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Experiencing and witnessing disruptive behaviors toward nurses in COVID-19 teams, patient safety, and errors in care

Sigal Shafran Tikva RN, MPH, MHA, PhD[1] | Gillie Gabay PhD[2] | Liron Asraf PhD[3] | Avraham N. Kluger PhD[4] | Yulia Lerman RN[5]

[1]School of Nursing Jerusalem College of Technology, Head, Hadassah Research and Innovation Center in Nursing, Hadassah University Medical Center, Jerusalem, Israel

[2]Multi-Disciplinary Studies, Achva Academic College, Israel

[3]Guilford Glazer Faculty of Business and Management, Ben-Gurion University of the Negev, Beersheba, Israel

[4]The Jerusalem School of Business Administration, The Hebrew University–Mt. Scopus, Jerusalem, Israel

[5]Operating Room and Post- Anesthesia Care Unit Academic Consultant, Hadassah University Medical Center, Jerusalem, Israel

Correspondence
Sigal Shafran Tikva, RN, MPH, MHA, PhD, Head, Hadassah Research and Innovation Center in Nursing, Hadassah University Medical Center, Lecturer, School of Nursing Jerusalem College of Technology, Jerusalem, Israel.
Email: tsigal@hadassah.org.il

Abstract

Background: Nurse managers and team co-workers' disruptive behaviors (DBs) are negatively associated with a perceived safe climate. Moreover, DBs are a risk factor for patients' safety. Yet, it remains unknown whether and to what extent these effects were prevalent in COVID-19 wards and among witnesses of DBs.

Design: A cross-sectional study.

Methods: A questionnaire was distributed on social networks and completed by nurses in various Israeli healthcare organizations using snowball sampling between October and December 2021. The questionnaire included seven previously published measures and a question checking whether the participants had worked in a COVID-19 ward. The minimal sample size for any analysis was 236. Hypotheses were tested with correlations and structural equation modeling.

Results: DBs of nurse managers and team co-workers toward nurses were higher in COVID-19 teams. As hypothesized, DBs were negatively correlated with a safe climate and positively with patient safety (fewer errors). The data were consistent with a model suggesting that a safe climate is related to fewer DBs and DBs largely mediate the effects of safe climate on errors. Surprisingly and importantly, the strongest predictor of errors, including preventable mortality, is witnessing DBs and not being a victim of DBs.

Conclusions: DBs may impede open communication and collaboration among co-workers, particularly in COVID-19 teams. This study shows the links between nurse shaping of a safe climate, DBs toward nurses, and patient safety.

Clinical relevance: Nurse managers who create a safe climate and show zero tolerance for DBs could reduce the risk of errors in care.

KEYWORDS
disruptive behaviors, frontline Covid-19 nurses, patient safety, safety climate, team coworkers

INTRODUCTION

Reducing medical errors requires strong and effective clinical teamwork, but throughout the COVID-19 pandemic, front-line nurses faced multi-adversities that may have inhibited team effectiveness (Gabay et al., 2022; Takizawa et al., 2021). During COVID-19, front-line nurses worked around the clock, struggling to balance their own physical and mental needs with those of their co-workers (Cai et al., 2020). In addition, nurses faced heavier physical workloads due to the quarantine of co-workers and more significant emotional

Equal contributor—Gillie Gabay

overload as they were separated from their own teams and joined new COVID-19 teams (Gabay et al., 2022). Moreover, the discomfort during endless shifts due to full protective gear and clothing that nurses were obliged to wear exacerbated their exhaustion, limited their hearing, and caused communication barriers with co-workers and patients (Brucato, 2020; Greenberg et al., 2020; Unadkat & Farquhar, 2020). Thus, the more responsibilities and the busier the schedule, the higher the emotional exhaustion of nurses, jeopardizing their health (Adams & Walls, 2020).

The multi-adversities emerging from caring for COVID-19 patients have resulted in heightened stress, depression, anxiety, hopelessness, helplessness, and fear (Bettinsoli et al., 2020; Maben & Bridges, 2020; Yıldırım et al., 2020). The need to provide safe care for COVID-19 patients without a protocol for this unfamiliar disease was associated with nurses' psychological distress, post-traumatic stress disorder, anxiety, depression, poor physical health, and risky health behaviors (Bozdağ & Ergün, 2020; Yıldırım et al., 2020). Nurses were stretched thinner than ever, and the weak support from their nurse managers led them to maladaptive coping (Foli et al., 2021).

Nurse managers themselves were overwhelmed due to their various duties of quickly deploying nurses for a rapidly expanding number of inpatients, training nurses who were newly deployed to the inpatient front-line, supervising care based on newly updated standardized protocols, supervising triage processes, and caring for patients in expanded ICUs and non-traditional care spaces (Tomer et al., 2021). There was an urgent need for effective collaborations in clinical teams and good communication for discussing medical information and making decisions to reduce errors and provide safe patient care under intensely complex demands (Boehmer et al., 2020; Gabay et al., 2022). To ensure patient safety, a safety climate comprised of open culture, a blame-free environment, and a reflective (non-punitive) attitude toward errors and adverse events were to be implemented (Elsous et al., 2017; Halligan & Zecevic, 2011; Mitchell et al., 2016; Sorra et al., 2010; Wagner et al., 2013).

Constant communication among team co-workers was key to resolving issues of patient safety that demanded immediate attention (El-Jardali et al., 2010; Singla et al., 2006). Since nurse function as gatekeepers, coordinators, and evaluators of care, their perception of the ward's climate as a safe climate is essential for patient safety (Jones et al., 2015). The pivotal role of nurse managers in building and improving a safe climate and in influencing the perceived safety climate among nurses has been widely acknowledged (Cleary-Holdforth, 2019; Griffiths et al., 2019; Gurková et al., 2020; Kelloway et al., 2006; Mitchell et al., 2016). Nurse managers are also pivotal for shaping team effectiveness in a health crisis (Cariaso-Sugay et al., 2021). Indeed, throughout COVID-19, nurse managers significantly affected teamwork, with some teams putting patient safety first and growing stronger. In contrast, other teams, under similar conditions, fought among themselves and reached decisions that failed to put patient safety first (Thompson & Kusy, 2021). Broadening our knowledge of nurses' occupational experience during the pandemic and their association with patient safety is essential for encouraging nurse managers to support their team nurses and adapt to the needs of nurses and patients in a health crisis (Marceau et al., 2022).

Development of hypotheses

Recent studies found that during the COVID-19 pandemic, front-line nurses experienced more abusive behaviors such as shouting, swearing, and pushing, perpetrated by their co-workers (Ghareeb et al., 2021; Hussain et al., 2021). Such behaviors are defined as disruptive behaviors (DBs), referring to negative behaviors or lateral violence among peers. DBs include bullying, workplace incivility, hostility, horizontal violence, and interpersonal conflict (Blair, 2013; Castronovo et al., 2016; Embree & White, 2010; Martin, 2008; Shafran-Tikva, Zelker, et al., 2017). DBs of nurse managers and co-workers have been associated with the poor psychological well-being of team nurses and their intention to quit (Simard & Parent-Lamarche, 2022). DBs frequently occur in healthcare across countries and cultures (Allen et al., 2015; Bardakçı & Günüşen, 2016; Shafran-Tikva, Zelker, et al., 2017; Stanley et al., 2007). We hypothesize that higher DBs will be found in teams during COVID-19.

Hypothesis 1. Front-line nurses who cared for COVID-19 patients experienced more DBs than nurses who did not care for COVID-19 patients.

Extensive research has focused on vertical violence toward nurses by their managers and horizontal violence by co-workers. However, there is a lack of research on DBs toward team nurses during COVID-19 by nurse managers and co-workers and their effect on the perceived safety climate. Patients of nurses who experienced DBs rated the safety and quality of care lower than did patients of nurses who did not experience DBs (Laschinger & Nosko, 2015a). This effect may have been due to the lower attention that nurses who experienced DBs paid to their nursing tasks, which may have increased their errors in the delivery of care, enhanced preventable risks and adverse events for patients, and jeopardized clinical outcomes (Arnetz & Arnetz, 2001; Blair, 2013; Joint Commission, 2008; Purpora et al., 2015; Rosenstein & O'Daniel, 2008a). Indeed, DBs have been shown to mediate the relationship between the work climate and clinical outcomes (Olsen et al., 2017). DBs were found to negatively impact nurse-assessed patient quality of care through perceived patient safety risk (Spence, Laschinger & Nosko, 2015b). Therefore, we hypothesize that DBs toward nurses during COVID-19 will be negatively associated with a safety climate and preventable errors in care.

Hypothesis 2. DBs Of (a) nurse managers and (b) team co-workers are inversely related to patient safety and increase errors of care.

Antecedents of DBs include role characteristics, relationship quality, leadership style, and organizational culture (Trépanier et al., 2016). Moreover, DBs are associated with an organizational

culture that includes informal alliances, tolerance of and rewards for bullying, and misuse of legitimate organizational processes and procedures (Hutchinson et al., 2010). Research in contexts other than nursing provides additional insights into the effects of DBs on workers merely witnessing them in the workplace. For example, witnessing DBs among engineers resulted in lower perceived organizational justice but not lower well-being. Also, support from managers, higher levels of power, and job embeddedness, partly moderated the relationship between witnessing DBs and perceived organizational justice (Holm et al., 2021). In academia, DBs were found to challenge colleagues' status, trigger feelings of responsibility, and mediate the effect of power on confrontation and decreased avoidance. Powerful employees who witnessed DBs responded to them against others at work by directly confronting the perpetrators and offering support to targets of DBs (Hershcovis et al., 2017). Third-party responses to DBs in nursing have yet to be revealed. We hypothesize that DBs affect witnesses of DBs.

Hypothesis 3. Witnessing DBs in the workplace is inversely related to patient safety and increases errors in care.

The present study aims to close the gaps in state-of-the-art testing of the association between DBs toward nurses by nurse managers and co-workers during the pandemic and the perceived safety climate and errors in care among victims and witnesses of DBs.

METHODS

Sample

We sought to obtain a sample large enough to have a 0.95 power to detect a correlation of the size of |0.20| with a one-tailed test. We calculated the needed sample size of this statistical power with G power 3.1 and obtained $N = 236$. We ran our study with Qualtrics and found 641 clicks on the opening page of our survey (the same individual could have made multiple clicks). Of these clicks, 313 were followed by answers to at least one scale, but only 181 were followed by a complete questionnaire with no missing data. To obtain the most power from our data, we kept all records with any answers. We had a sample of at least 250 nurses for most analyses and no less than 236 for any analysis. These nurses worked in various Israeli hospitals, in COVID-19 and non-COVID-19 wards. Table 1 presents the sample's composition and properties.

Procedure

Data were collected from October to December 2021, the peak of the fourth wave of COVID-19 in Israel, with infection rates rising, ongoing morbidity, and vaccination rejected by 48% of the population (Gabay, 2022). A questionnaire was distributed among nurses on social networks using snowball sampling. The questionnaires were sent to respondents who agreed to participate via a link to the webpage. Before completing the questionnaires, the study's goals were presented, and respondents were assured that their anonymity and confidentiality would be maintained and thanked for their participation. Respondents were asked to mark an informed consent box for participation and publication and to complete the questionnaire.

Instrument

The questionnaire included 50 items assessed in seven subsections, assessing six variables on a rating scale that ranged from 0 = "not at all" to 10 = "to a very large extent," plus control variables. The use of an 11-point scale was in order to increase their validity (Aguinis et al., 2009). Although the means and standard deviations of the items in this study differ from those in previous studies, they provide a better likelihood of correctly estimating the size of the correlations among the constructs measured in this study (Aguinis et al., 2009). Nurses who worked in COVID-19 wards were asked to answer all questions regarding their work in the ward.

Working in a COVID-19 ward was measured by a single question: "Have you worked with COVID-19 patients during the last 6 months?" (0 = no; 1 = yes).

Safety climate was assessed by seven items on an interval scale (Pinheiro & de Sousa Uva, 2016). A sample item is: "In my unit, it is easy to learn from the errors of others" ($\alpha = 0.81$).

Experiencing DBs by a direct nurse manager was assessed by nine items (Rehder et al., 2020). A sample item is: "Your direct nurse manager turned her back on you before the conversation was over" ($\alpha = 0.91$).

Experiencing DBs performed by team members were assessed with the same items as items measuring exposure to DBs by a direct nurse manager, adapted to team members. A sample item is: "Your colleague turned his back on you before the conversation was over" ($\alpha = 0.90$).

Witnessing DBs were assessed using the same items as the last two scales and adapted to witnessing. A sample item is: "I witnessed colleagues turning their backs on a team member even before the conversation ended" ($\alpha = 0.93$).

Patient safety was assessed by five items (Rosenstein & O'Daniel, 2008b) relating to the quality of care, patient safety, errors, adverse events, and preventable mortality ($\alpha = 0.86$).

Occupational and other demographic information were collected with 10 items.

Data analysis

All analyses were carried out with R (R Core Team, 2022). To ensure validity scales were probed with factor analyses, their reliabilities

TABLE 1 Sample demographics

Characteristic	Overall, *N* = 314	Worked in COVID-19 ward? No, *N* = 175	Yes, *N* = 139
Age (years)	34.7 (10.4)	34.1 (10.8)	35.4 (9.9)
Missing	68	39	29
Diploma year	9.0 (11.4)	8.8 (12.1)	9.2 (10.6)
Missing	89	54	35
Current job year	6.0 (7.1)	5.3 (6.8)	7.0 (7.5)
Missing	75	44	31
Gender			
Female	210/(84%)	124/(91%)	86/(75%)
Male	39/(16%)	10/(7.4%)	29/(25%)
Other	2/(0.8%)	2/(1.5%)	0/(0%)
Missing	63	39	24
Manager	41/(17%)	18/(13%)	23/(21%)
Missing	67	40	27
Full Time			
100%	98/(39%)	46/(34%)	52/(46%)
74%–50%	48/(19%)	30/(22%)	18/(16%)
75%–99%	75/(30%)	41/(30%)	34/(30%)
Less than 50%	28/(11%)	18/(13%)	10/(8.8%)
Missing	65	40	25
Public			
Integrated	29/(12%)	21/(16%)	8/(7.1%)
Private	26/(10%)	14/(10%)	12/(11%)
Public	193/(78%)	100/(74%)	93/(82%)
Missing	66	40	26
Organization			
Community care	42/(17%)	33/(24%)	9/(7.8%)
General hospital	178/(71%)	82/(61%)	96/(83%)
Geriatric center	1/(0.4%)	0/(0%)	1/(0.9%)
Other	25/(10%)	17/(13%)	8/(7.0%)
Rehabilitation center	4/(1.6%)	3/(2.2%)	1/(0.9%)
Missing	64	40	24

Note: The first three variables are shown as mean (SD); the remaining variables are *n*/(%).

were assessed with Cronbach's alpha and the hypotheses were tested with correlations and structural equation models (SEMs), using recommended criteria for SEM fit (Kline, 2016).

SEM offers four advantages over a series of ordinary least squares regression analyses: (a) it explicitly models the correlation among the antecedents of patient safety (safety climate, DBs); (b) it constrains the hypothesized paths between antecedents of safety climate and between safety climate and patient safety in care to zero; (c) it tests the overall fit of the hypothesized model to the data; (d) the hypothesized relationships among variables are estimated while controlling for the biasing influence of random measurement errors.

RESULTS

Hypothesis 1 was mainly supported (see column 1 in Table 2). Nurses who had worked in COVID-19 wards reported higher experiences of DBs (from managers and team members). They also reported witnessing higher preventable mortality.

Table 2 also provides support for Hypothesis 2 and Hypothesis 3. As seen in column 2, DBs by managers and nurses are inversely correlated with safety climate. In Column 3, DBs by managers and nurses are positively correlated with reports of all error types, including preventable mortality, supporting Hypothesis 2. Also, column 6, regarding witnessing DBs, shows the same pattern of correlations,

TABLE 2 Descriptive statistics and correlations for study variables

Measure	N	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Worked in COVID-19 unit (0 = no; 1 = yes)	313	0.44	0.50	(–)										
2. Safety climate	294	6.79	1.85	−0.04	(0.81)									
3. Experienced DB from nurse manager	286	1.44	1.94	0.08	−0.40**	(0.91)								
4. Experienced DB from co-workers in team	278	1.23	1.62	0.12*	−0.26**	0.47**	(0.90)							
5. Witnessed DBs in team	276	2.68	2.54	0.14*	−0.37**	0.57**	0.69**	(0.93)						
6. An index of all error items	250	2.96	2.04	0.06	−0.42**	0.30**	0.41**	0.52**	(0.86)					
7. Quality of care	250	3.49	2.67	0.08	−0.44**	0.25**	0.31**	0.44**	0.81**	(–)				
8. Patient safety	236	3.08	2.55	0.03	−0.48**	0.35**	0.39**	0.48**	0.89**	0.76**	(–)			
9. Errors in care	238	3.26	2.30	−0.04	−0.34**	0.24**	0.23**	0.37**	0.82**	0.53**	0.65**	(–)		
10. Adverse events	236	3.22	2.47	0.06	−0.19**	0.22**	0.31**	0.41**	0.78**	0.41**	0.57**	0.62**	(–)	
11. Preventable mortality	236	1.33	2.15	0.14*	−0.28**	0.23**	0.33**	0.36**	0.75**	0.46**	0.57**	0.52**	0.53**	(–)

Note: Values on the diagonal are reliabilities.
$^{*}p < 0.05$; $^{**}p < 0.01$.

supporting Hypothesis 3. Notably, the correlations with witnessing DBs are higher than with experiencing DBs performed by managers or nurses, plausibly because witnessing DBs is more frequent, and the variability in witnessing is larger (compare the means and standard deviation of Row 3 through Row 5 in Table 2).

Next, we tested our model (top panel of Figure 1) on 244 nurses, with all the data required for this analysis. The model is consistent with our hypotheses in that DBs from both sources reflect DBs in general, safety climates predict DBs, and DBs predict errors. Yet, this model did not fit the data well, $\chi^2_{(10)} = 432.3$, $p < 0.001$, CFI = 0.94, RMSEA = 0.14 with 95% CI (0.097, 0.195), and SRMR = 0.059. The CFI and SRMR are acceptable, but the other fit indices are not. Therefore, we inspected the matrix of the residuals and modified the model to fit the data (bottom panel of Figure 1). The modified model fits the data very well, $\chi^2_{(10)} = 3.52$, $p = 0.32$, CFI = 0.99, RMSEA = 0.027 with 95% CI (0.00, 0.114), and SRMR = 0.018. The modification did not alter the basic conclusion of our original model. However, the modified model suggests that safety climate affects errors via DBs, as hypothesized, and directly. Thus, DB partially mediates the effect of safety climate on errors. In addition, the modified model suggests that safety climate covaries negatively with managers' DB.

DISCUSSION

This study examined the association between nurse experiences of DB by managers, experiencing DBs performed by team co-workers, and witnessing DBs, with the perceived safety climate and preventable errors in medical care. Findings show that DBs of team co-workers toward nurses and witnessing DB were higher in COVID-19 wards than in non-COVID-19 wards, perhaps due to the adversity nurses faced in COVID-19 wards. Experiencing both sources of DBs (managers and co-workers) and witnessing DBs were inversely related to a safe climate, safe patient care, and preventable mortality. This study makes several theoretical contributions. First, the study tested the extent to which COVID-19 front-line nurses experienced DBs, compared to the experiences of nurses in non-COVID-19 wards, and indicates that front-line nurses in COVID-19 wards experienced more DBs. Second, to the best of our knowledge, this is the first study to test the effect of witnessing DBs toward nurses within the team on the perceived safety climate and patient safety. Third, this study tested the effect of safety climate on DBs and DB effects on patient safety.

Theoretical implications

All our hypotheses were corroborated: (a) Front-line COVID-19 nurses experienced more DBs than nurses in non-COVID-10 wards; (b) DBs were correlated with medical errors, and (c) Climate safety was negatively associated with DBs and medical errors, where DBs partially mediate its effect on error. Findings surprisingly indicated

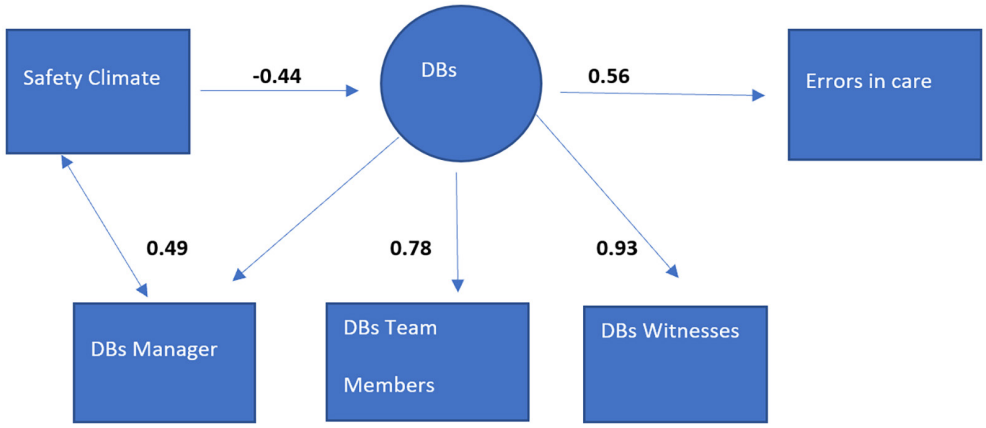

FIGURE 1 SEM results for path analysis of the study model.
Note: R^2 =.59, p=.0000; $X2$ = 432, N = 244, DF = 10, p = .2000; RMSEA=.0114; CFI= .967; TLI = .918. p<0.001

that care errors were more strongly associated with witnessing DBs than with experiencing DBs performed by nurse managers and team co-workers. While this finding may not mean that witnessing DBs produce more harm than being a victim of DBs, it suggests that the effects of all DBs are stronger than would be observed if witnessing DBs are not measured. The implication of this statistical phenomenon (more frequent behaviors with more considerable variance produce stronger correlations) is that the costs of DBs in medical errors, including preventable mortality, are even higher than previously thought.

Our findings support the conclusions of the Joint Commission statement that DBs foster medical errors, contribute to poor patient satisfaction and preventable adverse outcomes, increase the cost of care, and cause qualified nurses to seek new positions (http://bit.ly/2vdzkCP. 2008). Patient safety is affected by the work environment of nurses (Aiken et al., 2017; Recio-Saucedo et al., 2018). Findings show a covariance between DBs by nurse managers and safety climate, suggesting that nurse managers shape the safety climate, and the safety climate may legitimize or inhibit DBs by nurse managers. This finding supports previous studies that found that misuse of organizational power, organizational tolerance to DBs toward nurses, and rewarding DBs of nurse managers and team co-workers, jeopardizes patient safety (Hutchinson et al., 2010). Our findings also support the associations between work climate, DBs, and nurses' job performance (Olsen et al., 2017).

Practice implications

The practical implication of this study is the need to monitor, train, and manage climate safety and DBs to reduce preventable errors and improve patient safety. DBs toward nurses impede open communication and collaboration among team co-workers, particularly in COVID-19 wards. Since there was no protocol for COVID-19, communication was essential for coordinating care, but DBs inhibited this. These DBs effects were added to the already limited communication due to front-line nurses wearing protective suits and masks. Nursing managers, in routine and in health crises, must understand the importance of eradicating DBs through workshops and meet-ups. A stronger safety climate and zero tolerance to DBs by nurse managers will enable health organizations to identify high-risk situations of DB and of safety issues that put patients at increased risk of errors in medical care (El-Jardali et al., 2010; Singla et al., 2006). To determine the strengths and weaknesses of the safety climate and safety care, they must be regularly measured, and areas for improvement must be identified (El-Jardali et al., 2010; Elsous et al., 2017; Reis et al., 2018; Smits et al., 2009). One means to reduce DBs and improve the safety climate may be to train all involved personnel in listening. Poor listening is known to be associated with violence in romantic relationships, and we have good reason to expect this poor listening and violence link to be present at work. Moreover, listening training could alleviate DBs and contribute in many ways to the hospital's performance, including better patient compliance, patient satisfaction, and more.

Improving patient safety is a pressing challenge related to leadership, safety climate, and continuous quality improvement. Nurse managers are called upon to elucidate and modify both leadership-related antecedents and organizational culture antecedents of DBs, to prevent the dire consequences of DBs on errors in medical care (Trépanier et al., 2016). The jarring consequences of DBs toward nurses in work teams lead to anxiety, depression, anger, and frustration, in an environment of a continuing shortage of nurses, low job satisfaction, persisting burnout, and migration of highly qualified nurse specialists (Hampton et al., 2019). Indeed, DBs by nurse managers have been associated with the poor psychological well-being of team nurses and their intention to quit (Simard & Parent-Lamarche, 2022). The consequences of DBs can potentially jeopardize the quality of care (Hampton et al., 2019) and call for hospital and nursing managements to intervene to eliminate DBs toward nurses (Gurková et al., 2020). To promote and improve patient safety and enhance the perceived commitment to patient safety, nursing managements are called upon to prevent DBs, and ensure the safety of nurses at work and in teams. Managements are called upon to foster an authentic leadership style found to directly decrease DBs

(Laschinger & Fida, 2014). Once the safety of nurses at work is established, patient safety may be improved through dedicating necessary resources to safety and rewarding proper conduct.

Clinical relevance

A stronger safety climate and zero tolerance to DBs by nurse managers will enable health organizations to identify high-risk situations of DBs and safety issues that put patients at increased risk of errors in medical care. Patient safety may be improved by dedicating the necessary organizational commitment and resources to safety and rewarding proper conduct.

Policy implications

One means to reduce DBs and improve the safety climate may be to train all involved personnel in listening. Poor listening is known to be associated with violence in romantic relationships, and we have good reason to expect this poor listening and violence link to be present at work. Moreover, listening training could alleviate DBs and contribute in many ways to the hospital's performance, including better patient compliance, patient satisfaction, and more.

Study limitations

This study is not without limitations. First, the same measures were used to assess self-reported DBs performed by nurse managers, team members, and witnesses, perhaps creating a common method bias. Second, because data were collected through social networks, it was impossible to compare health organizations. Third, data may have been affected by the playout of COVID-19 in Israel in the data collection period. Third, although DBs exist across cultures and countries, findings may be affected by the cultural context.

Directions for future studies

Future studies are called for to test the experiencing and *witnessing* of DBs and their effect on safety climate and errors in care in other healthcare services sectors. Furthermore, the research could test the effect of training nurse managers in listening on reduction in DBs and consequently improvement in patient safety.

Clinical resources

https://jamanetwork.com/journals/jama-health-forum/fullarticle/2797662?resultClick=1

https://www.lni.wa.gov/forms-publications/f310-002-000.pdf

https://www.medpro.com/disruptive-behavior-patient-safety-financial-implications

https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2797394?resultClick=1

https://www.sciencedirect.com/topics/medicine-and-dentistry/disruptive-behavior

https://blog.thesullivangroup.com/disruptive-behavior-in-healthcare

https://jamanetwork.com/journals/jama-health-forum/fullarticle/2797662?resultClick=24

https://hqca.ca/resources-for-improvement/frameworks/managing-disruptive-behaviour-in-the-healthcare-workplace-framework/

https://apps.who.int/iris/handle/10665/270713

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CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Sigal Shafran Tikva https://orcid.org/0000-0003-1598-1545

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