



Exploring the sources of stress among operating theatre nurses in a Ghanaian teaching hospital

Vera Asimah Ackah^{a,*}, Atswei Adzo Kwashie^b

^a School of Perioperative and Critical Care Nursing, Korle-Bu, Ghana

^b School of Nursing and Midwifery, University of Ghana, Legon, Ghana

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ABSTRACT

Background: The nursing profession is heavily plagued with occupational stress. The stress nurses encounter in the clinical setting can result in physical, emotional, social and spiritual changes. In the operating theatre, nurses assist surgeons during surgery, observe the overall condition of patients and care for those at risk of developing a critical condition during surgery to prevent any complications from arising. An operating theatre work milieu is problematic in terms of patient safety and is closely associated with elevated stress.

Aim: This study sought to explore events from outside and within the operating theatres of a teaching hospital in Ghana causing stress in the nurses.

Methods: A sample of 12 operating theatre nurses was drawn from the Teaching Hospital using a purposive sampling technique. Data was collected using a semi-structured interview guide and the study employed a descriptive qualitative approach. Analysis of data was carried out using thematic content analysis.

Results: The study has shown that operating theatre nurses are faced with various stressors from time-to-time and the commonest and the most worrying are those related to their work. The major sources of stress such as work overload, staff shortage, and inadequate equipment and supplies to this group of professionals have been identified. Staff shortage, specifically operating theatre nurses has led to the nurses perceiving their workload as overwhelming.

Conclusion: In the operating theatre, nurses assist surgeons during surgery, observe the overall condition of patients and care for those at risk of developing a critical condition during surgery to prevent any complications from arising. These put operating theatre nurses at risk of occupational stress. Therefore, there is the need to help create a more conducive environment for all operating theatre nurses to enhance their performances.

1. Introduction

The human body is designed to experience stress and react to it. Stress can be positive, keeping us alert and ready to avoid danger. Stress becomes negative when a person faces continuous challenges without relief or relaxation between the challenges. As a result, the person becomes overworked and stress-related tension builds. Selye (1976) described stress as a nonspecific response of the body to an imbalance between its resources and any demands made upon it. Also, stress according to Fink (2016) is a psychobiological reaction of the body to physical or psychological demands threatening or challenging the well-being of a person. Musazzi, Tornese, Sala and Popoli (2017) categorized stress as being acute or chronic. Acute stress is short-lived and usually involves a speedy response to a sudden, single, easily identified stressor.

In acute stress, for example, an unexpected bereavement, a person's anxiety will rise sharply and then start to decline. For the majority of people who experience acute stress, usually the body begins to react before the individual fully understands the situation, but a return to normal life is immediate once the issue is resolved (Musazzi et al., 2017). Chronic stress on the other hand is a state of ongoing physiological agitation from an unresolved issue or situation (Musazzi et al., 2017).

Job stress also known as occupational stress, workplace stress or work-related stress refers to an individual's reaction when confronted with work demands and pressures that are no match to their knowledge and abilities and challenge their coping capability (Laeque, Bilal, Babar, Khan, & Ul Rahman, 2018; Lenthall et al., 2018). This implies that occupational stress occurs when an individual perceives the work environment as challenging, threatening, or damaging to the person's

* Corresponding author at: School of Perioperative and Critical Care Nursing, P. O. Box KB 96, Korle-Bu, Accra, Ghana.

E-mail address: vaakah002@stu.ug.edu.gh (V. Asimah Ackah).

coping. Bialek and Sadowski (2019) have indicated that the International Bodies, including the World Health Organization (WHO) and the International Labour Organization (ILO), have recognized stress among workers and the probable destructive effects of workplaces as a global menace. In the UK, occupational stress was the second major work-related health problem and estimated to cost £4 billion annually (Hassard, Teoh, Visockaite, Dewe, & Cox, 2018). Work-related stress is more strongly associated with health complaints than are financial or family problems (American Institute of Stress, n.d.).

Carson and Kuiper's model (1998) classified the major sources of stress into three groups. The first is the specific occupational stressors that vary according to the unique problems or strains that each professional group faces. For example, changes in the health service may be a major source of stress. The second is the stressors derived from major life events and the third is minor stressors that obtain power and can affect the individuals as they accumulate. Other researchers such as Strizhitskaya, Petrash, Savenysheva, Murtazina and Golovey (2018) also identified daily hassles such as getting stuck in traffic jams, waiting in line and being behind household chores as being stressful.

Existing literature on sources of stress can be grouped into two sub-themes; internal and external factors. Internal factors influencing occupational stress encompasses those situations that arise from within the individual and these include personality traits and demographic characteristics (Chaudhuri & Maulik, 2019; Ehring & Behar, 2020; Lee et al., 2018; Manomenidis et al., 2017; Poursadeghiyan et al., 2016; Singh & Ullah, 2016). Notably, among health personnel, anxiety, openness to change and low self-esteem have been identified as specific personality traits capable of having a major influence on whether nurses are stressed or even over-stressed to a point of burnout (Chaudhuri & Maulik, 2019; Ehring & Behar, 2020; Lee et al., 2018; Manomenidis et al., 2017; Poursadeghiyan et al., 2016; Singh & Ullah, 2016).

Several studies have also traced the sources of stress as coming from the demographic characteristics of nurses. For instance, Johansen and Cadmus (2016) noted that the majority of the participants who were experiencing a low level of stress were young. On the contrary, Guo et al. (2019) found that younger nurses reported greater stress than did older nurses. Also, some studies suggest such as Klein et al. (2016) and (Vismara et al., 2016) noted that women who display traditional gender roles perceived more stress than men. The traditional gender roles of women which includes but not limited to managing the home and raising children, expose them to additional non-work-related stressors compared to the male gender. Young and Schieman (2018) also argued that the overflow of family-related stress on work-related stress might be greater for women than for men. Other demographic sources of stress identified are level of education achieved, career development and job certainty (Khuong & Yen, 2016; Klein et al., 2016; Leung, Liang, & Olomolaiye, 2016). In contrast, Noormaliza, Najibah, Fauzana, Azizah and Nukhdiha (2016) showed that there is no significant association between the level of stress and the level of education. Also, El-Hneiti Shaheen, Bani Salameh, Al-Hussami and Ahmad (2019) observed that aside from academic qualification, nurses who have worked for long years reported less stress.

The external sources of stress include work-family conflicts, daily hassles and job demand, moral distress and interpersonal relationship (Cohen & Venter, 2020; Ferguson, Carlson, Kacmar, & Halbesleben, 2016; Holland, Tham, Sheehan, & Cooper, 2019; Jafari, Habibi Houshmand, & Maher, 2017; Klein et al., 2016; Li et al., 2019) and financial difficulties affected nurses (Li et al., 2019). Similarly, Abdul-Samed (2019) reported that in Ghana, health workers reported that balancing work-life and home-life is another big stressor that may account for the higher levels of stress among nurses. According to Cohen and Venter (2020), the stress nurses experience also results from long commuting hours and chaotic traffic conditions. The long hours spent commuting to and from work on daily bases led to increased levels of stress, coupled with chaotic traffic conditions such as congestion and delays contributed significantly to the stress levels of the nurses.

Job demands often include workload, shortage of human and material resources, and time constraint regardless of organizational or cultural differences (Holland et al., 2019; Karatepe, Yavas, Babakus & Deitz, 2018). Studies in different jurisdictions have also identified heavy workload as one of the major causes of stress among nurses (Biganeh et al., 2021; Birhanu, Gebrekidan, Tesefa, & Tareke, 2018; Faremi, Olatubi, Adeniyi, & Salau, 2019; Kwiatosz-Muc, Fijałkowska-Nestorowicz, Fijałkowska, Aftyka, & Kowalczyk, 2018). In Ghana, Abdul-Samed (2019) discovered that most of the times, nurses faced too heavy a workload, which the study described as one of the most common stressors at the workplace to these nurses. Lack of equipment and medicine shortages, as well as lack of standard equipment (Atefi, Abdullah, & Wong, 2016; Ghavidel, Fallahi-Khoshknab, Molavinejad, & Zarea, 2019), lack of proper logistics (Buheji & Buhaid, 2020), staff shortage (Cohen & Venter, 2020; Johan, Sarwar, & Majeed, 2017; Kakemam et al., 2019), nature of work (Dagget, Molla, & Belachew, 2016; Khamisa, Peltzer, Ilic, & Oldenburg, 2016; Maharaj, Lees, & Lal, 2019) and time pressures (Guo et al., 2016; Labrague et al., 2018; Trousselard et al., 2016) have also been identified as the most important factors of stress in nursing.

Studies revealed that nurses become stressed when dealing with 'death and dying' as well as involvement with life and death situations (Dagget et al., 2016; Gheshlagh et al., 2017). Amarneth (2017) also identified that death and dying issues are the most prevalent stressors among nurses. Similarly, Wazqar, Kerr, Regan, and Orchard (2017) in a related study on stress revealed that the nurse's daily exposures to patients' pain, suffering and traumatic life events could contribute to stress. According to Gao, Plummer and Williams (2017), perioperative nurses exhibit psychological trauma of stress presenting in the form of anger, numbness, emotionless, hollow feelings, sadness and feelings of melancholy and helplessness as a result of not saving a patient's life. Beuthin et al. (2018) reported that regardless of culture and country-specific professional role, nurses identify the emotional issues related to death and dying to be overwhelming.

The association between interpersonal relations and job stress have also been identified through various studies. Communication, collaboration and control practices are aspects of interpersonal relationship among health personnel that various studies have identified to be sources of stress to nurses in the health sectors (Chu, 2017; Ghazwin et al., 2016; Starc, 2018). Kunii, Nomura, Takayama and Sera (2017) identified that verbal abuse from co-workers' results in nurses experiencing increased stress. Abdellah and Salama (2017) noted that the constant exposure to professional and interpersonal verbal abuse among operating theatre nurses within the high acuity theatre environment might increase stress. More so, Johansen and Cadmus (2016) identified that dealing with patients or their relatives and handling their anger, criticism or aggressive behaviour are among the most common stressors. Conflict with patient relatives has also been identified to generate some degree of stress in nurses (Hetland, McAndrew, Perazzo, & Hickman, 2018; Najafi, Fallahi-Khoshknab, Ahmadi, Dalvandi, & Rahgozar, 2018). Manos and Braun (2019) also revealed that nurses experience stress when they encounter difficult patients, as such they are unable to establish good working interpersonal relationships with the patients.

The nursing profession is heavily plagued with occupational stress as many nurses perceive their work as stress-producing (Baye, Demeke, Birhan, Semahegn, & Birhanu, 2020). The stress nurses encounter in the clinical setting can result in physical, emotional, social and spiritual changes. A report by Health and Safety Executive (2020) shows that between March 2019 and March 2020, stress, depression or anxiety accounted for 51 % of all work-related ill health cases and 55 % of all working days lost due to work-related ill health. One of the emotional changes that perioperative nurses tend to experience is burnout. Tavella, Hadzi-Pavlovic and Parker (2020) defined burnout as depletion of an individual's energy where personal resources seem diminished, resulting in vulnerable and negative feelings.

In Ghana, the most common psychological health problems reported

by workers of organizations are stress-related (Fordjour & Chan, 2019). As a middle-income country, inadequate resources and partial interventions for workplace problems appear to be the common antecedents to work-related stress in Ghana. Poor working conditions and inadequate yet dwindling numbers of nurses combine with other factors to put most healthcare workers, especially operating theatre nurses at risk of occupational stress. In the operating theatre, the nurses appear to be the hosts, making sure that every other team member that comes in there get their needs met accordingly. They set up the theatre, assist surgeons during surgery, observe the overall condition of patients and care for those at risk of developing a critical condition during surgery to prevent any complications from arising. The nurses focus intently on changes in the unconscious patients' condition. These nurses work at a fast pace, handle delicate instruments and they have to master complex techniques. They also have to run uncertain shifts. Yoosefian Miandoab, Charkhat Gorgich, Rezvani Amin and Shahrakipoor (2015) observed that these nurses tend to spend more time, often all of their time, in a sterilized and closed environment, which can be stressful. An operating theatre work milieu is critical in terms of patient safety and is closely associated with elevated stress (Vahedian-Azimi et al., 2019; von Vogelsang, Swenne, Gustafsson, & Falk Brynhildsen, 2020). Caring for patients in the perioperative setting is dynamic and depends on nurses' clinical knowledge, judgment and critical thinking (Vahedian-Azimi et al., 2019; von Vogelsang et al., 2020).

As a perioperative nurse and perioperative nurse educator for more than 18 years, the researcher can speak from experience when she say how complex and distinctive operating room nursing is, and how it is constantly changing. The incredible improvement in technology for surgical patient care has increased the tasks of the operating room nurse, which can increase workload and demands for maintaining their professional standards. Because stress perception is so individualized, it is possible that nurses will identify stressors differently due to the intricacy of perioperative nursing practice. As a perioperative nurse with a passion for improving the welfare of this group of professionals, the researcher decided to conduct this study among operating room nurses. This, in her opinion, can only be successful if she can get a thorough grasp of the difficulties they face at work. There have also been a lot of research on stress among perioperative nurses in high-income nations and a few in certain middle-income countries. Even though 82 % of nurses believe that work-related stress has a negative influence on their mental health in comparison to their physical health, it does not seem to attract the same attention in Ghana (Kaburi et al., 2019). It is therefore imperative to explore the sources of stress of operating theatre nurses as perceived by these nurses to appreciate the nature of their stressors which may influence the development of context-specific interventions to reduce work related stress amongst operating theatre nurses.

2. Aim of the study

This study sought to explore events from outside and within the operating theatres of a teaching hospital in Ghana causing stress in the nurses.

3. Methods

A qualitative design was employed using a using an exploratory descriptive approach. This approach helped provide an in-depth understanding of the operating theatre nurses' stressors since it highlighted the accurate portrayal of the stress experience of each participant and established a detailed description of their experiences of stress. This design is used frequently in nursing research for these purposes An example is a study conducted by Simmons (2013) on an exploration of workplace stressors among 18 participants.

The study was carried out at a teaching hospital in Accra. It is one of the leading national referral hospitals in Ghana and the West Africa sub-region with a bed capacity of over 2000 and over 4500 members of staff.

It provides services in surgical and medical care. The hospital has nine operating theatres. For this study, the largest theatre among the nine theatres was used. This theatre was chosen because, it had more perioperative nurses as compared to the other small theatres to sample from. There is a recovery room where post-surgery patients are sent to be stabilized before being sent to the various wards. The theatre handles cases on general surgery, genitourinary, maxillofacial and eye surgery on day-to-day schedules.

The total number of nurses in all the theatre at the time of the study was 25. The final number of participants was guided by the two criteria determined by Morse (1991), which are appropriateness and adequacy. That is, it depended on how well the sample represents the phenomena of interest and the point at which no new information or themes were observed in the data. The sample was made up perioperative nurses and qualified general nurses who have worked in the operating theatre for more than six months; the most and least experienced operating theatre nurses from the different shifts and who were willing to participate in the study. Perioperative nurses who have worked for less than six months, as well as student nurses were excluded from the study. This was necessary in order to ensure that participants have obtained maximum depth and variation in perspectives and understanding of the stress among operating theatre nurses. Respondents were purposively sampled and by the time the researcher attained the 12th participant, data saturation was reached where an in-depth understanding into the sources of stress in the operating room to nurses had been gathered. Hence the sample was made up of 12 participants (10 females and 2 males).

A semi-structured interview guide was developed by the researcher with the help of the supervisors which was used to collect the data. The interview guide comprised questions on participants' demographic characteristics and their perception about stress and sources of stress. The items developed were informed by the reviewed literature which shows that stress is interpreted as a stimulus, a life event or group circumstances which may awakens normal and / or psychological reactions, which may increase the vulnerability of the individual to disease. The main items in the guide included: (1) What do you understand by stress? (2) Where does stress come from? (3) Tell me about a time within the past three to six months that you were at work and you experienced stress in the operating room. (4) How do you feel during this experience? Some additional probes were also used during each interview. The items were reviewed by the research supervisors and the interview guide was pre-tested on two operating theatre nurses. Based on the feedback received from the pre-test, the interview guide was revised as needed. The researcher conducted face-to-face interviews with the participants which lasted about 30 min. The interviews were recorded using an audio recorder and hand written notes were taken to record the nonverbal signals of participants. Any relevant questions that were missing in the interview guide but surfaced during the course of the previous interview was added for the subsequent interviews. When the researcher had collected rich and adequate data to build a comprehensive and convincing theory and no new data emerged, the researcher considered that saturation was achieved hence ended the data collection.

The study employed thematic content analysis in which data was analysed using Clarke and Braun's (2018) Six Steps of Qualitative Data Analysis and the Constant Comparison Method (Glaser & Strauss, 1967; Strauss & Corbin, 1990) to determine the sources of stress. These methods allowed the researcher to identify the themes that were important in systematically answering the research questions. After interviewing each participant, the responses were transcribed verbatim into written text and typed out by researcher. The initial ideas and interesting features of the data such as the language used and semantics (both stated and implied) were noted down and then systematically generated into codes across the entire data set whilst collating data relevant to each code. After all the data had been coded and different codes identified, the codes were searched through and similar codes

were collated into potential themes. The generated themes were later checked and refined in relation to the coded extracts to determine whether they appeared to form a coherent pattern in relation to the entire data set. A further review of the themes was done to refine the specifics of each theme and the overall story the analysis tells while generating clear definitions and names for each theme. More themes that were specific and addressed the research questions within these broader categories were generated. Each sub-theme is presented with supporting anonymous quotes using pseudonyms.

The principal investigator, a perioperative nurse and nurse educator with extensive experience who worked in the operating room for eight years and has been involved in the training of perioperative nurses since 2007, conducted, audio-recorded, transcribed, and coded all of the interviews for the study. As a researcher, a perioperative nurse and an educator, some of the participants knew me. Due to this, the researcher made an effort to eliminate presuppositions and biases from the analysis, therefore the language of the participants was examined in light of the available data. By defending the researcher's interpretations and conclusions in front of the supervisory team, bias was further prevented through explanation and discussion. Through this approach, the researcher gained confidence in my ability to code the data correctly and, more importantly, the researcher developed transferable insights that helped me address the purpose of the research. After the interviews were finished, initial ideas about self-managed action learning were reviewed with supervisors. The researcher acted with integrity, followed the research principles, and gained the appropriate ethics review. The co-author, a senior lecturer in the School of Nursing and Midwifery with substantial experience in qualitative methods, provided input into the interview guide, and reviewed the audio recordings, transcripts as well as the coded data. Both the principal investigator and the co-author collaboratively agreed on the codes and generated the themes from the data. These help to ensure consistency between data presented and the findings.

Ethical clearance was sought from the Institutional Review Board of the Noguchi Memorial Institute for Medical Research with a research proposal and a letter, and approval was given (IRB No. 00001276). Also, permission was sought from the teaching hospital with an introductory letter for site approval to conduct the research. At the beginning of each interview, the researcher provided a detailed written synopsis of the study to participants. Afterwards, each participant's consent was sought and they were assured of the confidentiality of the information gathered. Participants were told that their participation was voluntary and that they had the right to withdraw from the study at any time and any compensation they are entitled to be given would not change. Each participant had the chance to choose a convenient place for the interview and the researcher did well to maintain privacy. Anonymity and confidentiality were ensured by asking respondents not to write their names on the demographic profile sheet. Pseudonyms were used to represent all the quotes from participants.

4. Findings

Twelve operating room nurses participated in this study. These nurses were aged between 27 and 51 years (mean age = 34 years; SD = 7.2). Seven (58 %) of the participants were married, and seven (58 %) had an average of one biological and non-biological child. Of the 12 operating theatre nurses, eight (67 %) were on morning shifts with two groups of two (17 %) each working on afternoon and night shifts respectively. Furthermore, seven (58 %) of the participants had a Diploma in nursing and five (42 %) had B.Sc. or BA degrees in nursing. Three described themselves as Registered General Nurses and the remaining nine (75 %) had specialized in Perioperative Nursing. The average years of experience of the participants in operating theatre was 6.5 years (SD = 4.3). Most of the participants 9 (75 %) were junior nurses with ranks ranging from Staff Nurse (SN) to Nursing Officer (NO) with only three (25 %) holding senior positions. Of the senior positions,

two (17 %) were Senior Nursing Officers (SNOs) and one (8 %) Principal Nursing Officer (PNO). The participants explained their sources of stress in detail, from which sub-themes were extracted and grouped. Each of the themes and sub-themes presented have been explained and described into detail.

4.1. Sources of stress

This relates to the origins of the stress experienced and the events or situations that acted as stressors. Six sub-themes emerged namely; behaviour patterns, daily hassles, job demand and nature, workplace resources, interpersonal relationships and workplace moral distress. All these sources of stress can generally be grouped into two main categories which are, internal and external sources.

4.2. Internal source of stress

Stress coming from the internal source encompasses those situations that arise from within the individual. The sub-theme that fits as internal source of stress is behaviour patterns which involved such things as the participants' character and nature making them prone to stress. Two behaviour patterns that stood out strongly were difficulty talking about issues and worrying. The data revealed that some operating theatre nurses (n = 8) by nature find it difficult to talk about things bothering them, which predisposes them to stress. Some participants reported not being able to voice out whenever there is a problem.

'One thing I have realized is that not voicing out things because of the fear of getting into trouble is stressful' (Ladala).

Also, the issue of worrying was identified by half of the participants (n = 6) as leading to stress in a few operating theatre nurses. Some participants indicated that they experience stress because they are always preoccupied with thoughts; worrying about so many things, though sometimes, the source of the worry is hard to pinpoint. One participant made the statement:

'I am always thinking a lot and worried about virtually everything. This gives me stress' (Hadala).

4.3. External sources of stress

Most of the sources of stress expressed by these operating theatre nurses (n = 12) were from external sources. The sources of the external stresses were from daily hassles, job demand and nature, workplace resources, co-workers and workplace moral distress.

4.4. Daily Hassles

It was found that some participants (n = 7) experienced stress arising from external sources that have to do with constant daily annoyances and frustrations from their family, commuting, queuing and traffic jams. Participants reported getting frustrated by having to carry out certain family responsibilities, dual roles and child care. Some participants indicated that it becomes stressful having to wake up very early in the morning to take care of children before going to work.

'As a nursing mother, I have to get up early, see the kids before coming to work. And when I get back home, even though I need to rest my children are there for me to take care of, for the one who was also taking care of them whiles I was away to also rest. Once you are in they think you have to come for your baby [laughs]' (Dadala).

'At home, in the morning you have to wake up very early, take care of your children, bath them take them to school before you'll have to rush to work. All that is stressful' (Fadala).

Aside from having to take care of the children, issues of financial responsibilities towards one's family were also identified to be

overwhelming for some participants. Participants (n = 6) reported that they became stressed due to some financial burdens placed on them by their family members. One operating theatre nurse in the statement below vividly captures this:

'Responsibilities from your family, your mum and your dad and siblings are also stressful. You must provide for your parents and siblings. So with the little salary, you find out that you are not able to provide for your immediate family needs because you overburden this little salary. So it ends up in a way being stress on you' (Kadala).

In addition, some other daily hassles some of these nurses go through include time spent to get to work, distance to travel to get to work, queuing and means of transportation to work. Participants (n = 9) reported that they go through stress because they struggle with transportation to get to work since they lived far away from their place of work. This sub-category of external stress was saturated having codes such as traffic, distance from work and transportation. Three operating theatre nurses stated as follows:

'It's just struggling through to get to work, distance from home to work, it can be very stressful' (Badala).

'Beating the traffic to get to work is stressful' (Fadala).

'Stress comes from letting me say my transportation. At the moment I don't have my means of transportation. So coming to work you have to join the public transport. You get to work at times late because you have to join long queues before you board transport to the workplace' (Gadala).

4.5. Job demand and nature

Job demand and the nature of the job were also identified as other external sources of stress to the operating theatre nurses. This could be seen in the responses of participants in the bid to identify the other sources of stress to the operating theatre nurse. Within this category, all the theatre nurses talked about workload, exposure to body fluids and chemicals as well as prolonged standing.

Most of the people in this study (n = 10) experienced stress as a result of workload. The theatre nurses reported that the number of cases booked for a day is a lot and that they have to be on their feet until their shift was over.

'For my department, I think we have a lot of pressure as in the number of cases done in a day. We have different teams coming to the theatre and especially in the afternoons when it is open for emergencies all the different units even those that are not on duty do come in with their cases to operate' (Badala).

'Surgeons book too many cases for the day and they rush you to work. When we finish with a case, they have time to rest for the next case. But we wouldn't rest. We have to tidy up and set up the place for the new cases' (Dadala).

In the responses above, it is obvious that participants in this study go through tremendous stress as a result of their heavy workload at the workplace.

Again, the nature of the job, which had to do with exposure to body fluids and chemicals, was another source of stress being reported by half (n = 6) participants. Some theatre nurses indicated that they fear that they may become infected while rendering their duty due to the excessive exposure to blood and body fluids. Some even stated that they become stressed because certain chemicals that are used in the operating theatre cause them some form of problems.

'We get exposed to a lot of body fluids and chemicals. Sometimes you can have cut from needles and even blade. When I am exposed to parazone (chlorine) a little, I begin to experience rhinorrhoea, running nose and sometimes I even tear' (Cadala).

'There are some cases that when you are doing it you are afraid; like they have diagnosed someone an HIV patient, a hepatitis patient. Looking at it, seeing it or having knowledge about it will let you have that fear in you that [in Twi: woe mekoo yedee ewose me ye very careful na bibira awo meo] (I must be very careful with this surgery so I don't sustain any needle stick injury)' (Hadala).

In addition to workload and exposure to body fluids and chemicals, prolonged standing was another factor that led to stress among these nurses (n = 12). The participants reported that due to the nature of the operating theatre work, they can be standing continuously for hours. The issue of prolonged standing being a source of stress to the operating theatre nurse was echoed in the following statements:

'You come to work and you work till you are about leaving the theatre (closing). You have to stand for long hours during an operation' (Gadala).

'One thing is standing for so many hours for long cases. You'll stand for six to eight hours for a case, for example maxillofacial surgery' (Jadala).

4.6. Workplace resources

Having challenges with resources at the workplace is also seen to be alarming for the theatre nurses. Therefore, the non-availability and inadequacy of resources were cited as leading to stress in theatre nurses in this present study. Specifically, resources such as staff shortage, inadequate and faulty equipment, and insufficient supplies were identified as sources of stress from the responses of the participants. The participants (n = 12) reported that often there are small numbers of theatre nurses on the various shifts, which stresses them out a lot.

'We have this challenge of shortage of staff and this is worsened when we have a lot of the nurses going on leave, maternity leave and sick leave' (Adala).

'There is a shortage of staff. A lot of them are on leave. Two or three nurses will be working with one team so if there are other cases booked you have to try and finish all during your shift or at least start the last case before the staff for the next shift begin to come. So basically, it's about the staff that is not available' (Fadala).

Data collected revealed that items to work with within the theatre, which comprise supplies and equipment as compared to the number of cases booked, are inadequate. About a third (n = 8) of the participants reported there were inadequate sterile items as well as faulty equipment which were usually also inadequate. Some participants reported that there are times they struggle to have adequate sterile linens, gowns, sutures, gauze and instruments to work with and this they indicated resulted in stress. All of the theatre nurses made specific comments regarding sterile items and the following two are representative statements:

'We have this problem of our linen, or packs and gowns. The CSSD (Central Sterilization Supply Department) where we autoclave our things happen to serve the whole hospital. They have to do a bit of every department's own. Therefore, you do not get the number of things that you want at a particular time. It is very stressful' (Adala). 'Sometimes, you have to work and there is no gauze and packs because CSSD is not working. Surgeons will come and will not have scrubs to wear. You request for the things but you don't get enough' (Fadala).

With respect to inadequate and faulty equipment, the theatre nurses indicated that a lot of the equipment such as the diathermy machine and suction machine were faulty causing shortage. The participants (n = 8) reported that due to the inadequacy of this equipment, one was always compelled to move this equipment from one theatre to the other where they are needed most during surgery.

'You are operating with a suction machine; one case is not over but because the machine is needed in another theatre you have to come and move it there. You will be moving up and down the place until you close. Therefore, by the time you close you would have walked over five kilometres even though it is a small place. So those are some of the things that subject me to stress' (Cadala).

'In the theatre, the equipment is not available especially with the suction machine and the diathermy machine so you have to be taking them from one theatre to the other just to go and work with them because they are not available (inadequate)' (Edala).

4.7. Interpersonal relationships

Data also revealed that issues pertaining to interpersonal relationships among operating theatre nurses also brought about stress in the participants in this study. The theatre nurses (n = 12) reported issues related to communication and disrespectful behaviours that threatened working relationships and had an effect on patient care. The nurses reported that some surgeons bring in emergency cases to operate on without giving the nurses any prior notice. This sub-category comprises codes such as lack of communication, lack of information, lack of coordination and delayed information. A theatre nurse made the following statement regarding communication:

'Doctors come in unexpectedly and book cases without any prior notice. Since the theatre is where they think they can just pop in and then bring in any case at all at any time for you to work with them. At times too they book the cases alright but they are not around and they will not give you any prior notice that they will come in a bit late' (Hadala).

4.8. Workplace moral distress

Moral distress also emerged as one of the sub-themes for sources of stress. Data collected also showed that some operating theatre nurses from this current study also do experience moral distress, which results from issues concerning the patient's prognosis, death of a patient, unduly starving patients and case postponement. The theatre nurses (n = 5) felt that they had a moral obligation to care for their patients and not to cause harm to them. They also indicated that knowing that the prognosis of a patient is bad and still seeing a patient go through surgery stresses them up. One theatre nurse stated:

'When a patient dies on the theatre table it gives so much stress. There are times we have to wait for surgeons or the cases are postponed. The patients are left in the corridor for long hours and they are starved. Telling a patient that the case is cancelled or postponed for you is stress because at times the patient weeps' (Hadala).

Another nurse stated:

'Where the patient's prognosis is not good enough and you realize the surgery that is about to be carried out on the patient is just palliative it gets very depressing' (Badala).

In these two quotes above it is obvious that moral distress is one of the sources of stress to some of the participants in this study.

To conclude, the main sources of stress to the operating theatre nurses include behaviour patterns, daily hassles, job demand and nature, workplace resources, interpersonal relationships and workplace moral distress.

5. Discussion

The nurses referred to stress as a reaction to an inability to cope in a given situation. The participants saw stress as an individual's reaction to a mismatch between the demands being placed on an individual and the

individual's capacity to meet those demands. This produces a wide range of psychological and biological responses in the individual when exposed to stress. Fink (2016) also indicated that stress is a psychobiological reaction of the body to physical or psychological demands threatening or challenging the well-being of a person. It is clear that operating theatre nurses had knowledge of what stress is and can identify situations that are stressful whenever they arise in the course of their work in the theatre.

It was identified that the stress operating theatre nurses experience comes from internal and external sources. For the internal source, the individual's behaviour patterns were identified and the external source had to do with daily hassles, job demand and nature, workplace resources, co-workers and workplace moral distress. Some of the operating theatre nurses are very much prone to stress because they find it difficult to talk about things bothering them and or worrying. Stress can result from not voicing out what bothers one and keeping things to oneself. Personality traits such as, openness and extraversion are associated with lower levels of perceived stress. Individuals who possess the openness trait are ready to re-examine their values, appreciate new ideas and rich in imagination hence experience lower levels of stress (Lee et al., 2018; Khoo & Simms, 2018). However, the finding from this study does not specifically investigate these traits, and hence does not suggest that nurses exhibiting this behaviour pattern are introverts. Furthermore, the results from this study also highlighted the role of worrying in an operating theatre nurse's stress experience. When worries become excessive, chances are that you will trigger the stress response in line with the claim by Ehring and Behar (2020) that a person who worries becomes easily upset, often feels downhearted or irritable, and has the tendency of aggravating stress.

Daily hassles, which include family responsibilities, travel time to work, the long distances travelled to work were identified through this study as a predisposition to theatre nurses' stress. Spending long hours in traffic commuting to work is a source of stress for the nurses. They end up exhausted on arrival to work and have to contend with unpredictable time spent in the operating theatre during surgery. These non-work-related stressors can be overwhelming for some of these nurses, thereby leading to stress. Cohen and Venter (2020) noted that the stress nurses experience also results from long commuting hours and chaotic traffic conditions.

Li, Cheung and Sun (2019) noted that nurses are also affected by other nonwork-related stress such as family responsibilities and financial difficulties. Financial responsibilities towards one's family have been confirmed by Asadi, Garavand, Khamarnia and Abdollahi (2017) to lead to severe stress in situations where there are inadequate salaries to meet financial obligations. Also, some of the theatre nurses in this study perform dual roles; taking care of children and the home before going to work which make them experience stress. Findings of Abdulsamed (2019) among Ghanaian nurses show that balancing work-life and home-life is another big stressor that may account for the level of stress among nurses because of the conflicting demands of dual roles.

The operating theatre nurses also referred to the overwhelming demand that their job places on them. They stated that they experienced stress due to job demand, which includes heavy workload, exposure to blood and body fluids as well as prolonged standing. Findings from this study demonstrates that the operating theatre nurses believe that heavy workload is one major source of stress, which they attributed to the small staff strength. This reflects the findings of previous studies that workload is one of the frequent and major sources of stress which is overwhelming for nurses (Biganeh et al., 2021; Birhanu et al., 2018; Faremi et al., 2019; Kwiatosz-Muc et al., 2018). However, in another study, Faremi et al. (2019) attributed heavy workload more to the shifting of priorities, involvement with life and death situations as well as nurses being required to perform doctor's functions outside of their competence.

The stress associated with fears resulting from exposure to chemicals and body fluid can be unsettling for the operating theatre nurses. Pre-

occupation with the thought that patients are potential carriers of some pathogenic organisms specifically HIV and Hepatitis B virus is a major source of stress for fear that they might end up being infected. It has been reported that health professionals become seriously stressed due to biological dangers the nature of their work have exposed them to through the use of sharp equipment like needles and through skin contact (Dagget et al., 2016; Khamisa et al., 2016). Guo et al. (2019) reiterated that nurses, especially younger nurses while treating infected patients do experience fear of exposure to acquired immunodeficiency syndrome and Hepatitis, which in turn results in stress. In the operating room, the risk of exposure to infected body fluids is high hence it is a major source of concern to these nurses.

The operating theatre work is associated with prolonged standing. Major operations can last for two hours or more. A nurse who stands for this long certainly begins to feel tired and eventually becomes stressed out especially when there are several cases to be operated upon with little or no breaks between the surgeries. This is referred to as static stress which Tavakkol et al. (2020) alluded to as prevalent among operating theatre nurses.

Problems related to workplace resources including staff shortage, inadequate and faulty equipment, and inadequate supplies were reported by the participants as sources of stress. The participants reported that often there are a small number of theatre nurses on the various shifts and these few nurses have to go the extra mile to complete the work expected to be done for the day. Staff shortage has been identified as a source of stress among nurses (Cohen & Venter, 2020; Johan et al., 2017; Kakemam et al., 2019). It is no different from what the theatre nurses expressed in this study. Johan et al. (2017) further explained that a shortage of nursing staff exacerbates the problem of the workload resulting in an additional amount of work. Thus, the current situation is strongly believed to be a contributing factor to the heavy workload, which has also been identified as a source of stress to the operating theatre nurse.

Consistent with the findings of Atefi et al. (2016) and Ghavidel et al. (2019) that lack of supplies and equipment bring about stress in nurses, this study also revealed that operating theatre nurses have been facing challenges with inadequate supplies and equipment. The problem of inadequate material resources could be attributed to the economic hardships that all middle-income countries including Ghana go through. Therefore, the operating theatre nurses who struggle to get the needed supplies and equipment to work with feel the effect.

This study also found that interpersonal relationship-related problems such as lack of communication and disrespectful behaviours on the part of doctors contributed to stress among participants. It may be speculated that the doctors' disrespect for operating theatre nurses creates a sense of lack of autonomy in these nurses. The stress therefore may be because these nurses feel left out when it comes to decision making. In line with Ghazwin et al. (2016) and Starc (2018), lack of autonomy and independence in making decisions are sources of stress among staff nurses in the clinical area including operating theatre nurses. Chu (2017) reported that nurses experience stress when they sometimes feel they are unable to make decisions or change unsatisfactory situations.

Moral distress as a source of stress to these nurses may be attributed to the fact that the hospital is a tertiary hospital and many critical and dying patients were referred to these hospitals. Regardless of culture and country-specific professional role, nurses identify the emotional issues related to death and dying to be overwhelming (Beuthin et al., 2018). When operating theatre nurses lose patients in theatre, it is very distressing which often leads to the experience of stress. In a related study, Amarnah (2017) also found that death and dying issues are the most prevalent stressors among nurses. Similarly, Wazqar et al. (2017) which show that nurses become stressed when dealing with life and death situations and this study identified that participants also expressed similar concerns. They stated that they experience moral distress, which results from poor patient prognosis, death of a patient, unduly starving

patients and case postponement, which stresses them up a lot. Wazqar et al. (2017) have revealed that healthcare employees do experience stress of conscience in situations where an individual feels unable to follow his/her conscience at work and also is unable to deal with moral problems such as difficulty in dealing with feelings aroused when a patient is suffering.

6. Conclusion

This study provides a valuable insight into the reality of stress as experienced by operating theatre nurses in a teaching hospital in Ghana. The study has shown that operating theatre nurses are faced with various stressors from time - to - time and the commonest and the most worrying are those related to their work. The major sources of stress such as work overload, staff shortage and inadequate equipment and supplies to this group of people have been identified. The staff shortage, specifically operating theatre nurses has led to the nurses perceiving their workload as overwhelming. Thus, there is the need to help create a more conducive environment for all operating theatre nurses to enhance their performances. Ensuring a stress-free environment for the operating theatre nurses will also lead to their well-being.

7. Recommendations

- Healthcare and nursing managers should design better stress assessment programmes to enhance operating theatre nurses' quality of work and psychological well-being.
- Nursing administrators should consider employing more competent and experienced operating theatre nurses, specifically perioperative nurses into the operating theatres and periodically enhance their scientific and practical abilities through workshops and in-service training to ease stress resulting from the shortage of operating theatre nurses and to reduce the nurses' work overload.
- Hospital administrators and managers should ensure that the equipment and supplies are adequate to meet the demands.
- Hospital management should take a more active step in organizing yearly workshops with more emphasis on etiquette and attitude among surgical team members.
- Government of Ghana should expand the infrastructure of the existing perioperative training school and establish additional perioperative nursing schools in all the regions in Ghana to train more perioperative nurses to increase their numbers in the various theatres in the country.

8. Limitations

The study was confined to one hospital and its qualitative nature made having a larger sample size misplaced and substantially impracticable for in-depth interview analysis. Besides, the self-report method used subjected this study to the mercy of the participants' reporting style, motivation and honesty. There is a possibility that the participants may have withheld certain information in case it would reflect badly on them or in case it would offend the researcher. An individual may also perceive his/her work environment in negative light when stressed up and this may negatively affect their responses.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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