and often limited in time and resources. Assisting with procedures requires staff to have technical and cognitive skills such as anticipating patient needs, managing change, and dealing with unexpected events [7,8,9,10].

There are transformational changes in healthcare in which nurses, due to their professional role and education, are well prepared to perform professional tasks [11]. Additionally, this profession is associated with high stress because one works with dif-ferent operating room teams and the duration of procedures can sometimes be difficult to determine [4]. Nurses' stress is associated with psychosomatic symptoms such as head-aches and frequent illnesses, depression and anxiety, reduced productivity, absenteeism, and fear of going to work [11]. More than half of nursing staff experience burnout, with the likelihood of personal consequences, job dysfunction, and potential risk to patients [12,13].

A person in the position of operating room nurse is responsible for preparing the equipment necessary to carry out the surgical procedure, which involves lifting and transporting heavy sets of instruments. In addition, one controls the sterility of the op-eration, the amount of material and instruments, administers flushing solutions, medi-cations, gives out preparations for examination, takes part in surgical interventions in life-threatening conditions. The most important issue for the nursing staff is the ability to adapt the instrumentation to the situation in the operating field and to communicate with other operating and auxiliary personnel [14], and to take care of the patient`s safety [15]. The increasing clinical and administrative workload is also a major challenge [16,17].

Exposure of nursing staff to chemical agents is most often associated with the use of: disinfectants, medications, and metal instruments made of harmful nickel, chromium, or cobalt alloys [18]. The operating room environment has been reported as the second most common site of sharps injuries, with wards being first [19,20]. The International Labor Organization has defined conditions that pose a health risk to operating room nurses, which include: injuries caused by sharp objects used during surgery; exposure to an-esthetic gases, drugs and radiation; effects of disinfectants, sterilization gas and other cleaning agents on the skin, mucous membranes and respiratory system; burns due to contact with hot surfaces, electricity or fire; musculoskeletal problems, most often lumbar pain caused by lifting heavy patients and fatigue and lower limb problems caused by standing for long periods. In addition, there is the stress and exhaustion of shift work, as well as psychological and organizational stressors [21,22,23,24].

The hazards of nursing work can impair health both acutely and in the long term. These health effects include musculoskeletal disorders, other injuries, infections, changes in mental health, and in the long term cardiovascular, metabolic, and cancer diseases [25,26].

The aim of this paper was to present opinions of operating room nurses on the workload and harmful factors at the workplace. We also asked ourselves to what extent the workload affects the level of professional burnout of the surveyed nurses

Material and methods The study was conducted in a group of 625 nurses working in different types of operating rooms of public hospitals in Poland. They were voluntary and anonymous and were conducted in 2019. The group selection according to the authors' assumptions was purposive. All respondents received written information about the purpose of the study and gave informed consent. The study was carried out by the method of diagnostic survey, the technique was a survey, the research tool was a survey questionnaire of our own authorship. It consisted of a metric containing sociodemographic data and 20 questions about working conditions at the position of an operating room nurse/operations nurse. A total of 1000 questionnaires were submitted, 705 were received, and 625 questionnaires were analyzed after initial verification. The study was conducted in accordance with the requirements of the Declaration of Helsinki.

Statistical analysis The primary tests used during the statistical analyses were the non-parametric Mann Whitney U test (for 2 samples) and Kruskal Wallis test (for more than 2 samples) to assess differences, During these analyses, in addition to standard statistical significance, the corresponding "p" values were also calculated using the Monte Carlo method. This is indicated by (b) next to the significance result for the Mann Whitney U test and by (c) for the "p" result of the Kruskal Wallis test. Correlations between ordinal or quantitative variables were done using Spearman's rho coefficient, Analysis was done using IBM SPSS 26.0 package along with Exact Tests module - exact tests. All relationships/correlations/differences are statistically significant when $p \leq 0.05$.

Results

Operating theater is one of the most important departments of any hospital. This is where important decisions about the life and health of the patient are often made. People working here must not only be competent in terms of knowledge and skills, but also physically and mentally strong [7]. Surgical nursing is a separate nursing specialty, whose representatives study, analyze and solve problems related to providing efficient nursing assistance for surgery, with the sense of safety and preservation of personal dignity of patients staying in the operating theatre and other problems resulting from the specificity of the work of surgical nurses.[8] Sociodemographic data of the studied group of surgical nurses are presented in Table 1.

Table 1. Characteristics of the study group of operating nurses

Variable		Respondents n 625	
		n	%
Sex	Female	605	96,8
	Male	15	2,4
Age	Below 25	30	4,8
	26 - 35	106	17,0
	36 - 45	252	40,3
	46 55	176	28,2
	Above 55	39	6,2
Nursing education	Medical high school	158	25,3
	Medical vocational college	101	16,2
	Bachelor of Nursing	190	30,4
	Master of Nursing	156	25,0
Work experience in the profession of a nurse practitioner	1-5 years	103	16,5
	6 -10 years	99	15,8
	11 - 20 years	169	27,0
	21 -30 years	169	27,0
	>30 years	61	9,8
Post-graduate education	Qualification courses for nurses	111	17,8
	Specialist courses for nurses	106	16,9
	Nursing specialization	408	65,3
Shift length	8 hours	179	28,6
	12 hours	158	25,3
	Mixed – 8 or 12 hours	272	43,5
Type of the hospital	Regional hospital	123	19,7
	Provincial hospital	277	44,3
	Clinical hospital	200	32,0
Type of employment contract	Contract of employment	554	88,6
	Contract of mandate/for specific work	5	0,8
	Self-employment	50	8,0

Source: own.

Professional adaptation, i.e. the process related to the adaptation of the employee to the norms and principles of the work environment, is important in the initial phase of learning operational nursing. It consists of practical adaptation to new working conditions including the type and range of activities, work methods, operation of equipment, medical devices, physical and organizational conditions, as well as occupational safety and hygiene requirements.[9] In our study, during the process of professional adaptation at the position of instrument / instrument clerk, the respondents had a supervisor appointed. In 28.4% (n- 176) of respondents it was the ward nurse, in 41.5% (n-257) - another nurse whereas 30.0% (n-186) of respondents did not have a designated supervisor.

According to the interviewed persons, not all conditions at their workplaces are in compliance with the current regulations and standards. The main problem according to the respondents is the constant exposure to harmful factors, which have a significant impact on the workload and health complaints of the respondents.

As a factor having a significant workload 38.2% (n-237) of the respondents indicated rotation to operating rooms of different specialties during a single duty and short breaks between surgeries 51.5% (n-319) or their absence 39.2% (n-243) $p<0.001$, Kramer's V=0.18, Chi-square=18.99 (df=2). At the same time, 58.9% (n-365) of the respondents highlighted the problem of staff shortages (p=0.001, Cramer's V=0.15, Chi-square=13.04; df=2). Low pay was a problem for 86.6% (n-529) of respondents (p=0.02, Cramer's V=0.12, Chi-square=8.18 df=2). According to the Regulation of the Minister of Health of April 6, 2020 on the types, scope and specimens of medical records and the way they are processed [27], each operating nurse is obliged to keep medical records min the operating nurse protocol. The excessive amount of documentation that operating nurses keep was a significant burden for 56.6% (n-351) of the respondents (p=0.05, Kramer's V=0.10, Chi-square=5.95 df=2).

Respondents were asked to identify risk factors that pose a threat to them on the job. The results are shown in Table 2.

Table 2. Respondents' opinion of the risk factors present in the operating nurse's workplace that pose risks to them by age and gender.

Which risk factors that pose a threat to the work of the instrumental nurse operational concern you?			Sex		Total	Age					Total
			Female	Male		Above > 25	26 - 35	36 - 45	46 - 55	Above 55	
Contact with disinfectants	Yes	n	480	9	489	22	84	199	140	32	477
		%	**79,3%**	**60,0%**	**78,9%**	**73,3%**	**79,2%**	**79,0%**	**79,5%**	**82,1%**	**79,1%**
p=0,07						p=0,93					
Contact with an electromagnetic field	Yes	n	517	12	529	23	94	219	149	30	515
		%	**85,5%**	**80,0%**	**85,3%**	**76,7%**	**88,7%**	**86,9%**	**84,7%**	**76,9%**	**85,4%**
p=0,56						p=0,24					
Contact with anestetics	Yes	n	347	7	354	10	58	155	107	19	349
		%	**57,4%**	**46,7%**	**57,1%**	**33,3%**	**54,7%**	**61,5%**	**60,8%**	**48,7%**	**57,9%**
p=0,41						p=0,03, Kramer's V=0,14, Chi-square=11,17 (df=4)					
Obligation to be always on standby	Yes	n	347	7	354	12	61	149	102	21	345
		%	**57,4%**	**46,7%**	**57,1%**	**40,0%**	**57,5%**	**59,1%**	**58,0%**	**53,8%**	**57,2%**
p=0,41						p=0,36					
Increased responsibilites	Yes	n	305	5	310	7	48	126	105	15	301
		%	**50,4%**	**33,3%**	**50,0%**	**23,3%**	**45,3%**	**50,0%**	**59,7%**	**38,5%**	**49,9%**
p=0,19						p=0,001, Kramer's V=0,17, Chi-square=18,12 (df=4)					

Physical burden	Yes	n	483	10	493	21	82	204	145	28	480
		%	**79,8%**	**66,7%**	**79,5%**	**70,0%**	**77,4%**	**81,0%**	**82,4%**	**71,8%**	**79,6%**
p=0,21						p=0,33					
Contact with biological agents (blood, body fluids)	Yes	n	509	13	522	25	92	220	142	27	506
		%	**84,1%**	**86,7%**	**84,2%**	**83,3%**	**86,8%**	**87,3%**	**80,7%**	**69,2%**	**83,9%**
p=0,79						p=0,03, Kramer's V=0,13, Chi-square=10,39 (df=4)					
Contact with sharp tools (risk of punctures, cuts)	Yes	n	534	12	546	27	96	220	154	34	531
		%	**88,3%**	**80,0%**	**88,1%**	**90,0%**	**90,6%**	**87,3%**	**87,5%**	**87,2%**	**88,1%**
p=0,33						p=0,92					
Time pressure	Yes	n	359	7	366	18	65	146	112	19	360
		%	**59,3%**	**46,7%**	**59,0%**	**60,0%**	**61,3%**	**57,9%**	**63,6%**	**48,7%**	**59,7%**
p=0,32						p=0,47					

Source: own.

The main interpersonal relationships in the workplace are nurse to nurse, nurse to ward nurse and nurse to doctor. Lack of proper cooperation between the different members of the surgical team, poor interpersonal communication in the therapeutic team, undervaluing and lack of proper respect from the doctors negatively affect the mental sphere of the respondents. The results are presented in Table 3.

Table 3. Assessment of the occurring stressors at the operating room nurse's workplace.

Are the following stressors related to your job as an instrumentalist present at your place of employment?			Sex		Total
			Female	Male	
Patient's death	Yes	n	221	6	227
		%	**36,5%**	**40,0%**	**36,6%**
Phi	-0,011	0,076[a]	1	0,783	0,791
Assistance in many fields of surgery	Yes	n	281	3	284
		%	**46,4%**	**20,0%**	**45,8%**
Phi	0,082	4,124[a]	1	0,042	0,063
Abnormal relationships in the operating team	Yes	n	203	3	206
		%	**33,6%**	**20,0%**	**33,2%**
Phi	0,044	1,212[a]	1	0,271	0,406
Cooperation with „difficult"doctors	Yes	n	462	9	471
		%	**76,4%**	**60,0%**	**76,0%**
Phi	0,059	2,147[a]	1	0,143	0,216
Cooperation with „difficult" operating nurses	Yes	n	239	3	242
		%	**39,5%**	**20,0%**	**39,0%**
Phi	0,061	2,340[a]	1	0,126	0,180
Lack of opportunities for staff training	Yes	n	94	3	97
		%	**15,5%**	**20,0%**	**15,6%**

Phi	-0,019	0,221[a]	1	0,638	0,716
Bad atmosphere at work	Yes	n	172	2	174
		%	**28,4%**	**13,3%**	**28,1%**
Phi	0,052	1,652[a]	1	0,199	0,255
Low salary	Yes	n	527	10	537
		%	**87,1%**	**66,7%**	**86,6%**
Phi	0,092	5,274[a]	1	0,022	0,038
Low professional status	Yes	n	243	5	248
		%	**40,2%**	**33,3%**	**40,0%**
Phi	0,021	0,285[a]	1	0,594	0,791
Big responsibility	Yes	n	378	8	386
		%	**62,5%**	**53,3%**	**62,3%**
Phi	0,029	0,521[a]	1	0,470	0,591
Limited independence	Yes	n	56	0	56
		%	**9,3%**	**0,0%**	**9,0%**
Phi	0,050	1,526[a]	1	0,217	0,384
Improper treatment	Yes	n	193	4	197
		%	**31,9%**	**26,7%**	**31,8%**
Phi	0,017	0,185[a]	1	0,667	0,785
Insufficient number of nurses	Yes	n	292	7	299
		%	**48,3%**	**46,7%**	**48,2%**
Phi	0,005	0,015[a]	1	0,903	1,000
Shift work	Yes	n	130	0	130
		%	**21,5%**	**0,0%**	**21,0%**
Phi	0,081	4,078[a]	1	0,043	0,050
High physical load	Yes	n	332	8	340
		%	**54,9%**	**53,3%**	**54,8%**
Phi	0,005	0,014[a]	1	0,906	1,000
Lack of work-life balance	Yes	n	55	0	55
		%	**9,1%**	**0,0%**	**8,9%**
Phi	0,049	1,496[a]	1	0,221	0,384
None of the above	Yes	n	6	0	6
		%	**1,0%**	**0,0%**	**1,0%**
Phi	0,016	0,150[a]	1	0,698	1,000
Factor	**Value**	**Chi-square**	**df**	**p**	**Exact p**

Source: own.

Women are significantly more likely than men to indicate that their workplace stressors include low pay, shift work, and assisting in multiple surgical disciplines. The relationships are statistically significant, although in the case of assisting in multiple surgical disciplines, the "p" value calculated by the Monte Carlo method showed that the relationship was slightly outside the accepted level of significance. A significant inconvenience affecting the perception of workload for surgical nurses is being seconded to another department while on duty. 96.4% (n-38) of respondents said that this situation occurs on every day duty after 4 pm, 2.7% (n-16) on every night duty, 16.2% (n-96) on every holiday duty, several times a year 442 (n-74.7%). This problem was more common in small county hospitals than in large clinical facilities.

Respondents were also asked to rate on a scale of 1 to 10 the degree of mental and physical strain associated with performing the work of an instrumentalist/instrumentalist, with 1 representing no strain and 10 representing maximum strain. The results are presented in Table 4.

Table 4. The degree of mental and physical strain associated with working as a surgical nurse.

Sex		Psychological workload associated with the job of an instrumentalist	Physical workload associated with the job of an instrumentalist
Female	**Average**	**6,80**	**7,35**
	Median	**7,00**	**8,00**
	Average rank	307,15	309,63
	n	598	600
	Standard deviation	2,038	2,037
Male	Average	**6,80**	**6,67**
	Median	**7,00**	**7,00**
	Average rank	301,20	242,63
	n	15	15
	Standard deviation	1,781	1,952
Total	Average	6,80	7,33
	Median	7,00	8,00
	Average rank	613	615
	n	2,030	2,036
Mann-Whitney's U		4398,000	3519,500
p		0,897	0,143
p (Monte Carlo)		0,901[b]	0,144[b]

Source: own.

The results show that in the group of the surveyed operating nurses the level of psychological load was on average +/- 6.80, while the physical load associated with work as an instrument nurse among the female respondents was on average +/- 7.35, and in the male respondents it was on average +/- 6.67. Only 2.6% (n-16) of the respondents said that no physical and psychological factors were a burden to them. 69.6% (n-374) of the respondents imagined their work as an instrument clerk/instrument clerk before they began their career, and if they had the opportunity to choose this specialty again, 42.6% of the respondents (n-252) said yes.

Discussion

Authors' own study carried out in a group of 625 operating room nurses demonstrated that among the factors constituting workplace hazards, the respondents identified the following: contact with disinfectants, electromagnetic field, biological agents (blood, body fluids), sharp instruments (prick and cut risks) or time pressure. 56.8% (n=355) indicated assisting with surgery for many hours as a significant burden, but 42.6% of respondents (n=252) would choose this specialty again. 40.3% (n=255) of the respondents were nurse practitioners between the ages of 36-45 and 30.1% (n=191) between the ages of 46-55. Similar results were obtained in a study on workload and working conditions of operating room nurse and technician positions conducted in 2013 by Uğurlu, Karahan, Ünlü et al. The study sample included 74 operating room nurses and technicians working in six hospitals of a private university. The mean age of the participants in the study, compared to our own results, began lower at 29.3 ± 6.7 years, and 62.2% of the participants were female. More than 90% of the nurses and technicians had experienced exposure to blood or other body fluids; anesthetic gases and radiation affected respectively 63.5% and 71.6% of the nurses and technicians; 63.5% reported lumbar pain; and 46.6% described the work environment as very stressful. The mean workload scale score was 32. 4 ± 6.2 (min = 11, max = 55). Nurses are exposed to many occupational hazards associated with their work [22]. In Shah's study, the mean age of the nurses surveyed was similar to our own results, averaging 48.7 (0.04) years. The author believes that as the demands placed on nurses increase, the risk of developing a burnout problem increases as well [28]. According to Wei et al., healthier work environment results in greater nurse satisfaction, which translates into better job performance and higher quality patient care [29]. Van den Berg-Dijkmeijer, Frings-Dresen and Sluiter performed a systematic review of Pubmed articles published from January 1991 to December 2007 on health risks or effects in operating room staff working conditions and found that 23 articles reported that operating room staff are exposed to infectious agents, noise, anesthetic gases, and radiation. Eleven studies reported an increased risk of (allergic) skin diseases, musculoskeletal complaints, and infectious diseases [30]. In our study, the index of professional exhaustion was determined in the studied group of nurses at an average level of 63.62%, the index of depersonalization at an average level of 61.73%, the index of professional satisfaction at an average level of 46.61%, while the overall index of professional burnout was estimated at 55.44%. Similarly, according to Kuriata, Felińczak, Szachniewicz et al. there are several factors that cause psychological strain in the nursing profession. These may include, for example: night work, shift work, organizational and interpersonal problems. Professional responsibility for patient's health and life is also high and prolonged emotional tension leads to professional burnout. Clari, Godono, Garzaro et al. showed that operating room nurses are constantly exposed to physical and biological risk factors. The authors concluded that further research should be undertaken to identify specific interventions to reduce the burden including ergonomic education and physical rehabilitation of responders [31]. In Çelikkalp and Sayılan's study, operating room nurses reported being exposed to several occupational hazards, including radiation, sharp instruments, long working hours, and standing work. They also reported experiencing or fearing encountering various health problems related to these hazards in the future. They also considered education and protective measures to be insufficient [32].

Any work environment can be a source of danger to employees. After the completion of one operation are immediately prepared for the next surgery, until the completion of all, planned for the day's implementation, surgical operations. However, there are also situations of this type when there is an unplanned, fairly long break, even lasting about two hours, between successive surgical procedures. As a result, the execution of individual works in a given operating room is inhibited and nurses are forced to wait longer on standby to continue the implementation of the surgical plan. This results in accumulation of tasks for the further part of duty and extending the time of their completion to afternoon or evening hours when the number of operating room nurses is already reduced [3]. Also in our study the operating room nurses indicated too short breaks between surgeries 51.5% (n=319) or lack of them 39.2% (n=243) as a significant inconvenience $p<0.001$, Kramer's V=0.18, Chi-square=18.99 (df=2).

A study by Appelbaum, Fowler, Fiedler et al. examined the relationships between environmental factors such as smell, noise, light, and color and perceived stress, job satisfaction, and change intentions. The authors showed that nurses tend to overlook their physical environment when doing their job. Common stressors in the work environment can be stressful for staff and affect job satisfaction and ultimately change intentions. Mitigating or eliminating these environmental factors can increase employee satisfaction and retention [33]. As in our study, also Kulczycka, Żarnowska, Stychno et al. found that there is a relationship between the hourly dimension of work and its impact on workload as an occupational risk factor, which is also related to the number of surgical procedures and preparatory activities required to perform them [34]. The data collected by Kulagowska in a group of 398 nurses working in different types of operating rooms in 11 public hospitals prove that the main source of problems is the organization of work, technical factors, working means, workspace, and the nurses' knowledge of harmful and burdensome factors, ways to reduce their impact and/or protect themselves from them. These are very serious aspects of occupational risk affecting both the work process and the health of nurses [6]. Madrid and Glanzner's study showed that psychological and social harm were rated by employees as low risk 86.8% and 87.4% respectively. Physical harm was considered a medium risk by 57.9% of respondents [35]. Furthermore, nurses in the operating room play a key role in patient safety. The assessment of safety attitudes of nurses in the operating room reflects their awareness and belief in patient safety [15, 35, 36, 37].

Nursing workload is increasingly considered to have an impact on nurses' quality of work life and quality and safety of care. A multidimensional structural model presented by Appleubaum, Fowler, Fiedler et al. showed that: a unit-level measure of staffing adequacy was significantly associated with job dissatisfaction and job burnout and a task-level measure of psychological workload related to interruptions, divided attention, and rushing was associated with burnout and likelihood of error [33]. In contrast, a meta-analysis by Bernal, Campos-Serna, Tobias et al. suggests that psychosocial risk factors are present in the workplace of operating room nurses and although most prevention strategies focus on ergonomic risk factors, improving the psychosocial work environment may have an impact on reducing workload levels and health consequences [38].

Similar problems related to harmful factors in the operating room workplace were demonstrated by Carvino et al. 50 medical specialists from 7 fields (anaesthetists, digestive system surgeons, general surgeons, maxillofacial surgeons, thoracic surgeons, urologists, and gynaecologists) were questioned about perceived occupational risk by themselves. Biological, ionizing radiation, and chemical risks were the most commonly perceived in order of priority (w = 0.300, 0.219, 0.210). Concerning the biological risk, gynaecologists unexpected perceived this risk as less critical (w = 0.2820) than anaesthesiologists (w = 0.3354), which have the lowest perception of the risk of ionizing radiation (w = 0.1657) [39]. Matern and Koneczny showed that elementary ergonomic deficiencies are present within all fields. Surgeons stated that these deficiencies lead to potential hazards for patients and personnel, potentially on a frequent basis [40].

Conclusions

At the operating nurse's workstation there are factors identified by the staff that affect the level of strain, both physical and mental. Shaping proper working conditions, which have an impact on the effectiveness and safety of employees, should be a priority for hospital managers. Low pay is a cause of stress and mental strain for most of the respondents. It also contributes to the search for additional work which also affects the level of burden.

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