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A SURVEY ON THE ASSOCIATED FACTORS OF STRESS AMONG OPERATING ROOM PERSONNEL IN TERTIARY CARE HOSPITAL, BELAGAVI, KARNATAKA

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ABSTRACT

Stress is body's reaction to pressure, whether it be physical, mental, or emotional. The chemical changes cause stress in the body could result in a rise in blood pressure, heart rate, and glucose levels in the blood. Additionally, frustration, worry, wrath, or sadness may result from it. Operating rooms are made for doctors and other medical personnel to undertake surgical procedures that call for patience, time, focus, and safety. This study was proposed to analyse the relationship between stress and workplace environmental characteristics among operating room health care workers. To assess the level of stress induced by physical and psychological stresses on operating room staff, this descriptive predesigned questionnaire-based study was done in a TCH in north Karnataka. The sample size was 94, after obtaining informed consent, information was gathered from the workers were evaluated with the aid of Microsoft Excel version 10. Majority of the participants were female and were in the age group of 22-32. Majority of study population had completed general nursing and midwifery programs & most of them were Operation theatre technician, having 1-8 years of experience. It was shown that fear of consequences and inventory management were main sources of physical and mental stress, whereas working conditions were the least stressful factors. Given the crucial role that working environmental and psychological stressors play in the development of stress in operating room health care workers, opinion of participants on other factors were also obtained.

KEYWORDS:

Operating Room Personnel; Stress; Occupational Stress; Stress Management; Occupational Health.

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INTRODUCTION

Stress has a significant impact on both physical and mental health. One of the main sources of stress is the workplace, Health care personnel experience work-related stress at levels noticeably higher than those in other professions. Numerous studies have demonstrated that the stress brought on by the workplace is greater than that brought on by any other significant stressor.

Stress is the term used to describe the tension that exists between people on an emotional and bodily level. Headaches, extreme weariness, vertigo, and gastrointestinal problems are some of the most typical adverse effects of stress. Stress causes absences from work and burnout in addition to physical and mental illnesses, and it can follow a person home from the office. The operating room is one of such stressful setting. Dealing with a patient's condition, a surgeon's capacity for performing intricate surgeries, the dynamics of the surgical team, and other environmental factors are among the hazards present in this scenario. Workplace stress may also lead to a reduction in the patient's level of safety[1].

Operating room staff face more stress compared to those in other occupations because of the physical, emotional, and psychological strain they are under, despite occupational stress existing in every occupation or working environment[2].Physical environment stressors included needle stick injuries, contact with bodily fluids, the arrangement of the operating room, staff supplies, workplace tools, the number of workers, the amount of moisture, heat, cold, and light, as well as the presence of unpleasant odours, chemicals, and rays. Poor teamwork, planning, skill deficiencies, numerous decisions that had to be made quickly, and factors like working long hours without weekends or holidays were among the mental pressures. The availability of technology, a lack of communication, and a lack of interpersonal relationships among the other employees are few of the reasons that contribute to occupational stress among operating room staff. Communication issues, surgeon-related issues, technological issues including weariness, and some institutional issues are potential stressors that could reduce worker performance[3].

Burnout is recognized as a big issue for many professions. It is thought that nurses are more prone to this. Because nurse's health has an impact on the stability of the healthcare workforce and the standard of care delivered, it is crucial to measure nurse burnout. Burnout is a syndrome that also includes depersonalization, diminished personal competence, and emotional tiredness. It has a detrimental effect on the nurse's physical, psychological, and professional lives.[4] As the first line of patient medical treatment, nurses serve as the foundation of the healthcare system. Consequently, one of the key elements affecting how well medical services perform is the quality of the nursing staff. The need for specialty, complexity, and the need to manage emergency make nursing one of the most demanding and stressful professions. Lack of attendance, illness, staff conflict, depression, staff turnover, and poor service are some ways that job stress negatively affects nurses and hospitals[5].

A person's mental and physical health might be negatively impacted by stressors, which can interfere with their ability to function normally. Stress can have several negative consequences on the body, including digestive issues, headaches, dizziness, and extreme

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exhaustion. One of the key factors contributing to life's stress is occupation. Occupation-related stress disorders cause an average of one million people per day to miss work, Hospital work involves a lot of occupational stress. Because they oversee people's health. Health care professionals, particularly nurses, go through a lot of stress. Owed to hostile situations and factors like noise, heat, light, radiation, humidity, a high work, a small crew, and significant responsibility, the operating room atmosphere is regarded as stressful. The operating room is a place where there is a lot of tension and little job satisfaction[4].
Hence this study was proposed to understand the relationship between stress and workplace environmental characteristics among operating room health care workers at Tertiary care Hospital, Belagavi, Karnataka.

MATERIAL AND METHODS

After obtaining ethical approval from the Institutional Ethics Committee the analysis was conducted out. The current study was a cross sectional study carried out for a period of 6months (November 2022 – April 2023), at Belgaum District, Karnataka state which is in Southwestern region of India. This study includes all the health care workers in the operation theatre of Tertiary care hospital, Belagavi, Karnataka. (Hi-tech OT, Charitable side OT, cardiac OT). Except operation room technicians, nursing staff and anaesthesia technicians rest all the health care workers in the operating room is excluded. Sequential sampling technique was used. Data were collected from 94 participants using two questionnaires. First questionnaire was developed by researchers and included physical environment and mental stressors and the second questionnaire was a Persian translation of the Cooper job stress test that was previously applied by researchers in other studies[26]. It included demographic variables too. Physical environment stressors included the structure and organization of the operating room, personnel equipment, working equipment, number of employees, level of moisture, heat, cold, light, unpleasant Odors, chemicals, rays, fear of being infected (HIV, hepatitis) and occupational hazard (such as contamination with secretions, blood and being injured by a needle). Mental stressors consisted of poor communication and collaboration with the team, bad planning, inadequate skills, urgent and frequent need to decide, and variables such as working time, lack of holidays, weekends, and vacations. Questionnaires of physical environment and mental stressors included 20 questions in Likert scale with four options (never, sometimes, often, always) scoring from one to four. Demographic variables were age, gender, education, and marital status, work experience, working status, working shift and hospital workplace. Cooper standard questionnaire had 32 questions in Likert scale with four options (never, sometimes, often, always) scoring from one to four. Every subject answered the questions according to his/her corresponding level of stress. In this test, stressors were divided into four levels: lack of stress (> 32 scores), low stress (32 - 64 scores), moderate stress (64 - 96 scores) and severe stress (< 96 scores) [21].

Validity of the questionnaires was approved by experts in behavioural and psychological sciences. Data were analysed by SPSS 16 using descriptive statistical methods (frequency, mean, standard deviation) and inferential statistics test (Chi-square, Pearson correlation coefficient, ANOVA and T-test). Subjects' consents were obtained, and confidentiality of their data were maintained.

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RESULTS

68% of the subjects in the study population were female. In addition, the study's most prevalent age group (52%) was the 22–32 age range. The majority of operating room staff (66%), as well as 56% of participants, had 1 to 8 years of work experience. Additionally, operating room technicians made up 50% of the subjects, and their hours of work varied. The operating room's physical environment stressor with the least impact on stress levels was light (34.7%), whereas the fear of contracting an infection from patients (58%), caused the most stress. The lowest and highest levels of mental stressors in the operation room were related to insufficient skills (32%) and insufficient weekend and vacation time (44%), respectively. Light (34.7% and mean of 2.14), insufficient skills (32% and mean of 2.18) and fear of infection (58% and mean of 3.24) were the most significant physical environment and psychological stressors in the operating room (Table 1). The majority of operating room staff (66%) exhibited low levels of stress, according to the results (Figure 1). Among operating room technicians with the highest degree of stress, there was a substantial difference in their work status and level of stress ($F = 4.793$, $P = 0.013$). Nevertheless, we were unable to find any meaningful correlation between gender, age, education level, or prior stress experience (Table 2).

DISCUSSION

According to this study, most participants had appropriate levels of physical and mental fitness and were not under a lot of stress, probably because they were young. According to Yao et al., most nurses (72%) reported mild levels of stress, whereas just 23% reported very high levels of stress connected to their jobs[6]. The level of job stress suggested in Schaefer and Moos' study, which involved 405 ICU nurses, was considered normal[7]. The investigation of the association between occupational status and stress revealed a significant connection between demographic characteristics; anaesthesia technicians experienced higher levels of stress than other operating room workers. Notably, the staff' vital role—where a mistake could result in life-threatening complications or even death—is likely the cause of the work status stress. Another study by Khodaveisi et al. revealed that 8.7% of ICU staff and 70.4% of operating room staff experienced stress[8]. The 47 participants in Santa Maria and Sullivan's study reported higher stress levels, according to the study's results[9]. The quality of the relationships that nurses had with doctors and other colleagues was found to be significantly correlated with stress in the current study. Coworker conflict can result in poor collaboration and communication, which then lowers the experience of social and mental support that one receives from colleagues[10]. Conflict with surgeons was the source of the highest levels of stress among job stressors, according to a Mehrabi et al. study on nurses[11]. One of the occupational stresses in the nursing profession, according to Roberts et al., may be inadequate teamwork and communication. Interpersonal interactions and work-related concerns can also contribute significantly to stress[12]. According to a study by Caregnato RC et al. based on interviews with 32 members of the surgical team, one of the main stressors is interactions among people[13]. The results of this study showed that fear of infection (HIV and hepatitis) caused the most stress, with light having the least impact as a stressor in the physical environment. Nurses may have physical and psychological issues as a result of working in hospitals and clinics with

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subpar physical standards and equipment, such as light, heat, and cold[10]. According to research by Fathi, one of the main causes of environmental stress in the intensive care unit is light[14]. Limited space and insufficient light were also mentioned by Ahangarzadeh et al. as physical environment stresses[15]. Potential hazards in the workplace include blood exposure, secretion contamination, and needle and syringe injuries can all give rise to fear of infectionOne of the main causes of stress for nurses, according to Blegen et al., is caring for infected patients[16]. Inadequate abilities and a lack of weekend and vacation time were shown to be the most and least stressful mental factors associated with operating room work, respectively. The more nurses consider their skills are inadequate, the more they believe they are unfit for the position, which ultimately causes stress. Michie et al. suggested how enhancing a nurse's abilities could reduce work-related stress[17]. 48% of the staff in Khodayar's study on nurses expressed dissatisfaction with their workload and lack of vacation time[18]. The present study found no evidence of a significant relationship between stress and age, gender, work history, or academic achievement. Juthberg et al. demonstrated that stress and age had a negative and substantial relationship[19]. Furthermore, Sherbafnejad proposed that there is a strong correlation between occupational stress and age[20]. However, Shahraki Vahed's study showed that there was no meaningful correlation between job stress and the age of nurses[21]. Furthermore, a noteworthy correlation was observed between experience and occupational stress among nurses in the Lee et al. study[22]. Ghulam Nejad's study, which involved 140 nurses from different wards, indicated a direct and significant relationship between gender and occupational stress[23]. Work experience and stress were found to have a strong unfavourable connection in another prospective study on nurses by Eriksen et al[24.] Asad Zandi's study of 272 nurses employed in military hospitals revealed a strong correlation between stress and educational attainment[25]. The limited sample size in this study may be the cause of the Non significant relationship between these variables and stress.

Most study participants reported low stress levels, according to the findings. The stress levels of operating room technologists were higher than those of other operating room staff members. The data obtained indicate that a variety of factors may contribute to stress in operating room staff members. Therefore, it is important to take several important steps to lessen or eliminate the effects of stressors on work-related, personal, and family behaviours and performances. These include educating staff members about infectious diseases, giving them enough time off, and improving communication.

CONCLUSION

It is evident from the results that most participants experienced reduced levels of stress. This survey suggests that a small percentage of participants believed there was insufficient staff and that they had not received proper training. Additionally, the staff members should encourage positive interpersonal relationships, effective teamwork, and open communication. In order to improve workflow and performance, management should resolve their problems, recruit more personnel, and communicate to participants about their concerns. By carrying out this, it will be guaranteed sure that the team members' workloads are divided equally and avoid putting them under unnecessary strain. This will enhance the effectiveness and efficiency of the healthcare personnel.

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Owing to the significant role that psychological and environmental factors play in the development of stress among operating room personnel, a number of preventative measures should be taken, such as improving communication, increasing the degree of information on infections, and providing suitable rest periods.

LIMITATIONS

The operating room team, which consisted of the nurses, anaesthesia technicians, and operation theatre technicians, assisted throughout the analysis. If more healthcare experts had been involved in the study, the conclusions could have had more significance. By integrating workers from varied professions and according to inclusion criteria, the results might have been improved and expanded, enabling the understanding of other pressures that the workforce was facing.

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TABLE 1: The degree to which the operating room atmosphere cause bodily and psychological stress.

Stressful factors, physical Environment, and Mental Health	Never, No%	Sometimes, No%	Often, No %	Always, No %
Operating room structure	15 (30)	14 (28)	15 (30)	6 (12)
Working equipment	6	21 (40.8)	11	12 (24.5)

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	(12.2)		(22.4)	
Variable working time	8 (16)	22 (44)	13 (26)	7 (14)
Heat	9 (18)	14 (28)	16 (32)	11 (22)
Cold	12 (22.9)	21 (41.7)	9 (18.8)	8 (16.7)
Inventory management				
Surgical lights	17 (34.7)	17 (34.7)	6 (12.2)	10 (18.4)
Unpleasant odour	3 (6)	15 (30)	9 (18)	23 (46)
Chemicals	0 (0)	11 (22)	14 (28)	25 (50)
Radiation	4 (8.2)	9 (18.4)	12 (24.5)	25 (49)
Workload	5 (10.9)	13 (24.1)	17 (32.6)	15 (30.4)
Interpersonal relationship with team	6 (12)	27 (54)	9 (18)	8 (16)
Fear of being infected	2 (4)	13 (26.1)	6 (12)	29 (58)
Poor management, unsatisfactory working condition, and lack of support from team	3 (6)	13 (26)	10 (20)	24 (48)
Lack of weekends and holidays	4 (8)	14 (28)	10 (20)	22 (44)
Scheduling the surgeries	10 (20)	15 (30)	9 (18)	16 (32)
Frequent hand hygiene	12 (24.5)	22 (42.9)	11 (22)	5 (10.2)
Poor communication with team	6 (12)	27 (54)	9 (18)	8 (16)
Bad planning	16 (32)	17 (34)	9 (18)	8 (16)
Inadequate skill	16 (32)	17 (34)	9 (18)	8 (16)
Urgent and frequent need to decide	11 (22)	17 (34)	9 (18)	13 (26)

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TABLE 2: DEMOGRAPHIC PROFILE

Demographic variables	Mean ± SD	P value
AGE		0.069
22 - 32	60.03 ± 8.65	
32 - 42	57.50 ± 10.20	
42 - 52	58.00 ± 18.63	
GENDER		0.190
Male	58 ± 12.53	
Female	59.26 ± 8.86	
EDUCATION		0.242
Degree	60.42 ± 9.20	
Diploma in Operation technology	55.00 ± 8.53	
General nursing and Midwifery	59.66 ± 22.54	
OCCUPATION		0.013
Anaesthesia technician	54.93 ± 7.48	
Operation theatre technician	62.96 ± 10.74	
Nursing staff	54.50 ± 7.97	
EXPERIENCE		0.144
1 - 8	60.89 ± 8.50	
10 - 19	57.93 ± 9.27	
20 - 30	52.71 ± 15.37	