



Initial Psychometric Evaluation of the Staff Perception of the Disruptive Patient Behavior Scale

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OBJECTIVE: The aim of this study is to develop and psychometrically test the Staff Perception of Disruptive Patient Behavior (SPDPB) Scale.

BACKGROUND: Disruptive patient behaviors impact work safety for nurses in hospitals. There is no standardized approach to capturing staff perceptions of these behaviors.

METHOD: A mixed-methods approach was used to develop and psychometrically evaluate the SPDPB Scale. Items were generated from a survey completed by 770 healthcare providers. A prototype 66-item instrument was developed and content validity was obtained. Evaluation of the psychometric properties of the SPDPB Scale was completed with 558 nurses. Evaluation included internal consistency reliability, principal components analysis, and internal consistency reliability derived subscales to refine the final scale.

RESULTS: The SPDPB Scale is a multidimensional measure of perceptions of disruptive patient behaviors. The analysis identified 6 components explaining 54.1% of the variance. The final scale contained 65 items.

CONCLUSION: This scale demonstrated psychometric adequacy and can be recommended to measure staff perceptions of disruptive patient behavior.

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Disruptive patient behavior (DPB), including physical or verbal attacks toward healthcare workers, is a common occurrence that has a major impact on safety within acute care hospitals.¹ According to the Joint Commission, the rate of DPB toward staff has increased,² a finding locally confirmed by recent doubling in the reporting rate of DPB within an academic medical center's (AMC) safety reporting system.

The term *DPB* is adapted from the concepts developed by Hickson and colleagues³ for disruptive workplace behavior. In this context, 3 levels of DPB are identified: words or actions that threaten the safety of others in the care environment; words or actions that create or have the potential to create an intimidating, hostile, offensive, or potentially unsafe care environments; and words or actions that prevent or interfere with the care of oneself or others or impede the ability of the care team to collaboratively achieve intended outcomes.^{3,4}

Colleagues have identified "workplace violence as one of the most complex and dangerous occupational hazards facing nurses in today's healthcare environment. The complexities arise, in part, from a healthcare culture resistant to the notion that nurses are at risk of harm from patients."^{5(p7)} It is a paradox that those whose mission it is to care for others are at the highest risk of violence from patients, families, and visitors.⁶

Background

In the United States, the Bureau of Labor reported 46% of the incidents of DPB were committed against nurses, primarily by patients.⁷ The literature on DPB in acute care hospitals focuses mostly on emergency

departments and psychiatric units. Researchers found that 50% of emergency room nurses experienced physical DPB and 70% experienced verbal DPB.⁸ Rates of assault toward psychiatric staff have been reported as high as 75% in some multinational samples.⁹ There are less data on general hospital units; however, Roche and colleagues^{1,10} studied nurses on 94 medical-surgical units in Australia and identified a self-reported 30% incidence of verbal DPB toward nurses and approximately 15% for physical threats and assaults. Their analysis showed that factors such as reduced staffing, unanticipated changes in patient needs, and delays in disposition were associated with an increase in DPB. As tension in the work environment increases, safety issues such as medication errors and patient falls were likely to occur.^{1,10}

To further an understanding of DPB locally, a review of close to 700 safety reports submitted over 2 years in a large AMC was performed. Data provided insight into the DPB experienced by the AMC nurses. The interactions between patient and provider, patient and environment, as well as individual patient and provider factors were identified as contributors to DPB. This finding is consistent with both the static and dynamic risk factors identified by others.¹¹ The safety reports raised concerns regarding staff's recognition of the risk factors of DPB; preparedness to manage, knowledge of, and use of resources or consultative services; and their perceptions of leadership support by staff.

Vezyridis and colleagues¹² conducted a review of safety reports and clinician satisfaction with organizational response to workplace violence against clinicians in Cypriot emergency departments. The investigators found that 72% of participants stated that the employer initiated no formal procedures after the event. Most respondents were dissatisfied with the handling of the safety incident, and only a minority (35.2%) indicated that there was encouragement to report an event.

Nurse leaders play a significant role in developing effective plans and policies to support care providers against DPB.¹³ Despite the physical, emotional, professional and organizational impact of DPB, there is no standardized approach to benchmarking the experience, attitudes, and leadership or nurse management of DPB within or across institutions or capturing staff perceptions of DPB.

Framework

The study framework used the epidemiological model of primary, secondary, and tertiary prevention (Table 1) to guide the development of empiric measures.¹⁴ This model guided the development of the qualitative questions and the items of the scale as a measure to eval-

uate staff preparedness to break the cycle of DPB. Scale items related to staff experience understanding patient risk factors, staff perception of environmental risk factors, staff knowledge about managing DPB, and the use of supportive or consultative services after an episode of DPB. Therefore, the purpose of this study is to develop and psychometrically evaluate the Staff Perception of Disruptive Patient Behavior (SPDPB) Scale to gather empirical evidence to quantify staff perceptions of DPB.

Method

A 2-phase mixed-method investigation was carried out to develop and to psychometrically test the individual items of the SPDPB Scale. Procedures based on measurement theory were used to ensure the empirical, conceptual, and psychometric adequacy of the SPDPB Scale.¹⁵

Sample/Participants

Phase 1

The qualitative survey was administered to clinical and nonclinical staff on inpatient units and emergency and ambulatory care departments in a large AMC. The survey respondents consisted of 770 staff members in various role groups, 70% of which were nurses.

Phase 2

The SPDPB Scale was distributed and data were collected electronically using Qualtrics, a platform for designing, distributing, and evaluating survey results.¹⁶ All 2,938 nurses who provided direct patient care at the AMC received a prenotification, an invitation letter, followed by 3 e-mail reminder messages, each including a link to the SPDPB survey. The online survey could be completed on any computer with Internet access. Responding to the survey was voluntary, and all survey responses were completely confidential and not linked to respondents' names or e-mail addresses, which were removed from the database before undertaking data analyses.

Instrument

Phase 1

A survey was developed as a part of a broad based initiative of AMC leadership to understand and better address staff concerns and experiences with DPB. The collection and analysis of data on patient events that included disruptive, threatening, and violent behavior toward staff had not been consistently tracked or trended in a way to identify systems issues or training needs of staff to prevent or minimize these incidents from occurring. Historically, DPB has not been considered a target for patient safety or quality improvement initiatives despite studies that suggest an association

Table 1. Epidemiological Model of Prevention Used for DPB

	Primary Prevention	Secondary Prevention	Tertiary Prevention
Definition ¹⁴	Actions intended to prevent events from occurring. For example, early recognition and management of symptoms associated with conditions that cause DPB, for example, neuropsychiatric conditions, traumatic brain injury, and drug or alcohol intoxication and withdrawal.	Actions designed to minimize risk once an event occurs.	Actions that focus on managing complex situations and maximizing the nurses' quality of life.
Actions	Actions include identification of triggers of DPB, for example, provision of care within a 2-ft zone and having conversations that may include denial of the patient's goals that may stimulate the onset of DPB. Awareness of activities and contributing factors resulting in behavior that is resistant to care. Consider alternative approaches for safe clinical management. ^{17,26} Primary prevention by nurses includes: staff preparation, attitudes, and staff experience and their skills in responding and managing DPB.	Actions are access to hospital police and security personnel, psychiatry consultation services, and nursing leadership. Provision of staff support and guiding policies around response to DPB. Focus on leadership and nursing staff support dealing with DPB, staff actions, and security personnel timely response. These actions are consistent with suggestions in a sentinel alert event from the Joint Commission ²⁵ on preventing violence in the healthcare setting.	These responses enable staff to learn from each event, perform clinical course corrections, provide support for colleagues affected by DPB, and enhance communication of risk to other providers. Specific areas related to tertiary prevention included actual staff actions to DPB and leadership support.

between violence experienced by healthcare staff and patient ratings of the quality of services provided.^{17,18}

This initial 4-question qualitative survey asked about experience, attitudes, and management of DPB and postevent responses. Specifically, the questions asked were as follows: (1) What is an example of DPB that you have encountered? (2) What would it take to eliminate all DPB? (3) What would be most helpful to you as a response after an incident of DPB? And (4) what high-risk groups have the potential for DPB?

The investigators used a qualitative descriptive method with content analysis and theme discovery to initially evaluate responses. Definitions of each theme were then produced along with descriptive quotes that represented the respective theme from the data set. Data analysis was shared with a panel of experts to determine agreement (100%) with the identified themes.¹⁹

The analysis demonstrated good overall fit with the literature in identifying 3 major themes related to DPB: preventative tactics that addressed optimal management of neuropsychiatric conditions, access to security staff as well as psychiatric consultation and skill development, and post-event follow-up for staff support and development of clinical guidelines. Definitions were then developed and used by the expert panel when they evaluated the items generated for the instrument.

Sixty-six potential items were generated from the themes, definitions and quotes and additional literature

review. An expert panel reviewed the 66-items for content validation, legibility, readability, and comprehensibility.

Phase 2

The SPDPB Scale was sent to participants for completion of the survey and this served as their consent to participate in the study. Participation was voluntary, and one's decision whether or not to participate did not impact employment. The SPDPB Scale was independently administered and analyzed by researchers from the AMC's Center for Nursing Research.

Respondents were directed to complete the SPDPB Scale online. Approximately 20 minutes was used for staff to provide responses to the SPDPB Scale. The Qualtrics program randomly generated ID numbers to avoid duplication of mailings, allow the online survey to be completed in multiple sessions if needed, and ensure that each respondent completed the survey only once. When the survey was completed, the randomly generated ID numbers were removed.

Survey data were downloaded directly into SPSS 20.0 (IBM, Armonk, NY), after which data analyses commenced. As there were no other existing questionnaires, validity was not assessed. The SPDPB Scale psychometric evaluation included (a) internal consistency reliability using Cronbach's α of the 66-item scale, (b) principal components analysis with varimax rotation and Kaiser normalization, and (c) internal

Table 2. *Demographics of the Sample in Phase 2*

Characteristics	Mean $\pm$ SD or n (%)
Age, y	41.0 $\pm$ 12.0
Years as a nurse	16.2 $\pm$ 12.2
Years as a nurse in AMC	12.1 $\pm$ 10.2
Gender	
Female	516 (94)
Male	34 (6)
Current work status	
Full-time	392 (71)
Part-time	147 (27)
Per diem	12 (2)
Education	
Diploma in nursing	31 (6)
Associate degree in nursing	45 (8)
Bachelor degree in nursing	361 (66)
Nonnursing bachelor degree	52 (9)
Masters in nursing	54 (10)
Nonnursing master's	5 (1)
PhD/doctor of nursing practice	2 (.01)

consistency reliability of resulting components using Cronbach's α . This analysis was similar to techniques used by the authors in previously reported instrument development studies. This technique was applicable although different concepts were measured.^{20,21}

Ethical Considerations

This study received approval from the Human Research Committee of the AMC. The study cover e-mail explained the purpose, risks, benefits and confidentiality of all data that were collected.

Results

A total of 558 nurses returned completed surveys. Based on the guidance of Comrey and Lee²² and Tabachnick and Fidell,²³ this sample size was judged to be very good. Demographics of this sample are displayed in Table 2.

Before scoring, 4 items of the SPDPB Scale were reverse coded so that high scores represented greater amounts of the constructs being measured. Because there are unequal numbers of items defining each SPDPB subscale, average scores were calculated so that all subscale scores had equal weight.

Initial Reliability Estimates and Item Analyses

Initially, Cronbach's α internal consistency reliability, including item-total correlations, was calculated on the 66-item SPDPB Scale. The total scale Cronbach's α coefficient was .95. Thirteen items were below the item-total correlation cutoff of .30. Because the scale was multidimensional, in nature, these 13-items were kept in the principal component analyses to see if they would load significantly on 1 of the components.

Principal Component Analysis

On the sample of 588 nurses, a principal component analysis (PCA) with varimax rotation and Kaiser normalization was next computed on the 66-item SPDPB Scale, producing an 11-component solution with eigenvalues greater than 1 and accounting for 63.3% of variance. This rotated solution was uninterpretable. After examination of the scree test, a 6-component solution was identified and computed. This analysis demonstrated a solution that was both parsimonious and interpretable, accounting for a total of 54.1% of initially extracted common variance. Sixty-five of the 66 items loaded above the .30 cutoff on 1 of the 6 components. If an item had a significant side loading greater than .30 on more than 1 component, the highest number was considered the defining loading. See Table 3 for a description of the SPDPB Scale items and their component loadings on the 6-component PCA-derived scale.

Component 1, labeled Leadership Support for Dealing With Disruptive Behavior, had 16 items, with a 19.3 eigenvalue and explained 13.0% of variance. Component 2, called Staff Actions Related to Disruptive Behavior, had 14 items, with a 6.4 eigenvalue, and described 12.7% of variance. Component 3, called Overall Staff Preparation and Attitude Toward Disruptive Behavior, had 15 items, with an eigenvalue of 3.2, and added 9.5% of variance. Component 4, named Staff Experience of Disruptive Behavior, had 10 items, with a 2.7 eigenvalue, and explained 8.7% of variance. Component 5, labeled Staff Skills in Handling Disruptive Behavior, had 6 items, with an eigenvalue of 2.2, adding an additional 5.8% of variance. Component 6, called Security Personnel Response to Disruptive Behavior, had 4 items, with an eigenvalue of 1.8, and added 4.4% of explained variance. These 6 components explained a total of 54.1% of explained variance.

Internal Consistency Reliability of PCA-Derived DPB Subscales

Cronbach's α internal consistency reliabilities for each of the 6 PCA-derived components were next computed before forming the SPDPB subscale scores. These results are displayed in Table 3. Thus, the now 65-item DPB measured 6 major components of health providers' experience of DPB when giving direct care to patients. The SPDPB Scale was considered sufficiently reliable and valid to use as an independent measure(s) in subsequent research.

Discussion

This psychometric evaluation of the now 65-item SPDPB Scale indicates that all 6 subscales are reliable

Table 3. PCA Loadings Varimax-Rotated DPB Scale (n = 558)

	Component Loading
Component 1: Leadership Support for Dealing With DPB	13.0% variance, Cronbach's $\alpha = .93$
I have felt supported by leadership after experiencing a DPB incident.	0.84
Leadership is supportive of staff after any DPB incidence involving patients.	0.83
There is leadership support when a DPB incident occurs.	0.78
Staff feel supported by unit leadership after any patient DPB.	0.78
Staff feel supported by unit leadership after any DPB involving patients.	0.77
Leadership listens to staff about patient DPB.	0.77
Staff can approach leadership following a patient DPB incident.	0.69
Leadership is present to address resolution of patient DPB.	0.64
Leadership blames me when I am involved in an incident of patient DPB.	0.61
I feel safe.	0.54
I have considered leaving my agency because of patient DPB.	0.51
Staff are encouraged to ask visitors who exhibit DPB to leave the unit.	0.45
Coordination between interdisciplinary team members around complex patients is handled well.	0.42
I have missed work because of a DPB incident within the past year.	0.36
There is zero tolerance for patient DPBs.	0.36
I contact Occupational Health Service if I am injured from a patient DPB incident.	0.34
Component 2: Staff Actions Related to Disruptive Behavior	12.7% variance, Cronbach's $\alpha = .92$
There is a follow-up meeting after a patient DPB incident with the patient and leadership.	0.74
There is always a debriefing session with the whole team within 24 hours following a patient DPB incident.	0.72
Staff always have a follow-up meeting with leadership after any incident of patient DPB.	0.72
Staff meet with leadership to discuss a patient DPB immediately.	0.71
There is always a debriefing session immediately following an incident of patient DPB with the staff involved.	0.70
Staff immediately review the action plan to address behavior after an incident of patient DPB.	0.66
Nursing supervisors are contacted immediately when staff are involved in patient DPB.	0.60
Staff know who the "go-to" person is for follow-up after a patient DPB incident.	0.58
Staff contact the Employee Assistance Program to discuss feelings associated with incidents of DPB.	0.55
Staff review the plan to address patient DPBs on a regular basis.	0.54
Staff seek the psychiatric consultation nursing service when an incident of patient DPB occurs.	0.52
Leadership has an action plan following patient DPBs.	0.51
Safety reports are always filed after incidents of patient DPB.	0.47
Staff ask for a psychiatry consult whenever there is a patient DPB incident.	0.46
Component 3: Overall Staff Preparation and Attitude Toward Disruptive Behavior	9.5% variance, Cronbach's $\alpha = .85$
Staff have developed communication strategies to respond to patient DPB.	0.62
Staff review how to address patient DPB on a regular basis.	0.61
There is a plan to respond to patient DPB.	0.60
There is a plan to respond to high-risk behavior before it escalates to patient DPB.	0.58
Staff know how to document a patient DPB incident.	0.57
There are written guidelines developed to address patient DPB.	0.51
There is a notation of known patient DPBs in the patient's medical record.	0.50
Staff regularly discuss pro-active measures to decrease patient DPB.	0.50
Staff feel empowered to manage patient DPBs.	0.50
I am satisfied with the way staff manage patient DPBs.	0.49
Staff know the risk factors for patient DPBs.	0.49
Staff have educational programs to teach them how to respond to patient DPBs.	0.49
I am confident in my skills in managing patient DPB.	0.46
Staff use MOAB (Management of Aggressive Behavior) training to de-escalate patient DPB.	0.43
Patient DPB is routinely discussed during rounds.	0.37
Component 4: Staff Experience of Disruptive Behavior	8.7% variance, Cronbach's $\alpha = .83$
Staff have experienced patient DPB when attempting to set limits with patients.	0.82
Staff have experienced patient DPB when attempting to set limits with visitors.	0.82
Staff have experienced patient DPB while providing nursing care.	0.80
Staff have experienced patient DPB when scheduling delays occur.	0.77
I have personally experienced a patient DPB incident within the past year.	0.73
There are colleagues who experienced patient DPB.	0.70
Staff have experienced patient DPB when a discharge delay occurs.	0.67
Staff have experienced patient DPB when delivering difficult news.	0.63
Patient DPB has an impact on the quality and safety of patient care.	0.54
Patient DPB has an impact on staff morale.	0.54

(continues)

Table 3. *PCA Loadings Varimax-Rotated DPB Scale (n = 558), Continued*

	Component Loading
Component 5: Staff Skills in Handling Disruptive Behavior	5.8% variance, Cronbach's $\alpha = .82$
Staff have skills to care for patients with delirium.	0.78
Staff recognize delirium symptoms in patients.	0.77
Staff have the skills to care for patients with alcohol withdrawal.	0.77
Staff recognize alcohol withdrawal symptoms in patients.	0.75
Staff are attentive to the pain management needs of their patients.	0.50
Staff attend to the psychosocial needs of their patients.	0.35
Component 6: Security Personnel Response to Disruptive Behavior	4.4% variance, Cronbach's $\alpha = .78$
Response from security is immediate.	0.84
There is an immediate response from security during an incident of patient DPB.	0.81
Response from security is helpful to me.	0.74
I call security when I first experience patient DPBs.	0.42

Dropped item because of component loadings <0.30: Experienced staff are less likely to be harmed by patients.

and construct valid as independent dimensions of nurses' experience of DPB in today's AMC settings. This comprehensive multidimensional picture of today's nurses' experience of DPB provides empirical evidence that can be used to guide the development of strategic interventions to address the issues that arise because of DPB in the workplace. The SPDPB Scale can also be used to evaluate the prevention effectiveness as well as the impact of education and skill development.

The SPDPB Scale can serve as a measure of the health of the acute care professional practice environment. The measure can be associated with a practice model that seeks to obtain results that decrease and/or eliminate DPB. These data can inform nursing leadership on methods to improve the individual unit or department practice settings. This measure can provide evaluative feedback to leadership about whether such changes have made a difference in practice.²⁰ At the institution, management and staff have started to use SPDPB Scale data to provide information describing successful professional practice environments.

For Magnet®-recognized organizations or for organizations pursuing Magnet recognition, the SPDPB Scale is an effective measure to assess baseline and current perceptions of nurses' experience of DPB in their practice setting. Through yearly administration of the SPDPB Scale, a better understanding of organizational changes that develop clinical practice can be achieved. These data can illustrate support structures that are needed to focus the organization on the Institute of Medicine's 6 aims (patient centeredness, safety, effectiveness, efficiency, timeliness, and equity of care) into today's acute care practice settings.^{20,24}

Limitations

A limitation of this evaluation is that data are provided from only 1 AMC. Continued testing and refine-

ment of the tool on different populations of healthcare workers as well as different settings are needed to increase the generalizability of the results. Use of the tool before and after intervention may measure its success and sustainability. The SPDPB Scale has the potential to inform and guide educational requirements at the local level as well as curriculum development for the purpose of improving staff preparedness to safely deliver care to patients at risk of violence and prevent harm to themselves and others.

Conclusions

The mixed-method research approach used in this study indicates that the multidimensional SPDPB Scale is a psychometrically sound measure of 6 components of nurses' experience of DPB in the acute care setting: Leadership Support for Dealing With Disruptive Behavior, Staff Actions Related to Disruptive Behavior, Overall Staff Preparation and Attitude Toward Disruptive Behavior, Staff Experience of Disruptive Behavior, Staff Skills in Handling Disruptive Behavior, and Security Personnel Response to Disruptive Behavior. As well as being psychometrically sound, the SPDPB Scale demonstrates substantive coherence and application at both the individual and 1 or more organizational levels of analysis.

Results from this psychometric evaluation identify staff perceptions of DPB and represent an initial step toward "hot-spotting" areas of concern within the hospital as well as identifying relative needs (clinical, educational, and leadership) associated with these DPB. When completed, the new DPB survey could also be used to evaluate the effectiveness of evidence-driven interventions and establish benchmarks for cross-institution readiness in managing this complex issue.¹

The SPDPB Scale may inform and guide policy development to address DPB so that healthcare organizations can balance the rights and healthcare of patients with that of its greatest human resource, the workforce. Implications for future practice may include expanding the use of the tool with other health-

care providers, with patients and family members, and with multiple populations. The SPDPB Scale may be used to guide the effectiveness of targeted interventions with patients, staff, and the environment of care within the primary, secondary, and tertiary framework, to reduce the incidence of DPB.

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