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# The Psychological Safety Scale of the Safety, Communication, Operational, Reliability, and Engagement (SCORE) Survey: A Brief, Diagnostic, and Actionable Metric for the Ability to Speak Up in Healthcare Settings

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**Objectives:** The current study aimed to guide the assessment and improvement of psychological safety (PS) by (1) examining the psychometric properties of a brief novel PS scale, (2) assessing relationships between PS and other safety culture domains, (3) exploring whether PS differs by healthcare worker demographic factors, and (4) exploring whether PS differs by participation in 2 institutional programs, which encourage PS and

speaking-up with patient safety concerns (i.e., Safety WalkRounds and Positive Leadership WalkRounds).

**Methods:** Of 13,040 eligible healthcare workers across a large academic health system, 10,627 (response rate, 81%) completed the 6-item PS scale, demographics, safety culture scales, and questions on exposure to institutional initiatives. Psychometric analyses, correlations, analyses of variance, and *t* tests were used to test the properties of the PS scale and how it differs by demographic factors and exposure to PS-enhancing initiatives.

**Results:** The PS scale exhibited strong psychometric properties, and a 1-factor model fit the data well (Cronbach  $\alpha = 0.80$ ; root mean square error approximation = 0.08; Confirmatory Fit Index = 0.97; Tucker-Lewis Fit Index = 0.95). Psychological Safety scores differed significantly by role, shift, shift length, and years in specialty. The PS scale correlated significantly and in expected directions with safety culture scales. The PS score was significantly higher in work settings with higher rates of exposure to Safety WalkRounds or Positive Leadership WalkRounds.

**Conclusions:** The PS scale is brief, diagnostic, and actionable. It exhibits strong psychometric properties; is associated with better safety, teamwork climate, and well-being; differs by demographic factors; and is significantly higher for those who have been exposed to PS-enhancing initiatives.

**Key Words:** psychological safety, SCORE, quality improvement, teamwork, safety culture survey, WalkRounds, emotional exhaustion

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**Ethical approval:** This study of safety culture data was approved by the Duke University Health System Institutional Review Board (Pro00083427).

**Data sharing:** The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Speaking up can be difficult; however, failing to voice concerns in health care can have detrimental consequences for patient safety. Not voicing concerns puts patients at risk for health care–acquired infections, wrong site procedures, medication errors, and other avoidable outcomes.<sup>1,2</sup> Unfortunately, many healthcare workers (HCWs) hesitate to ask questions, raise concerns, or seek clarification and instead remain silent largely because of low psychological safety (PS).<sup>3</sup>

Psychological safety is the belief that it is safe to freely voice concerns and ideas, with little or no fear of reprimand or belittlement.<sup>4,5</sup> A psychologically safe environment is necessary for people to learn from errors and engage in a culture of continuous reflection and improvement. Critical to healthcare quality, PS is more relevant than ever because of increasing patient complexity, high stakes, turnover, and inconsistent membership in teams; new demands for efficiency and dynamic coordination among multidisciplinary care teams<sup>6</sup>; and the COVID-19 healthcare crisis.

In psychologically safe teams, it is the norm to ask questions, raise concerns, discuss errors, brainstorm solutions, and make suggestions.<sup>7</sup> Individual accountability is present; however, it is in the context of a just culture that takes a balanced approach of individual and systems' contributions to errors, with the ever-present objective of continuous learning.<sup>8</sup> Rather than focusing on reprimanding the individual who made the error, which can create anxiety about

bringing future attention to mistakes, psychologically safe teams are likely to globally evaluate how to minimize future errors and learn from the experience.

Leaders play a critical role in establishing and maintaining cultures of PS.<sup>5,9</sup> Administrative leaders can create psychologically safe systems through hospital policies and processes (e.g., nonpunitive safety event reporting). Senior and local leaders increase PS by encouraging speaking-up, showing concern for employees' emotional distress, regularly asking about safety issues with curiosity and appreciative listening, highlighting situations where harm was prevented when staff raised concerns, and using staff feedback to initiate improvements.<sup>10-12</sup> Physicians and team leaders can foster PS through acts of inclusiveness and humility. For instance, a physician could make it safer to speak up by actively participating in team-based safety behaviors, such as timeouts and briefings,<sup>13</sup> and using humble and inclusive language, such as "we all want the best for Mrs. Smith here today. If you see something that I am not seeing or if you have a concern about something, please speak up because I need your eyes and ears when I am so focused." These acts help overcome engrained behaviors of silence and uncertainty in the context of hierarchy (e.g., nurses not stopping procedures because they assume the physician has special awareness of the situation).<sup>14</sup> Psychological safety behavior is normalized by acknowledging that everyone is fallible, but the risk of error is significantly reduced when team members speak up in the moment to share concerns.

A formal organizational initiative to foster PS is Safety WalkRounds (SafeWR), in which leaders deliberately engage with HCWs to identify and resolve patient safety risks.<sup>15-19</sup> Boosts to PS seem particularly robust when leaders give feedback about actions taken to mitigate identified risks, thereby reinforcing speaking-up behavior.<sup>19</sup> In fact, in settings where feedback is frequent and normalized, PS is the norm as well. Physicians who reported higher PS were more likely to receive corrective and positive performance feedback from their peers, explanations of the feedback, and suggestions for improvement.<sup>20</sup>

Positive Leadership WalkRounds (PosWR) is a variant of SafeWR in which leaders deliberately ask HCWs about what is going well and who deserves recognition.<sup>21</sup> Safety concerns do come up and are often addressed during PosWR, but there is a deliberate focus on successes and reinforcing positive behaviors. The cultivating of positive emotions and meaning in the work that naturally occurs in these conversations is understood to create trust between workers and leaders.<sup>22</sup> Perceiving leaders as trustworthy increases the likelihood that HCWs will speak up about future safety concerns.<sup>23,24</sup>

Organizations and leaders are recognizing the need to ensure psychologically safe environments to promote high performance, reliability, quality care, and patient safety.<sup>25</sup> To this end, a valid and brief metric of PS is needed for healthcare settings to assess and improve this construct. Ideally, a good scale would be brief, specifically designed for HCWs, diagnostic and actionable, psychometrically sound, able to identify work settings in need of improvement, and responsive to interventions.

Established survey measures of PS range from 3 to 19 items and demonstrate good psychometric properties.<sup>4,6,14,26</sup> Although extant scales have been used in healthcare settings, only 1 was developed specifically for healthcare settings.<sup>6</sup> Psychological safety scales may need to be developed or adopted for the unique cultural and environmental aspects of health care that are relevant to PS. These include assessing PS in the context of patient safety and learning from errors. Moreover, existing scale items may not translate well into a healthcare context. For instance, Edmondson's well-validated and widely popular 7-item PS scale includes the item, "It is completely safe to take a risk on this team," which could have a different and more negative connotation to HCWs because "risk" in health care suggests "safety risk," which HCWs are

committed to minimizing. The one PS measure specifically developed for health care is 19 items long and complements an observational measure of PS consisting of 31 behaviors.<sup>6</sup> Unfortunately, concerns about survey fatigue and lack of resources may make these measurement options infeasible for many healthcare organizations.<sup>27,28</sup>

The current study aimed to clarify the nature and measurement of a novel 6-item PS scale, borrowing face-valid items from existing teamwork and safety climate domains from an established healthcare safety culture survey.<sup>19</sup> This study had the following aims: (1) to examine the psychometric properties of the PS scale, (2) to assess relationships between PS and other safety culture domains, (3) to explore whether PS differs by HCW demographic factors, and (4) to explore whether PS differs by exposure to 2 institutional programs, which encourage PS and speaking-up with patient safety concerns (i.e., SafeWR and PosWR).

## METHODS

### Design and Study Population

This is a cross-sectional study of 2016 survey data sent to 13,040 HCWs across 440 work settings within 1 academic health system as part of the Safety, Communication, Operational, Reliability, and Engagement (SCORE) survey.<sup>19</sup> Findings from other subscales of the SCORE survey have been reported elsewhere.<sup>29,30</sup> This study was approved by the Duke University Health System Institutional Review Board (Pro00083427).

All staff with 50% or greater full-time equivalent commitment to a specific work setting for at least 4 consecutive weeks were asked to complete the SCORE survey. Work settings with 5 or more respondents and a response rate of at least 40% were included in the aggregated analyses (i.e., domain level correlations), resulting in a sample of 396 work settings (90%).

### Measurement of PS

Patient safety officers (PSOs) across our health system have used safety culture surveys since 2010 to assess workplace norms to guide quality improvement efforts. Starting in 2011, PSOs requested a PS report for every work setting, in addition to the standard survey reports from the vendor. Items were selected by the PSOs from existing SCORE survey items based on face validity. The reports, computed and created by the last author, were distributed to every work setting in the health system. Psychological Safety items were diagnostic and actionable and therefore have been used extensively during debriefings and action planning sessions.

The 6 items that compose the PS scale were equally drawn from existing items in the Teamwork Climate and Safety Climate subscales in the SCORE survey. The PS subscale can be used on its own or as a part of the SCORE survey.<sup>19</sup> Respondents were asked to rate the items on a 1 to 5 scale (1, disagree strongly; 5, agree strongly).

Items include the following:

- In this work setting, it is difficult to speak up if I perceive a problem with patient care (Reverse-Scored Teamwork Climate item).
- It is easy for personnel here to ask questions when there is something that they do not understand (Teamwork Climate item).
- Disagreements in this work setting are appropriately resolved (i.e., not who is right but what is best for the patient) (Teamwork Climate item)
- The culture in this work setting makes it easy to learn from the errors of others (Safety Culture item).
- In this work setting, it is difficult to discuss errors (Reverse-Scored Safety Culture item).
- My suggestions about quality would be acted upon if I expressed them to management (Safety Culture item).

### SCORE Survey

Scales assessing Work-Life Climate, Teamwork Climate, Safety Climate, Burnout Climate, Personal Burnout, and Local Leadership were also measured within the SCORE survey (subscale  $\alpha$  values range from 0.76 to 0.94; Table 1).<sup>19</sup>

### SafeWRs and PosWR

Two exposure variables at the end of the SCORE survey asked about participation in institutional initiatives specifically designed to increase PS: SafeWR and PosWR. In SafeWR, leaders ask about and encourage dialogue with HCWs about safety risks in their work setting. In PosWR, leaders ask about what is going well in that work setting. Both SafeWR and PosWR were based on informal models developed by the institution.

Safety WalkRounds exposure was assessed with the question: Does this work setting use Patient Safety Leadership WalkRounds to discuss with senior leaders any issues that could harm patients or undermine the safe delivery of care? (response options: yes, no, or not sure). Positive Leadership WalkRounds exposure was assessed with the question: Do senior leaders ask for information about what is going well in this work setting (e.g., people who deserve special recognition for going above and beyond, celebration of successes, etc.)? (response options: yes, no, or not sure.) The PosWR item deliberately did not mention the PosWR initiative because, although these rounds occurred frequently, the program was not widely referred to as PosWR at the time.

### Statistical Analysis

Scores in the PS scale were calculated by taking the mean of the items using the 5-point scale and transposing it on a 0- to 100-point scale. To assess work setting-level perceptions of favorable PS (“PS Climate”) and safety-culture domains (i.e., Improvement Readiness, Local Leadership, Safety Climate, and Teamwork Climate), aggregate percentages of positive responses were computed by calculating the percentage of respondents in each work setting who scored 4 or higher on the original 1 to 5 scale (i.e., those who, on average, “agreed slightly” or “agreed strongly”). The well-being domains of Emotional Exhaustion and Burnout Climate were aggregated by calculating the percentage that scored 3 or higher (i.e., those who, on average, did not disagree with the items; higher scores reflect worse functioning). Work-Life Climate was aggregated by calculating the percentage that scored, on average, less than or equal to 2, reflecting good work-life balance 5 or more days a week. Aggregated climate scores were used in the current study to

establish the work setting benchmarking distribution for PS and to examine associations between the SCORE domains and exposure to SafeWR and PosWR.

Cronbach  $\alpha$  was calculated as an index of internal reliability (greater than 0.70 is considered acceptable, particularly for shorter scales).<sup>31</sup> Multiple-group confirmatory factor analysis (clustered at the work setting level) with maximum likelihood estimation was used to examine the fit of a 1-factor model for the PS scale. Fit was assessed with the following indices: root mean square error approximation (less than 0.08 is considered adequate),<sup>32</sup> Confirmatory Fit Index (CFI) and Tucker-Lewis Fit Index (TLI; CFIs and TLIs greater than or close to 0.95 are considered acceptable), and standardized root mean square residual (less than or close to 0.08 is considered acceptable).<sup>33</sup> A random-effects analysis of variance (ANOVA) tested both within- and between-work setting variances for the PS scale. An intraclass correlation coefficient was computed to assess the extent of dependence or clustering of PS scores based on work setting, which supports the use of aggregating scores at the work setting level.<sup>34</sup> Spearman correlations were used to determine associations between PS and safety culture and well-being variables. Analysis of variance was used to test for PS differences by role, shift, shift length, and years in specialty. Independent groups *t* tests compared PS in the top versus bottom work setting quartiles in the percentage of HCWs exposed to SafeWR and PosWR. For *t* tests that failed Levene test for equality of variances, we report values that did not assume equal variances. Statistical analyses were performed using IBM SPSS Version 24 (IBM Corp., Armonk, NY) and Mplus Version 7.4 (Muthén & Muthén, Los Angeles, CA).

## RESULTS

### Respondent Demographics

Electronic surveys were returned by 10,627 of 13,040 possible survey respondents (overall response rate, 81%). Table 2 presents demographic data for respondents.

Respondents included individuals in clinical and nonclinical roles. The top 3 respondent groups were registered nurses (31.7%; *n* = 3367), attending physicians (9.7%; *n* = 1036), and technologists (8.2%; *n* = 869). Respondents were predominantly day-shift workers (68.1%), with diversity in years of experience in their specialty and shift length. Missing data for each of the items ranged from 0.8% to 1.3%.

**TABLE 1.** Spearman Correlation Matrix for Psychological Safety and Additional Healthcare Climate Surveys All Aggregated at the Work Setting Level

Variable	1	2	3	4	5	6	7	8
1. Psychological Safety	<b>(0.80)</b>							
2. Improvement Readiness	0.751*	<b>(0.93)</b>						
3. Work-Life Climate	0.400*	0.405*	<b>(0.83)</b>					
4. Teamwork Climate	0.788*	0.661*	0.367*	<b>(0.76)</b>				
5. Safety Climate	0.866*	0.756*	0.424*	0.733*	<b>(0.87)</b>			
6. Burnout Climate	-0.680*	-0.642*	-0.527*	-0.661*	-0.695*	<b>(0.90)</b>		
7. Emotional Exhaustion	-0.664*	-0.690*	-0.545*	-0.636*	-0.656*	0.813*	<b>(0.92)</b>	
8. Local Leadership	0.662*	0.727*	0.367*	0.607*	0.706*	-0.527*	-0.567*	<b>(0.94)</b>

*N* = 396 work settings. Cronbach  $\alpha$  for each domain are included in bold in the diagonal. All scores were aggregated at the work setting level. The 6-item PS scale shares 3 items with the Teamwork Climate scale and 3 items with the Safety Climate scale.

\**P* < 0.01 level (2-tailed).

**TABLE 2.** Respondent Demographics and PS Cronbach  $\alpha$ 

	n	Cronbach $\alpha$	Percentage of Total
<b>Role</b>			
Nurse	3367	0.782	31.7
Physician: attending	1036	0.805	9.7
Technologist (e.g., Surg, Lab, Rad)	869	0.829	8.2
Other	689	0.791	6.5
Technician (e.g., PCT, Surg, Lab, ECG, Rad)	567	0.785	5.3
Administrative support (administrative assistant, work setting coordinator, etc.)	542	0.782	5.1
Advance practice provider (PA/NP/CRNA/nurse clinician)	503	0.824	4.7
Clinical support (medical assistant, CMA, EMT, etc.)	500	0.757	4.7
Nurse's aide	489	0.733	4.6
Therapist (RT, PT, OT, SLP)	462	0.782	4.3
Administrator/manager/supervisor	388	0.782	3.7
Physician: resident	275	0.789	2.6
Pharmacist	198	0.798	1.9
Physician: fellow	157	0.843	1.5
Clinical social worker/case manager	130	0.831	1.2
Dietitian/nutritionist	51	0.732	0.5
Environmental services	41	0.651	0.4
Psychologist	20	0.730	0.2
Missing	343	0.807	3.2
<b>Years in specialty</b>			
<6 mo	404	0.770	3.8
6–11 mo	877	0.779	8.3
1–2 y	1264	0.791	11.9
3–4 y	1410	0.795	13.3
5–10 y	2423	0.794	22.8
11–20 y	2184	0.801	20.6
$\geq 21$ y	1974	0.816	18.6
Missing	91	0.781	0.9
<b>Shift</b>			
Day	7235	0.802	68.1
Night	1269	0.775	11.9
Other	946	0.790	8.9
Swing	1000	0.796	9.4
Missing	177	0.831	1.7
<b>Shift length</b>			
10 h	1402	0.815	13.2
12 h	3482	0.778	32.8
8 h	4320	0.796	40.7
Flex	321	0.774	3
Other	941	0.827	8.9
Missing	161	0.824	1.5
Total	10,627	0.799	100

CMA, certified medical assistant; CRNA, Certified Registered Nurse Anesthetist; ECG, electrocardiogram; EMT, emergency medical technician; Lab, laboratory; NP, nurse practitioner; OT, occupational therapist; PA, physician assistant; PCT, Patient Care Technician; PT, physical therapist; Rad, radiology; RT, respiratory therapist; SLP, speech-language pathologists; Surg, surgery.

### Aim 1: Psychometrics and Confirmatory Factor Analysis

The mean (SD) PS score across those who completed the scale ( $n = 10,576$ ) was 72.92 (20.87). The mean (SD) percent positive PS climate score across the 396 work settings was 56.83 (18.75), and work settings ranged from 0% to 100% positive PS climate (Fig. 1). The overall Cronbach  $\alpha$  was 0.80. Across various demographic groups, the  $\alpha$  ranged from 0.65 to 0.84 (Table 2).

A multiple-group confirmatory factor analysis of the hypothesized 1-factor model of the PS scale revealed acceptable fit to the data (root mean square error approximation = 0.08; 90% confidence interval, 0.072–0.08; CFI = 0.97; TLI = 0.95; standardized root mean square residual = 0.035). Standardized factor loadings ranged from 0.50 to 0.71 (Fig. 2).

A random-effects ANOVA of the entire sample revealed significant PS variance within and between work settings ( $P < 0.001$ ). An intraclass correlation coefficient of 0.12 indicated that 12%

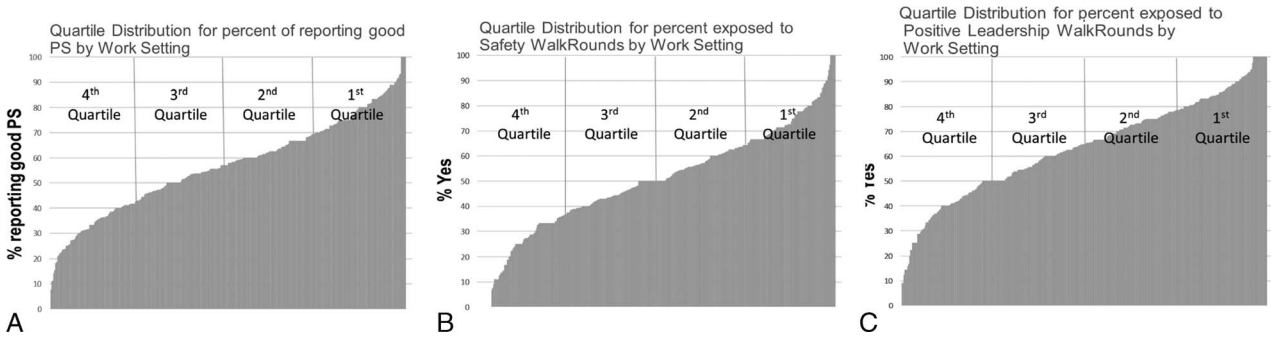


FIGURE 1. Quartile distributions for PS, percent exposure to SafeWR, and percent exposure to PosWR.

of the variance in PS scores was attributed to between-work setting characteristics. Previous research suggests that values of 5% reflect small to medium group membership effect.<sup>35</sup> In other words, there was significant clustering of PS responses within work settings, reflecting a nontrivial level of consensus at the work setting level, suggesting a group “norm” of PS.

**Aim 2: Examine PS Associations With Safety Culture and Workforce Well-being**

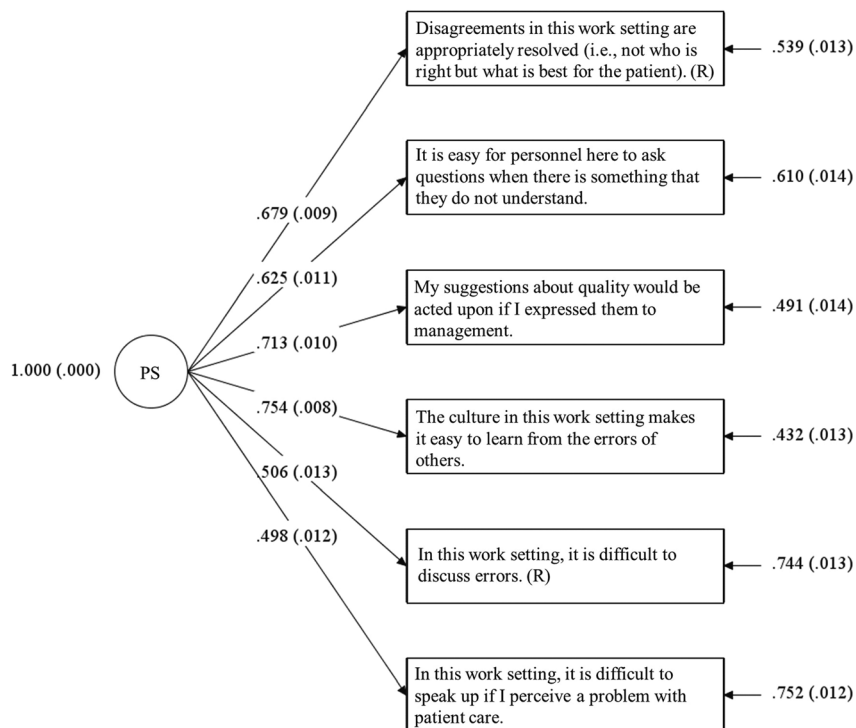
Work setting levels of PS (i.e., percent positive climate scores) were significantly associated with all other safety culture scales in expected directions. Specifically, PS was positively correlated with Local Leadership, Safety Climate, and Teamwork Climate. The PS scale was negatively correlated with Personal Burnout, Burnout Climate, and poor Work-Life Integration (Table 1). Correlation coefficients ranged from 0.866 (Safety Climate) to 0.400 (Work-Life Climate).

**Aim 3: Examine PS by Role, Shift, Shift Length, and Years in Specialty**

Univariate ANOVA demonstrated significant differences in the PS scale between HCW role ( $F_{18,10531} = 17.014, P < 0.001$ ), shift ( $F_{4,10545} = 22.713, P < 0.001$ ), shift length ( $F_{5,10544} = 10.035, P < 0.001$ ), and years in specialty ( $F_{7,10542} = 9.560, P < 0.001$ ).

Scheffé post hoc tests revealed that administrators/managers/supervisors reported significantly better PS compared with 16 of the 18 possible roles. Administrators/managers/supervisors reported statistically equivalent PS to that of psychologists and dietitian/nutritionists. Clinical social workers/case managers reported significantly lower PS compared with 5 of the 18 possible roles, specifically, administrators/managers/supervisors, clinical support (e.g., certified medical assistant, emergency medical technician), nurses, pharmacists, and attending physicians.

Scheffé post hoc tests revealed that day-shift workers reported higher PS compared with night-shift workers, “other” shift workers,



Note. (R) indicates reverse-scored items.

FIGURE 2. Standardized factor loadings for the PS scale.

and those who did not identify their shift. Swing workers reported higher PS compared with night-shift workers. Eight-hour shift workers reported higher PS compared with 12-hour shift workers and those who described this shift as “other.” Flex-shift workers reported better PS compared with those who did not identify their shift type.

Workers with fewer years in specialty generally reported higher PS. Specifically, those less than 6 months in this specialty reported significantly higher PS compared with every other lengths in specialty, except for those who were 6 to 11 months in their specialty or those who did not identify their years in specialty. Those who were 6 to 11 months in their specialty reported higher PS compared with those who were 3 to 4 and 5 to 10 years in their specialty.

**Aim 4: Test Whether PS Differs by Participation in SafeWR and PosWR**

Respondent reports of exposure to SafeWR were as follows: yes, 4459 (42.5%); no, 1682 (16.0%); and not sure, 4346 (41.4%); see Fig. 1 for quartile distribution of percent exposure by work setting). Work settings with higher rates of exposure to SafeWR reported significantly higher PS (mean [SD], 61.77 [18.38]) than those who did not (mean [SD], 53.77 [20.58];  $t_{193} = 2.86, P = 0.005$ ; Fig. 3).

Respondent reports of exposure to PosWR were as follows: yes, 6585 (63.1%); no, 2212 (21.2%); and not sure, 1645 (15.8%); see Fig. 1 for quartile distribution of percent exposure by work setting). Work settings with higher rates of exposure to PosWR reported significantly higher PS (mean [SD], 67.15 [15.58]) than those who did not (mean [SD], 47.91 [20.00];  $t_{200} = 7.61, P < 0.001$ ; Fig. 3).

**DISCUSSION**

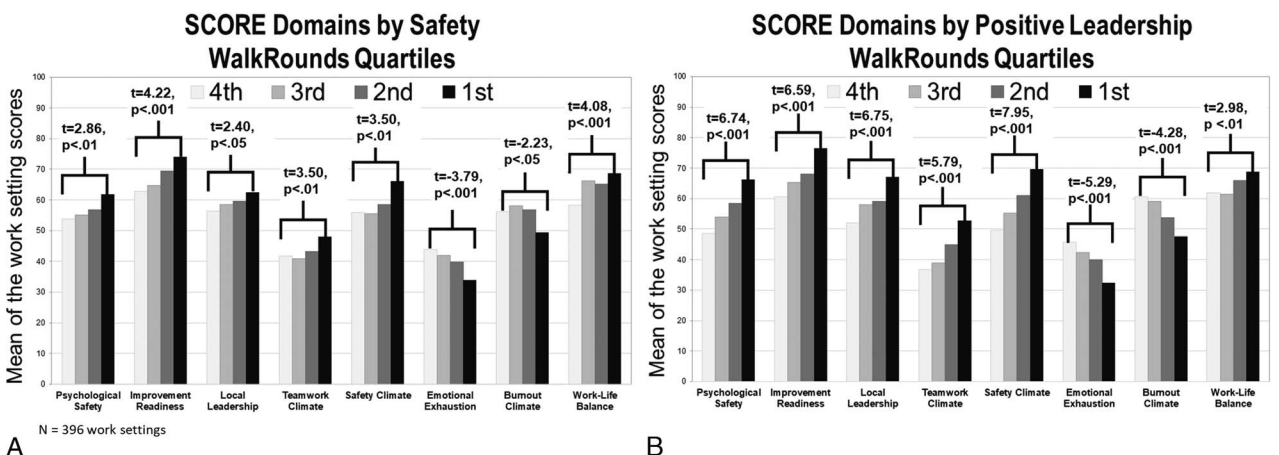
The current study examined the psychometric and convergent validity of a 6-item, novel scale of PS. The PS items are embedded within the validated SCORE safety culture survey and were equally drawn from the Teamwork Climate and Safety Climate domains. In addition to the face validity of the items, the PS scale meets and exceeds established psychometric thresholds for reliability,<sup>31</sup> and the single-factor model provided good fit to the data, demonstrating construct validity.<sup>32,33,36</sup> Moreover, the PS construct seems to behave like a group norm or climate, as evidenced by the clustering within work settings.<sup>35</sup>

In general, HCWs with fewer years in specialty, working 8-hour and day shifts, and in the role of administrators/managers/supervisors reported higher PS. Those with less than a year in specialty may not have yet been exposed to the more complex and hierarchically dense barriers to PS in their work setting (e.g., they have not witnessed a leader fail to

take action on team members’ concerns). Alternatively, they may not have personally experienced negative consequences from speaking up because “not knowing” is expected for those new to their positions. It is also possible that they were recently exposed to encouraging messages about PS during orientation. Day-shift and 8-hour shift workers might have more predictable access to leaders to express safety concerns,<sup>37</sup> more predictable team members, and more exposure to messages supporting PS during huddles. Finally, it is not surprising that those in leadership roles report higher PS. Research has established a robust pattern for hierarchies predicting the likelihood of speaking up.<sup>14,38</sup> This underscores the attention that should be paid to employees who are lower in the perceived hierarchy as important targets for PS interventions.

The PS scale was clearly associated with established safety culture and well-being scales in expected directions. Specifically, work settings with higher PS report better Local Leadership, Safety Climate, Teamwork Climate, and Work-Life Climate as well as lower Personal Burnout and Burnout Climate. These findings underscore the relevance of PS and its relationship to continuous improvement in patient care. The Institute for Healthcare Improvement Framework for Safe, Reliable, and Effective Care describes the following 3 pillars essential to safe, high-quality care: culture, the learning system, and leadership.<sup>39</sup> A healthy, psychologically safe culture embraces robust open discussion to support a learning system where errors and successes are analyzed and lessons are learned. Leadership plays a key role in modeling and operationalizing these concepts. Positive organizational culture is significantly associated with improved patient outcomes such as decreased mortality rates, readmission rates, pressure ulcers, and falls as well as increased patient satisfaction and mental and physical status.<sup>40</sup> The PS scale can therefore be used to flag for a work setting that is at increased risk for burnout, adverse clinical outcomes, and increased staff turnover.

Developing a psychologically safe culture is an iterative process that requires clear commitment from all levels of leadership.<sup>11</sup> One way leaders demonstrate commitment is by investing in PS initiatives. In the current study, the PS scale was associated with participation in 2 institutional interventions designed to enhance PS, SafeWR and PosWR. By deliberately asking HCWs to discuss safety concerns during SafeWR and hearing concerns with curiosity and humility, leaders are normalizing speaking up as well as increasing a sense of agency and safety culture.<sup>15,41</sup> A key component of effective SafeWR and PosWR is the bidirectional communication that is established through leaders listening to HCW concerns and then closing the loop with feedback and follow-up.<sup>19</sup> This feedback loop sends the message “we hear



**FIGURE 3.** Work setting SCORE domains by quartiles of percent exposure to SafeWR and PosWR.

you, and we have taken action,” which further reinforces future engagement and speaking-up behavior.

Positive Leadership WalkRounds not only builds on elements of SafeWR but also intends to elicit positive emotions, purpose, and meaning in HCWs. These factors are known predictors of well-being, lower burnout, and, in turn, better safety culture and teamwork.<sup>42–46</sup> When leaders ask “what is going well?” and react supportively to the responses, workers are likely to gain trust, feel safe, and approach leaders with future concerns. Interestingly, the *t* values comparing first versus fourth quartiles for PosWR were twice as large as those of SafeWR for safety culture and well-being (Fig. 3). These differences in magnitude indicate stronger returns on investments for PosWR compared with SafeWR programs and that leaders searching for specific actions they can take to address well-being might be well served to consider PosWR.

This study is limited in its use of self-report data, which are at risk for response, selection, social desirability, and common method biases. The confidential nature of the survey, large sample size, and high response rate provide a buffer against some of these biases. Future research should evaluate associations between PS scales and observable PS behaviors. The broad wording of the PosWR question might have led respondents to endorse it for any experience where leaders asked about what is going well, not just in PosWR interactions. This may have led to an overestimation of PosWR exposure. The PS scale shares items with the Teamwork and Safety domains; therefore, correlations across these domains are expected to be high. Causality cannot be inferred from this cross-sectional design. This was a study of 1 large academic health system in the southeastern United States; thus, findings may not generalize broadly to other healthcare systems or outside of health care.

## CONCLUSIONS

This study presented empirical support to assess and improve PS using a brief, diagnostic, actionable, and reliable PS scale using established items. The PS scale exhibits robust psychometric properties, is associated with established safety culture and well-being scales in favorable directions (i.e., better safety and teamwork climate, lower burnout), and predicts who has been exposed to institutional initiatives designed to enhance PS (i.e., SafeWR, PosWR). As part of a safety culture assessment or as a standalone assessment, the PS scale provides insight into team members' comfort with speaking up and learning from safety events, as well as the efficacy of PS initiatives to improve patient safety.

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