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Limbo Atmosphere: The Experiences of Iranian Nurses of Disruptive Behaviors in Operating Room

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Abstract

Background: Operating room nurses are exposed to disruptive behaviors in different situations in operating room that affect them and their performance.

Aim: The present study was performed with aim to explore the experiences of Iranian operating room nurses regarding disruptive behaviors in operating room settings.

Method: This descriptive qualitative study was conducted in different university hospitals of Tehran. The data were collected by deep semi-structured interviews with 17 operating room nurses who were purposefully selected. Finally, the data were analyzed by the conventional content analysis approach.

Results: In this study, four categories were extracted, including "activity in a poisonous atmosphere", "role negligence", "escape to a safety margin for adaptation", and "Indirect confrontation". The theme was "struggle in a limbo atmosphere caused by disruptive behaviors".

Implications for Practice: Considering to the effect of disruptive behavior, it seems necessary to take training measures for improving "team-working" in operation room settings. Nursing managers can use the results of this research to determine patient care policies in the operating room in order to promote patient safety and improve the quality of care. It also seems necessary to design and implement a training program to evaluate its effect on changing disruptive behaviors.

Keywords: Content analysis, Operating rooms, Operating room nurses, Problem behavior

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Introduction

Disruptive behaviors as a major problem in health care systems are more common among surgeons than other medical groups (1-3). The American Medical Institute defines disruptive behavior as any inappropriate behavior that leads to a perceived threat for victims or witnesses and violation of the criteria of reasonable and respectful behavior (4), as well as verbal or physical interactions that can cause negative effects on patient care (1). Also, disruptive behaviors refer to inappropriate actions or conflicts including misuse of verbal (insulting) or physical (beating) interactions, which can occur intentionally or merely due to no awareness about its outcomes (5) that can consequently disrupt team performance and collaborations (6,7). Disruptive behaviors are very common in operating rooms (ORs). In a study by Villafranca et al. (2019) (8) on 134 perioperative associations from seven countries, almost all of the respondents reported exposure to disruptive behavior in the past year. The overall prevalence rates of such behaviors had been reported at 98%, 97.9%, 96.7%, and 96.8% in Canada, United States, Brazil, and India, respectively. In the study of Kusy and Holloway (2014), 77% of nurses reported abuse from physicians (9). Fast et al. (2020) similarly reported the prevalence rate of such behaviors by 96% in 23 perioperative associations from seven countries and indicated that almost 97% of individuals had not recounted all observed disruptive behaviors (10). Moreover, Hosseinpour-Dalenjan et al. 2017 also found the mean score of disrespect to nurses by physicians was higher than other groups (11). Moreover, Rosenstein and O'Daniel (2005) had noticed that 86% of nurses had encountered such behaviors; in addition, physicians expressed that in half of their fellow workers had witnessed such behaviors (12). Besides, Garth et al. (2019) reported that the prevalence rate of unpleasant and uncivil behaviors with nurses by physicians was approximately 66% (13).

Disruptive behaviors as a major problem in health care systems have numerous negative consequences on patient care affecting both patient and personnel safety (3,14,15), and increase workplace stress and work burnout (12). Responding to this stress also results in a range of behaviors and reactions such as fear, tension in ORs, poor teamwork, as well as hostile and unfriendly environments (6). Regarding to the importance and effects of disruptive behaviors, the United States-based Joint commission in 2008 emphasized on identifying and determining the severity of such behaviors, which could seriously threaten patient safety (16), and also advised to alleviate or eliminate them. Health care provider organizations which don't pay attention to such behaviors may also endanger patient safety (17). World Health Organization about safe surgery says although surgeries are conducted with aim to improve patient health, major complications of surgical procedures have been thus far reported, so 3-16% of operations lead to permanent disability, and mortality are reported by 5-10% in developing countries (18). Therefore, such problems can be reduced by improving factors affecting safety, such as minimizing stressful factors and boosting team performance. Accordingly, preventing the dangers threatening patient requires attentiveness of all individuals involved in care delivery, considering patient's cognition, provision of equipment prior to surgery, and even early identification of hazards to patients which can be among the important functions of operating room nurses (ORNs) (19).

Stressful factors such as disruptive behaviors by affecting cognitive mechanisms such as memory can interfere with effective performance (20). Therefore, early identification and follow-up of such behaviors has significantly negative effect on patient-related outcomes (21). Despite increasing evidence about unpleasant effects of such behaviors, many organizations still leave such difficult conditions behind in recognizing and tracking these issues effectively (22). Understanding how stressor-induced behavioral responses, such as disruptive behaviors of surgeons, may affect surgical procedures and OR team members, is essential to moderate unwanted surgical incidents and to improve safety (23). Thus, it is crucial to better identify the nature, causes, and effects of disruptive behaviors along with providing support for finding appropriate strategies to solve them in OR (22). Few studies have so far examined the emotional and behavioral responses to stressors such as disruptive behaviors, and interpersonal communications have been neglected even with efforts to improve patient safety, reduce damages, and improve the outcomes (20,24,25). In this regard, a quantitative study in Iran reported the prevalence rate of disruptive behaviors by 82%. ORNs had mentioned the effects of such behaviors on creating negative consequences (78%), threating patient safety (27%), and minimizing care quality (37%) (23). Also, in a survey among bariatric surgeons, it was found that surgeons with aggressive leadership style and power-seeking characteristics compared with those having humanistic styles had experienced a higher percentage of unwanted events and

postoperative complications (26).

Despite high exposure of nurses to disruptive behaviors by physicians (11), especially surgeons (27), and the necessity of accurate recognition of its effects (5), no study has been so far conducted with a qualitative approach to deep explore the effects of such behaviors from the perspective of Iranian ORNs. Given the cultural context and lack of precise information about disruptive behaviors in Iran, there are a number of questions such as what is the experience of ORNs regarding disruptive behaviors? What are the effects of disruptive behaviors on ORNs? How ORNs perceive and react to or deal with such behaviors? On the other hand scrub and circulating nurses are key members of ORs; they can play diverse, multifaceted, and specialized roles in these environments and work in direct relationship with surgeons (28,29). Thus, obtaining their experiences about disruptive behaviors in a qualitative approach provides a context to profound cognition and a better understanding of effects, offering strategies and interventions to improve team relationships and teamwork outcomes. Therefore, the present study was performed with aim to explore the Iranian ORNs' experiences about disruptive behaviors.

Methods

This descriptive qualitative study was conducted using the conventional analysis as a qualitative approach (30). Participants in this study were 17 ORNs working at different university hospitals in Tehran, Iran, from February to December 2019, who were purposefully selected. The inclusion criteria were ORNs with at least one year of work experience as a scrub or circulating nurses who had willingness to participate in the study. Data was collected through semi-structured interviews in a quiet and private setting such as an empty and safe room in the hospital or wherever the participants felt comfortable. Interviews continued with 17 participants until data saturation. On average, the interviews lasted 52 minutes. They started with a general question about experiencing or observing disruptive behaviors and then followed by probing questions wherever necessary. The nurses' experiences and observations regarding destructive behaviors were emphasized during the interviews. An example of interview questions was "Have you ever encountered or witnessed disruptive behaviors by surgeons in ORs?" followed by exploratory questions such as "Please share your experience or observations about such behaviors. How did affect you? Please explain more about it. Please give an example" for more clarity and better understanding of the problem. After obtaining written consent from the participants, the interviews were recorded by a tape recorder and transcribed verbatim at the earliest opportunity. Data were analyzed by MAXQDA software (version 10). Conventional content analysis was used to analyze the data according to the steps which were developed by Graneheim and Lundman (2004). Firstly, the interviews were listened and then transcribed immediately and were read several times to create a general understanding of the whole interview. Then, semantic units were determined and initial codes were assigned to each unit in the form of open coding. After that, the initial codes were merged into more general and more abstract groups based on their similarities and differences. The final theme was abstracted as the latent meaning of the data based on the relationship between the categories (31).

Four criteria were used to ensure the trustworthiness of the study. In this respect, credibility was met by long-term involvement and immersion with data through continuous reviews, frequent listening to interviews, spending enough time (11 months) to collect and analyze the data, and discussion in the research team. In order to obtain data dependability or consistency of the findings, the extracted codes and categories were provided to a number of ORNs as well as external observers such as qualitative research experts to confirm their correctness. Data conformability was achieved by using participants with maximum diversity (ORNs with different levels of education, work experiences, genders, work shifts, and different hospitals). Furthermore, data transferability was achieved by transcribing the interviews immediately after their completion as well as providing an accurate and rich description of ORNs' experiences and citation of examples and quotations (32).

Results

The findings of the present study were obtained through interviews with a total number of 17 female and male participants including ORNs working in various ORs with a mean age of 36.6±9.78 years and mean work experience of 13±7.25 years in different shifts with levels of education from undergraduate to postgraduate. From 147 initial codes, 16 sub-categories and 3

categories including activity in a poisonous atmosphere, role negligence, and escape to a safety margin for confrontation and adaptation, and finally a theme entitled "struggle in a limbo atmosphere caused by disruptive behaviors" were extracted (Table 1).

Table 1: Emergence of Sub-categories, Categories, and theme

Sub-categories	Categories	Theme
Bearing the burden of offensive and uncivil behaviors at work Neglecting nurses' knowledge, experiences, and assistance Psychological and emotional pressures	Activity in a poisonous atmosphere	Struggle in an Limbo atmosphere caused by disruptive behaviors
Deviated focus from patients to surgeon Decreasing physical and mental performance Moral degradation Indifference and reduced commitment to duties Unfriendly behaviors and tension with colleagues	Role negligence	
Silence and reticence Avoidance of disruptive situations Relying on moral values Attempts to develop capabilities (skills and spirit) Trying to get support from authorities and colleagues Attributing behaviors to external factors Punishment of surgeon Decreasing cooperation and no support from surgeon	Escape to a safety margin for confrontation and adaptation	

Activity in a Poisonous Atmosphere

The category of "Activity in a poisonous atmosphere" included three concepts of "bearing the burden of offensive and uncivil behaviors at work", "neglecting nurses' knowledge, experiences, and assistance", and "psychological and emotional pressures". This sub-category of bearing the burden of offensive and uncivil behaviors at work comprised of behaviors causing a sense of being humiliated, insulted, and blamed in front of others. These behaviors often contained the use of disrespectful words and body language to interact with nurses. In this regard, participant No.14 stated:

"…We perform surgeries along with Dr. A for several hours. So, when there is not an instrument in the OR, we do not have it at all, he insults us with his look and says with a humiliating tone that … we are lazy … we do not help … we do not work … in this way, the work-related fatigue lasts for a long time."

As well, participant No. 3 added: "…Once the nurse was looking for a special device at the beginning of the surgery, the residents were fixing the patient's head on the Mayfield, but it suddenly fell down … the surgeon insulted and cursed the nurse why she was not in the room. Well, the circulating nurse leaves the room for some reason … Had not herself neglected it?"

Neglecting nurses' knowledge, experiences, and assistance was the second sub-category of activity in a poisonous atmosphere. The nurses complained about the sense of ignorance and indifference by surgeons regarding their knowledge, existence and skills, and considered it as a factor for discouragement and withdrawal. Nurses were also feeling upset since they had been educated for years and had acquired skills, but their knowledge and skills were usually ignored. They also complained about overemphasis of some physicians on the necessity of a distance between themselves and nurses and found it as a major factor of discouragement, work-related fatigue, and reluctance. For example, participant No. 16 said:

"…Something is bothering me … I think the only thing that may make work hard for me in my job is to devalue our work by some of residents and attending physicians. They fail to recognize our work and do not respect us. Let me say, when a part of body is bleeding and I am trying to help or even guide them, they say that they know about it very well."

Participant No. 10 said:

"…When the resident started to adjust the light with the handle of the sterilized surgical light lamp, the surgeon warned him that it was not their work, but it is the duty of the circulating nurse and said that they needed their shoulders for surgery, which made me and my fellow worker very upset. What would happen if the resident had adjusted the light, it means that we did not need our shoulders?"

The third sub-category was psychological and emotional pressures, which included the sense of sadness, unhappiness, depression, anger, stigma, as well as humiliation and lack of motivation. Profound psychological wounds also referred to heavy emotional pressures caused by uncivil behaviors burdened on nurses for a long time, affecting their emotions and spirit and ultimately their performance. Regarding stigma as one of the senses of sub-categories of psychological pressures, participant No. 6 stated:

"…When a surgeon has a bad behavior with a nurse, this behavior also affects others, and they try to keep a distance with the nurse."

Regarding the sense of sadness and frustration caused by disruptive behaviors, participant No. 11 said:

"…The surgeon treated me very bad in front of others. Now, two months has passed, but I am still sad and upset ... he dishonors me. I tell myself (in tears) I wish I had never chosen this field."

Role Negligence

Role negligence comprised of the concepts of "deviated focus from patients to surgeon", "moral degradation", "Decreasing physical and mental performance", and "indifference and reduced commitment to duties", "unfriendly behaviors and tension with colleagues".

Deviated focus from patients to surgeon was the first sub-category. Nurses had tried to appease the surgeons and pay more attention to their demands due to observing or confronting with disruptive behaviors, so an important part of their function had been lost due to deviated focus towards surgeon. Three components of this category included meeting surgeons' expectations, trying to satisfy surgeons, and inducing fear from surgeons to novices. As an example, participant No. 5 stated:

"…The patient felt cold because there was no covering since I am afraid of surgeons to come and tell why the patient is not ready… I inevitably used catheter hastily and did not pay attention to the patient's need."

Decreasing physical and mental performance was the second sub-category which consisted of stress, increased error, slow performance, decreased concentration, and forgetfulness. Disruptive behaviors could cause high levels of stress in nurses and more severe behaviors could have a more significant effect on their performance. For example, nurses suffered high levels of anxiety and stress and consequently dysfunctions such as slowness or distraction occurred as surgeons had shouted, which could directly affect patient care. In this regard, one of the participants (No. 11) reported:

"…When the surgeon shouts or he is angry, I become more confused and make much more mistakes, in a way that the tools are at hand but I cannot find them … I feel stressed-out."

Moral degradation or fading out the ethics involved issues such as decreasing honesty to surgeon and disregarding patients. Nurses experiencing disruptive behaviors sometimes take actions which are incompatible with ethical principles such as honesty and sacrifice; this is an effort to protect them against such behaviors.

In this regard, participant No. 9 mentioned:

"…I just remember that my fellow worker used an unsterile device because she was afraid to say the surgeon that it had not been sterilized."

Indifference and reduced commitment to duties was the other sub–category of role negligence category. Disruptive behaviors through profound effects on nurses' spirit had led to a sense of discouragement and consequently decreased sensitivity to some aspects of work and duties. It was an effort to protect them against the pressure of such behaviors. For example, participant No. 15 said:

"…I have seen that my colleagues didn't wash well the operating room. They clean and disinfect the OR very superficially and carelessly. When you are behaved badly and get humiliated every day, you hate your job, you do not care anymore, some personnel would say that they are not

worthy."
As well, participant No. 8 said:
"…It has never happened to me, but I have seen some personnel arguing or being exposed to bad behavior ...when they collect the instruments, they work careless and rough with equipment, with anger, ... you know that some implements are delicate, they break easily … some tools and equipment like lenses, shavers, craniotomies, and so on are also expensive."
Unfriendly behaviors and tension with colleagues was the last sub-category of role negligence category. Following disruptive behaviors, nurses suffer from emotions such as sadness and anger and consequently demonstrate aggressive behaviors or misbehaviors towards their fellow workers and sometimes perpetrate violence against them.
For example, participant No. 1 said:
"…As the surgeon talked to me badly, I rushed out of the OR and when my fellow coworker asked me something, I answered badly and aggressively."

Escape to a Safety Margin for Confrontation and Adaptation
As a category extracted in this study, escape to a safety margin for confrontation and adaptation was a strategy to keep inner peace, less exposed to insults, and find a way to reduce the incidence of disruptive behaviors and being in a safe and tolerable state. Disruptive behaviors lead to a variety of reactions by the personnel such as fights to maintain their status and position, prove power, change conditions, prove the importance of own role, and improve interactions.
This category consisted of eight sub-categories including: "silence and reticence", "avoidance of disruptive situations", "relying on moral values", "attempt to develop capacities (skills and spirit) ", "trying to get support from authorities and colleagues", "attributing behaviors to external factors", "punishment of surgeon" and "decreasing cooperation and no support from surgeon".
Silence and reticence was the first sub-category which emerged following disruptive behaviors. In this regard, participant No. 10 stated:
"…I help the surgeon in any way. If they failed to notice something and I realized it, I would like to say what to do. Now I do not say anything, I have nothing to do with them anymore,
I pass cautiously."
Moreover, participant No. 3 reiterated:
"…When my fellow worker saw that the surgeon was doing the preps for the patient wrongly and warned him and then saw his behavior was bad, he said nothing more and did not go on and just said yes any way you know it."
Avoidance of disruptive situations was the second sub-category. When observing or confronting disrespectful behaviors, the participants attempted to protect themselves by withdrawing from disruptive individuals to reduce the effects of such behaviors and to protect their dignity. They further demonstrated their discomfort and objections to disruptive behaviors and tried to withdraw from such situations. The participants even refused to participate in their surgeries. As an example, participant No. 7 stated:
"…After that harsh and nasty behavior, I promised myself I would not cooperate in his surgeries anymore. I did not like to work with him any longer. I told the manager not to put me in this room, because the surgeon was so bad-tempered, I did not like to work with him because he had insulted me."
Following disruptive behaviors by surgeons, the participants attempted to prevent their recurrence and to reduce their effects through "attempts to develop capabilities (i.e. skills and spirit) and trying to get support from authorities and fellow workers". They also prevented its negative effect on own emotions and performance through "attributing these behaviors to external factors" such as the surgeon's individual characteristic and "relying on moral values".
Relying on moral values was the third sub-category. The participants had tried to rely on ethical values such as conscientiousness and consider patients as important member of their family to lower the negative effects of disruptive behaviors. For example, participant No.12 reiterated:
"…I always put the patients in the place of my darlings and say if I ignore them, someone else in another place will pay no heed to my mother. My conscience won't let me do that.
Attempt to develop capabilities (skills and spirit) was the other sub-category. One of the reactions to minimize the incidence of disruptive behaviors was nurses' efforts to improve capabilities and

self-confidence in themselves and their fellow workers and promote their profession. In this respect, one of the participants (No. 3) said:

"…I tried to read or to learn, for example, I increased my skills and broadened knowledge through watching surgical videos online."

Participant No .9 also added:

"…When my fellow worker is behaved inappropriately, she loses her self-confidence ... she also fears to go into surgery room. I try to give her self-confidence, tell her what to do, for example, I talk to her constantly to get rid of her flaws ..."

Trying to get support from authorities and colleagues was the other sub-category**.** Following disruptive behaviors, the personnel were seeking support for self-defense and changing situations by raising the problems with their supervisors, heads of ORs, or fellow workers. Accordingly, participant No. 17 mentioned:

"…After his behavior, I went to speak with the head nurse. I told that he had no right to behave me like this. He had no right to insult. Our head nurse said I would talk to him."

Regarding the sub-category of attributing behavior to external factors, the nurses attributed disruptive behaviors to the difficulty of surgical procedures and surgeons' behavioral characteristics, but not relevant to themselves or their performance. In this regard, participant No. 14 stated:

"…Of course, their work is hard too ... it is close to the nerves, next to the arteries, working beside an important professor is really sensitive ... or he treats all in this way and I am not an exception. He is always in this mood ... everyone knows it."

Punishment of surgeon is the other sub-category. Corrective behaviors were considered as one type of retaliation. With regard to expressing combative behaviors in order to punish disruptive surgeon, participant No. 2 said:

"…Well, it makes me sad when he talked to me in that way, so I hung up the phone and told myself I would not answer his calls anymore and even talk to him as needed. Next time, when I did not answer his phone, he will realize why I had done so. He must apologize".

In addition, according to participant No. 4:

"…I was a circulating nurse. I did not give him good lens, laparoscopic lens, as he disrespected and devalued me. We had a good lens and it was up to me but I did not give it".

Decreasing cooperation and no support from surgeon was the final sub-category. Nurses can help surgeons by continues watchful, observing, monitoring, and managing potential threats, and can cause the patient safety, the desired process and outcome of the surgeries. However, following disruptive behaviors, the nurses had tended towards decreasing cooperation and supporting from the surgeon. This mechanism was a way either to protect oneself or to show their objections. For example, participant No. 16 said:

"…I was treated so badly; for example, when he wanted something, I tried to immediately find it in other rooms anyway, even if there was in shortage ... I would find it to help him do his job better, to do it faster ... but I do not do it now.

Participant No. 4 also stated in this regard:

"…When I was in the role of scrub nurse, I do whatever to help the surgeon. For example, I have tied the stitches for him so quickly and tried to help him do his work better or I tried to provide better exposure in the incision for better view for surgeon even without his request. But, when he does not respect and also doesn't appreciate my help, I do not help him anymore".

As nurses had stated, working with good-tempered surgeons could provide a sense of calmness, assurance, and encouragement, and they would mostly devote time to patients and surgeons. In this regard, one of the participants (No. 13) stated:

"…Whenever the surgeons respect us, we like to work with them. I try more to make everything ready. I do not see the patients. I see the surgeon. I am working with him. Clearly, how I treat a physician who respects us, values us, and thanks us at the end of a surgery is very different.".

Discussion

The purpose of the present study was to explore the experiences of Iranian operating room nurses regarding disruptive behaviors in operating room settings. The relationship between physician and nurse is of utmost importance to maintain care quality since these two groups are the largest ones at

hospitals and in health care centers. Disruptive behaviors in ORs often attributed to surgeons refer to any type of behavioral disorder which negatively affects the patient-related outcomes (1,6). The findings of the present study led to creating better visions regarding disruptive behaviors and their effects on personnel emotions and performance and subsequently patient care. Generally, the nurses knew that disruptive behaviors had a negative effect on emotional, psychological, functional, team-related, and interpersonal relationships as well as patient-related outcomes, which was consistent with the results reported by Chrouser and Partin (2019) who examined the effects of such behaviors through interview by medical students (6).

The main theme of the present study was "struggle in a limbo atmosphere caused by disruptive behaviors", indicating the mental pressure tolerated by nurses and their efforts to reduce the incidence and negative effects of such frustrating and discouraging behaviors. The pressure resulted from such behaviors led to various emotions and performances by the participants that could mainly have undesirable effects on the quality of patient care.

In the present study, disruptive behaviors by the surgeons were verbal and focused on aspects of insult, disrespect, blame, as well as an emphasis on the distance between physicians and nurses. Nevertheless, non-verbal behaviors such as throwing the tools were less common and physical conflicts were insignificant and had been expressed in two cases. These results were different from the findings reported by Chrouser and Partin (6). Moreover, there was no significant difference between male and female participants in the perception of such behaviors. However, the males showed more reactions including reciprocations, retaliations, and arguments in order to change the situations, which might be due to more adaptive features of women than men (33).

Participant this study recognized "Activity in a poisonous atmosphere" as an important cause of disruptive behavior. The operating room by nature is a high-stress environment (34,35), this pressure will be even greater under disruptive behaviors. The results of the current study showed that nurses who were exposed to disruptive behaviors endured a lot of stress. The effects of such behaviors remain on their psyche for a long time. These pressures are felt during a long period of time with feeling of working in a toxic space. In this category, the participants stated that they work under excessive pressure of the disruptive behavior which has many negative physical and psychological effects. Responses related to chronic stressors such as fatigue, fear, helplessness, anxiety, and worry as the negative impact of long time pressures with lack of support are the factors for burnout (36) .

Regarding the subcategory of "decreasing physical and mental performance" in the category of "role negligence" in the present study, the surgeon disruptive behavior caused problems such as loss of concentration and memory impairment, increasing error, and lowering speed of performance. Riskin et al. (2019) (37) showed that incivility affects cognitive function by reducing recall of tasks and analytical skills which also impair the quality of performance.

In the current study, the participants mentioned "Escape to a safety margin for confrontation and adaptation" as an important and most common effect of disruptive behaviors that included silence and avoidance of disruptive situations. This reaction is caused due to disruptive behaviors which is augmented by low support from the system and leads to moving towards the silence and trying self-protection by lack of presence in the room of disruptive surgeon. However, in the study by Cochran and Elder (5), the most significant effect of such behaviors was avoidance from the disruptive actors.

In the present study, reinforcing and relying on moral values was considered as the main adaptive mechanisms to mitigate the effects of disruptive behaviors. Adaptation to stay calm by reinforcing ethics and paying attention to the call of conscience in nurses and considering patients as important family members such as siblings or parents or working to please God to overcome negative effects caused by destructive behaviors and other discouraging interactions had not been so far reported in the related literature.

The findings of the present study illustrated different effects of disruptive behaviors on ORNs and provided a relatively good vision to staff, managers, and surgeons and also highlighted the importance of preventing such behaviors. But, in the study by Cochran and Elder (5), interacting with fellow workers for finding support and warning others was used as a key strategy. Most participants in the present study considered that disruptive behaviors could have negative effects on motivation and performance, and a few nurses regarded them as a factor to improve their skills and performance, such as more accurate provision of the requirements for surgeons and attempts to increase their knowledge to protect themselves, which was in agreement with the study by Chrouser and Partin (6). In the study

of Cochran and Elder (5), externalizing the behavior was also one of the main coping strategies used by participant. This means surgeon's behavior was not reflective of their own work performance.

Regarding the sub-category of "decreasing cooperation and no support from the surgeon" in the present study, disruptive behaviors of the surgeon as the leader of the team reduces the sense of involvement in the OR team because of ignoring oneself as a team member. This concept was consistent with the study of Hosseinpour Dalenjan et al. (11) that reported similar results in nurses. They found that nurses' work engagement was low due to incivility, especially the incivility of physicians. Engagement was defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge (38).

Punishment of surgeon also was another sub-category that was less used by the participants in this study. Karatuna (39) noted that victims relied on confrontation strategies such as standing up or threatening to the bad actor.

Individuals in ORs with difference in cultural backgrounds, levels of education, training, experiences, and teamwork, beliefs, values, and priorities work beside each other that can lead to work-related conflicts (40,41), which requires reinforcing communicative and adaptive skills, especially in young surgeons and nurses. Önler et al. (42) emphasized that while these relationships could improve as increasing work experience, each individual could behave and act based on an interpretation about reality. Therefore, it is a fundamental measure of comprehensive education to create an atmosphere of mutual respect and calmness for all groups involved in ORs.

Excellent cooperation in ORs also requires eliminating authoritarianism and supporting personnel. Moreover, developing a culture of mutual support and respect allows for safer services (43). Identifying and monitoring disruptive behaviors are thus undeniable necessities. Although most participants believed that about 40-50% of the physicians had demonstrated such behaviors, and the profound effects of such events were indisputable because nurses' feelings about team cohesion had not been caused by patient-related factors or surgeries, but by the mode of communications between members (28). So, the goal is not to eliminate hierarchy, but to increase support and give importance to all personnel. So that the hierarchy is adjusted and team participation becomes a value and criterion of action (43). It is essential to teach and create the culture of mutual respect (44) in environments such as ORs, where different groups from different ranks are working together.

The results of the current study can help design the interventions to assist surgeons as team leaders in surgery to eradicate disruptive behaviors and to take actions to minimize the incidence of such behaviors by providing necessary support and training, and monitoring disruptive individuals to improve care quality. Nowadays, it has been proven that non-technical skills such as respectful communications are as effective as technical ones in the enhancement of care quality (45), therefore, having a good and cohesive team is the foundation of the success of surgeries, and communication disorders can seriously damage this important need.

Implications for practice

Considering to the effect of disruptive behavior, it seems necessary to take training measures for improving "team-working" in operation room settings. Nursing managers can use the results of this research to determine patient care policies in the operating room in order to promote patient safety and improve the quality of care. It also seems necessary to design and implement a training program to evaluate its effect on changing disruptive behaviors.

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Conflicts of interest

The authors declared no conflict of interest.

References

1. Cochran A, Elder WB. A Model of Disruptive Surgeon Behavior in the Perioperative Environment. Journal of the American College of Surgeons. 2014;219(3):390-8.
2. Katz MG, Rockne WY, Braga R, McKellar S, Cochran A. An improved patient safety reporting system increases reports of disruptive behavior in the perioperative setting. The American Journal of Surgery. 2020;219(1):21-6.
3. Layne DM, Nemeth LS, Mueller M, Schaffner MJ, Stanley KM, Martin MM, et al. Negative behaviours in health care: Prevalence and strategies. Journal of Nursing Management. 2019;27(1):154-60.
4. Villafranca A, Magid K, Young A, Fast I, Jacobsohn E. Abusive behaviour in Canadian and US operating rooms. Canadian Journal of Anesthesia. 2019;66(7):795-802.
5. Cochran A, Elder WB. Effects of disruptive surgeon behavior in the operating room. The American Journal of Surgery. 2015;209(1):65-70.
6. Chrouser KL, Partin MR. Intraoperative Disruptive Behavior: The Medical Student's Perspective. Journal of surgical education 2019;76(5):1231-40.
7. Lee MJ. On Patient Safety: Being a Jerk in the Operating Room is Bad for the Patient. Clinical Orthopaedics and Related Research. 2017;475(2):328-30.
8. Villafranca A, Hiebert B, Hamlin C, Young A, Parveen D, Arora RC, et al. Prevalence and predictors of exposure to disruptive behaviour in the operating room. Canadian Journal of Anesthesia. 2019;66(7):781-94.
9. Kusy M, Holloway EL. A field guide to real-time culture change: just "rolling out" a training program won't cut it. The Journal of medical practice management. 2014;29(5):294-303.
10. Fast I, Villafranca A, Henrichs B, Magid K, Christodoulou C, Jacobsohn E. Disruptive behaviour in the operating room is under-reported: an international survey. Canadian Journal of Anesthesia. 2020;67(2):177-85.
11. Hosseinpour Dalenjan L, Atashzadeh Shoorideh F, Hosseini M, Mohtashami J. The Correlation Between Nurse's Work Engagement and Workplace Incivility. Iranian Red Crescent Medical Journal. 2017;19(4): e45413.
12. Rosenstein AH, O'Daniel M. Disruptive behavior and clinical outcomes: perceptions of nurses and physicians. AJN The American Journal of Nursing. 2005;105(1):54-64.
13. Garth K, Mailow T, Armstrong N, Todd D, Byers D. Nurses' Perceptions of Incivility in the Operating Room. Madridge Journal of Nursing. 2019;4(1):164-6.
14. Longo J. Combating Disruptive Behaviors: Strategies to Promote a Healthy Work Environment. The Online Journal of Issues in Nursing. 2010;15(1). DOI:10.3912/OJIN.Vol15No01Man05
15. Rosenstein A. Disruptive and Unprofessional Behaviors. Physician Mental Health and Well-Being: Research and Practice. 2017; 61-85.
16. Yubonpunt P, Kunno J, Viwattanakulvanid P, Rungsihirunrat K. Effect of Multi-Component Program on Promoting Safety of Hospitalized Children. Evidence Based Care. 2021;11(1):51-61.
17. Joint Commission. Behaviors that undermine a culture of safety. Sentinal Event Alert. 2008;40. http://www.methodisthealthsystem.org/documents/Medical%20Staff/Sentinel%20Event%20Alert%20Issue%2040.pdf.
18. World Health Organization. Safe Surgery: Why safe surgery is important. 2019. https://www.who.int/patientsafety/safesurgery/en/.
19. Bayramzadeh S, Joseph A, San D, Khoshkenar A, Taaffe K, Jafarifiroozabadi R, et al. The Impact of Operating Room Layout on Circulating Nurse's Work Patterns and Flow Disruptions: A Behavioral Mapping Study. Herd: Health Environments Research & Design Journal. 2018;11(3):124-38.
20. Chrouser KL, Xu J, Hallbeck S, Weinger MB, Partin MR. The influence of stress responses on surgical performance and outcomes: Literature review and the development of the surgical stress effects (SSE) framework. The American Journal of Surgery. 2018;216(3):573-84.
21. John PR, Heitt MC. Disruptive Physician Behavior: The Importance of Recognition and Intervention and Its Impact on Patient Safety. Journal of Hospital Medicine. 2018;13(3):210-2.

22.Rosenstein AH. Physician disruptive behaviors: Five year progress report. World journal of clinical cases. 2015;3(11):930-4.
23.Maddineshat M, Hashemi M, Tabatabaeichehr M. Evaluation of the disruptive behaviors among treatment teams and its reflection on the therapy process of patients in the operating room: The impact of personal conflicts. Journal of education and health promotion. 2017;6: 69.
24.Park KO, Park SH, Yu M. Physicians' Experience of Communication with Nurses related to Patient Safety: A Phenomenological Study Using the Colaizzi Method. Asian Nursing Research. 2018;12(3):166-74.
25.Hopkins J, Hedlin H, Weinacker A, Desai M. Patterns of Disrespectful Physician Behavior at an Academic Medical Center: Implications for Training, Prevention, and Remediation. Academic Medicine. 2018;93(11):1679-85.
26.Shubeck SP, Kanters AE, Dimick JB. Surgeon leadership style and risk-adjusted patient outcomes. Surg Endosc. 2019;33(2):471-4.
27.Keller S, Tschan F, Semmer NK, Timm-Holzer E, Zimmermann J, Candinas D, et al. "Disruptive behavior" in the operating room: A prospective observational study of triggers and effects of tense communication episodes in surgical teams. PloS one. 2019;14(12): e0226437 .
28.Sonoda Y, Onozuka D, Hagihara A. Factors related to teamwork performance and stress of operating room nurses. Journal of nursing management. 2018;26(1):66-73.
29.von Vogelsang AC, Swenne CL, Gustafsson BA, Falk-Brynhildsen K. Operating theatre nurse specialist competence to ensure patient safety in the operating theatre: A discursive paper. Nursing Open. 2019;7:495–502.
30.Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qualitative health research. 2005;15(9):1277-88.
31.Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today. 2004;24(2):105-12.
32.Morse J. Critical Analysis of Strategies for Determining Rigor in Qualitative Inquiry. Qualitative health research. 2015;25(9):1212–22.
33.Safiri K, Mansoirian Ravandi F. Gender Clichés and Social Health: a Study on Men and Women from Tehran. Women's Studies Psychological Social. 2015;13(2):66-73.
34.Roche AM, Dubowitz G. The Anesthesiologist and the Surgeon: Two Professionals Sharing the Command of the Patient in the Operating Room. Surgical Ethics: Principles and Practice. 2019; 159-68.
35.Shoja M, Heshmati Nabavi F, Ramezani M, Saki A. Effect of a preoperative preparation program on anxiety in school-age children undergoing surgery using a factorial design. Evidence Based Care. 2018;7(4):30-7.
36.El-Amrosy SH, Mamdouh Elkholy S, Ebrahim Elshall S. The Effect of Educational Intervention about Incivility on Psychological Wellbeing and Burnout among Nurses. American Journal of Nursing. 2019;7(6):1069-77.
37.Riskin A, Bamberger P, Erez A, Foulk T, Cooper B, Peterfreund I, et al. Incivility and Patient Safety: A Longitudinal Study of Rudeness, Protocol Compliance, and Adverse Events. The Joint Commission Journal on Quality and Patient Safety. 2019;45(5):358-67.
38.Schaufeli WB, Bakker AB. Utrecht work engagement scale: Preliminary manual. Occupational Health Psychology Unit. Utrecht University, Utrecht. 2003;26(1):64-100.
39.Karatuna I. Targets' coping with workplace bullying: a qualitative study. Qualitative Research in Organizations and Management: An International Journal. 2015;10(1):21-37.
40.Chang T-F, Chen C-K, Chen M-J. A Study of Interpersonal Conflict Among Operating Room Nurses. Journal of Nursing Research. 2017;25(6):400-10.
41.Sinskey JL, Chang JM, Shibata GS, Infosino AJ, Rouine-Rapp K. Applying Conflict Management Strategies to the Pediatric Operating Room. Anesthesia & Analgesia. 2019;129(4):1109-17.
42.Önler E, Yildiz T, Bahar S. Evaluation of the communication skills of operating room staff. Journal of Interprofessional Education & Practice. 2018;10:44-6.
43.Wakeman D, Langham MR, Jr. Creating a safer operating room: Groups, team dynamics and crew resource management principles. InSeminars in pediatric surgery. 2018;27(2):107-13.
44.Clark CM. Fostering a Culture of Civility and Respect in Nursing. Journal of Nursing Regulation. 2019;10(1):44-52.

45. Yoong W, De Martino R, De Martino M, Masood N, Nauta M, Lodhi W, et al. Re: The importance of non-technical skills and risk reduction in the operating theatre. The Obstetrician & Gynaecologist. 2017;19(2):183-4.