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Perceptions of Institutional Support for "Second Victims" Are Associated with Safety Culture and Workforce Well-Being

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Objective: This study was performed to determine whether health care worker (HCW) assessments of good institutional support for second victims were associated with institutional safety culture and workforce well-being.

Methods: HCWs' awareness of work colleagues emotionally traumatized by an unanticipated clinical event (second victims), their perceptions of level of institutional support for such colleagues, safety culture, and workforce well-being were assessed using a cross-sectional survey (SCORE [Safety, Communication, Operational Reliability, and Engagement] survey). Safety culture scores and workforce well-being scores were compared across work settings with high (top quartile) and low (bottom quartile) perceptions of second victim support.

Results: Of the 10,627 respondents (81.5% response rate), 36.3% knew at least one work colleague who had been traumatized by an unanticipated clinical event. Across 396 work settings, the percentage of respondents agreeing (slightly or strongly) that second victims receive appropriate support ranged from 0% to 100%. Across all respondents, significant correlations between perceived support for second victims and all SCORE domains (Improvement Readiness, Local Leadership, Teamwork Climate, Safety Climate, Emotional Exhaustion, Burnout Climate, and Work-Life Balance) were found. The 24.9% of respondents who knew an actual second victim and reported inadequate institutional support were significantly more negative in their assessments of safety culture and well-being than the 42.2% who reported adequate institutional support.

Conclusion: Perceived institutional support for second victims was associated with a better safety culture and lower emotional exhaustion. Investment in programs to support second victims may improve overall safety culture and HCW well-being.

Delivering health care can be rich with purpose and meaning in one moment and potentially fraught with tragedy and despair in the next. A specific vulnerability of health care workers (HCWs) is that unintentional mistakes that lead to tragedy (or potentially could have) can generate extreme feelings of guilt; have severe legal, financial, and professional repercussions; and culminate in profound psychological insecurity.[1,2] HCWs may suffer significant emotional harm and burnout[3] regardless of their actual contribution to the error or whether the event was preventable. Patients and their loved ones are the first victims of this harm, but HCWs exposed directly and indirectly to this suffering are often called the second victims.[4] Nationally representative data are still lacking, but preliminary prevalence of second victims estimates are 14% to 30% in the past year, and 50% to 60% in previous years.[5,6] The extent to which an HCW feels supported in the aftermath of one of these tragedies may play a pivotal role in their ability to recover. Social science has firmly established that one's perception of having supportive others to turn to in times of stress (perceived support) provides a buffer against the harmful effects of stress.[7–14] The present study aims to assesses (1) whether perceived institutional support for second victims is associated with better safety culture and workforce well-being (full sample), and (2) whether those who know of a second victim in their work setting *and* report inadequate institutional support are significantly more negative in their assessments of safety culture and well-being than those who report adequate support (sample limited to awareness of a second victim).

METHODS

This is a cross-sectional study of survey data collected in 2016 from 13,040 HCWs across 440 work settings within one academic health system as part of the Safety, Communication, Operational Reliability, and Engagement (SCORE) survey.[15–19] All eligible individuals with 50% or greater full-time equivalent commitment to a specific work setting for at least four consecutive weeks were asked to participate.

SCORE's safety culture measures include Improvement Readiness, Local Leadership Teamwork Climate, and Safety Climate. SCORE's well-being measures include Burnout Climate, Emotional Exhaustion, and Work-Life Balance.

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SCORE uses a five-point Likert scale ranging from Disagree Strongly (1) to Agree Strongly (5), and includes a Not Applicable response option. Perceptions of second victim support and awareness of second victims were assessed using the following two items on the same five-point Likert scale:

1. Individuals emotionally traumatized by an unanticipated clinical event *within my work setting* receive appropriate support from this health system.
2. I am aware of at least one colleague *within my work setting* who has been emotionally traumatized by an unanticipated clinical event.

Item 2 (awareness of an emotionally traumatized colleague) was dichotomized by agreement vs. disagreement with the item (individuals with neutral or "not applicable" responses were not included). The items were created by our patient safety officers in collaboration with our second victim committee, piloted with our patient safety associates, and revised based on feedback. Given growing concern over the term *second victim*,[20] it was not used in the survey. Also, items were carefully phrased to avoid asking respondents if they personally had been emotionally traumatized due to concerns of stigma, shame, anxiety, and fear,[21] which might lead to underreporting. Instead, the item asked if they were aware of this issue for at least one colleague.

A first set of analyses included all respondents (that is, not limited to only those aware of an emotionally traumatized colleague in question 2). It is possible that mere awareness of institutional support for second victims in general could have the same stress buffering and safety culture promoting effect. Work settings were divided into quartiles based on agreement to the first question, which assessed support. Independent groups *t*-tests were used to compare the first and fourth quartiles of perceived support across the SCORE domains of safety culture and workforce well-being.

A second set of analyses, primarily reported in the appendices (available in online article), mirror the analyses reported here, but only for individuals who reported being aware of a traumatized colleague in question 2. Next, separate sets of Pearson correlations were run between perceived support and the SCORE domains for those who were and were not aware of a second victim. Fisher's *r* to *z* transformations were used to test whether the correlations were significantly different by awareness (or not) of a second victim. This study was approved by the Duke University Health System Institutional Review Board (IRB Pro00083427).

RESULTS

Respondents

Electronic surveys were returned by 10,627 of 13,040 possible survey respondents (overall response rate 81.5%). Work settings with 5 or more respondents and a response rate of at least 40% were included in the aggregated analyses (that is, domain level correlations), resulting in a sample of 396 work settings (90.0%). Table 1 presents respondent demographics and descriptive results. The top three respondent groups were registered nurses (31.7%; $n = 3{,}367$), attending physicians (9.7%; $n = 1{,}036$), and technologists (8.2%; $n = 869$). A subset of respondents (3.2%) did not identify with any of the listed HCW roles. Respondents were predominantly day-shift workers (68.1%), with diversity in years of experience, specialty, and shift length. Missing data for each of the items ranged from 0.9% to 3.2%. See Table 1 and Supplemental Figure 1 for details on awareness of trauma and perceived institutional support by role across the entire sample ($N = 10{,}627$ and 396 work settings).

Institutional Support Across Work Settings

To account for nesting of HCWs within work settings, we aggregated percentage agreement by work setting to the perceived institutional support item. Across 396 work settings, the percentage of respondents agreeing (slightly or strongly) that second victims receive appropriate institutional support ranged from 0% to 100% (Figures 1 and 2). Mean percentage agreement by perceived institutional support quartile was as follows: fourth is 11.0% (0% to 21.7%), third is 26.4% (21.8% to 31.3%), second is 36.5% (31.4% to 41.7%), first is 55.9% (41.8% to 100%). Six of the seven SCORE domains (Improvement Readiness, Local Leadership, Teamwork Climate, Safety Climate, Emotional Exhaustion, and Burnout Climate) were significantly different when comparing the work settings in the first and fourth quartiles for appropriate institutional support (see Figures 1 and 2). Work-Life Balance was the exception. Spearman correlations were run between percentage agreement scores to the institutional support item and the seven outcome domains. All correlations were significant at $p < 0.05$ (Table 2).

Institutional Support by Role

Agreement that institutional support was adequate (Table 1) ranged from 56.7% of administrators/managers/supervisors, to 41.2% of attendings, and 31.2% of nurses. Because research has shown that leaders frequently have a higher opinion of the support and safety culture than frontline workers do,[22] we analyzed perceptions of support by role for the top and bottom work setting quartiles. In the top quartile 71.0% of managers agreed that there was adequate support, whereas 36.4% agreed in the bottom quartile. In comparison, 47.7% of nurses in the top quartile agreed that there was adequate support, compared to 13.4% in the bottom quartile.

Among respondents aware of a second victim (see Supplemental Figure 2), leadership (administrator/manager/supervisor) is most likely to agree (90.7%) that the institution provides appropriate support, which is twice as high as responses from advance practice providers (45.2%), and clinical social workers/case managers (46.7%).

Table 1. Respondent Demographics

Health Care Worker Role	*n*	% of Total	% Agree Aware of Second Victims	% Agree Second Victims Receive Support from Institution
Registered Nurse	3,367	31.7	43.5	31.2
Attending/Staff Physician	1,036	9.7	44.7	41.2
Technologist (for example, Surgical, Lab, Radiology)	869	8.2	24.0	25.1
Other	689	6.5	22.2	30.1
Technician (Patient Care, Surgical, Lab, Electrocardiograph, Radiology)	567	5.3	22.7	28.9
Administrative Support (Administrative Assistant, Unit Coordinator, etc)	542	5.1	20.7	27.1
Advanced Practice Provider (Physician Assistant, Nurse Practitioner, Certified Registered Nurse Anesthetist)	503	4.7	42.9	24.1
Clinical Support (Certified Medical Assistant, Emergency Medical Technician, etc.)	500	4.7	21.0	31.8
Nurse's Aide	489	4.6	31.0	34.2
Therapist (Respiratory, Physical, Occupational, Speech)	462	4.3	34.6	35.4
Administrator/Manager/Supervisor	388	3.7	23.6	56.7
Resident Physician	275	2.6	62.0	45.2
Pharmacist	198	1.9	24.2	30.3
Fellow Physician	157	1.5	44.3	35.5
Clinical Social Worker/Case Manager	130	1.2	50.5	30.7
Dietitian/Nutritionist	51	0.5	25.0	23.1
Environmental Services	41	0.4	16.2	17.1
Psychologists	20	0.2	15.8	46.2
Missing	343	3.2	44.3	34.9
Shift				
Days	7,235	68.1	32.4	33.2
Nights	1,269	11.9	41.5	30.6
Swing	1,000	9.4	46.5	32.4
Other	946	8.9	46.3	32.8
Missing	177	1.7	42.5	27.9
Shift Length				
8 hours	4,320	40.7	24.2	31.7
10 hours	1,402	13.2	36.6	32.4
12 hours	3,482	32.8	46.2	32.4
Flex	321	3.0	46.5	39.4
Other	941	8.9	44.4	36.2
Missing	161	1.5	44.0	30.4
Years in Specialty				
< 6 months	404	3.8	25.0	28.1
6–11 months	877	8.3	30.4	32.7
1–2 years	1,264	11.9	35.1	32.6
3–4 years	1,410	13.3	41.6	30.6
5–10 years	2,423	22.8	35.9	30.6
11–20 years	2,184	20.6	37.8	34.7
≥ 21 years	1,974	18.6	36.6	34.9
Missing	91	0.9	34.8	42.1
Total	10,627	100%		

Awareness of Second Victims and Institutional Support

The percentage of HCWs who reported being aware of at least one colleague (second victim) in their work setting who has been emotionally traumatized by an unanticipated clinical event was 36.3%. Those who knew someone with emotional trauma and reported inadequate institutional support (24.9%) were statistically significantly more negative in their assessments of safety culture and well-being than those who reported adequate institutional support (42.2%). (See Supplemental Figure 2.)

In comparing respondents who knew a second victim, relative to those who didn't, the relationships between perceived support and safety culture and well-being were approximately twice as strong (for example, Emotional Exhaustion domain: for those aware of a second victim: $r = -0.335$, $p < 0.001$; for those unaware of a second victim: $r = -0.115$, $p < 0.001$). Fischer's r to z transformations of the correlations were all statistically significant ($p < 0.001$), indicating that the correlations between perception of support for second victims and the SCORE domains are significantly stronger for those who were aware

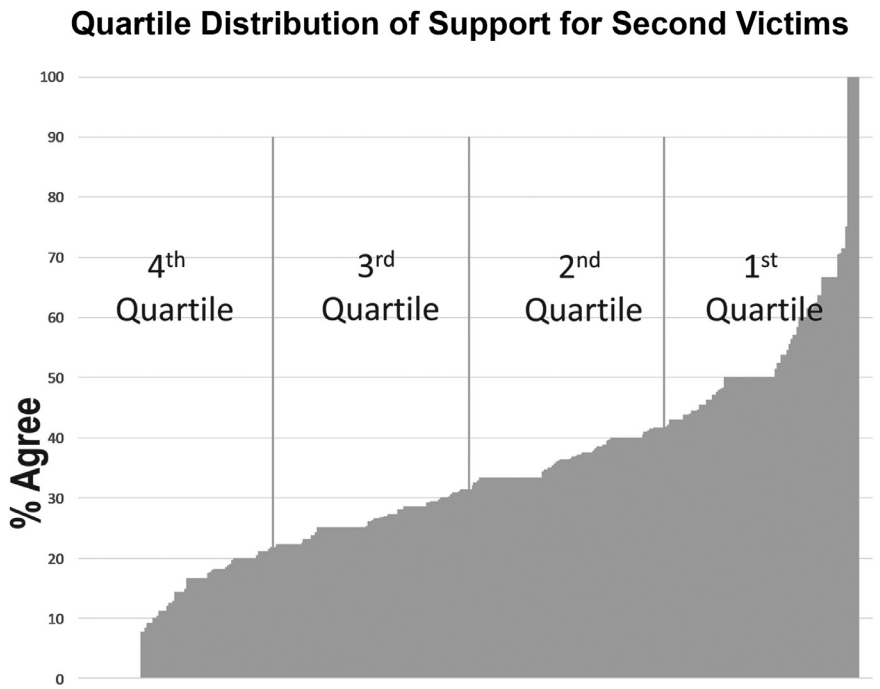

Figure 1: The graph shows quartile distribution of support for second victims, as measured by agreement with the statement "Individuals emptionally traumatized by an unanticipated clinical event within my work setting receive appropriate support from this health system." All respondents are included (that is, this was not limited to those who reported awareness of a second victim).

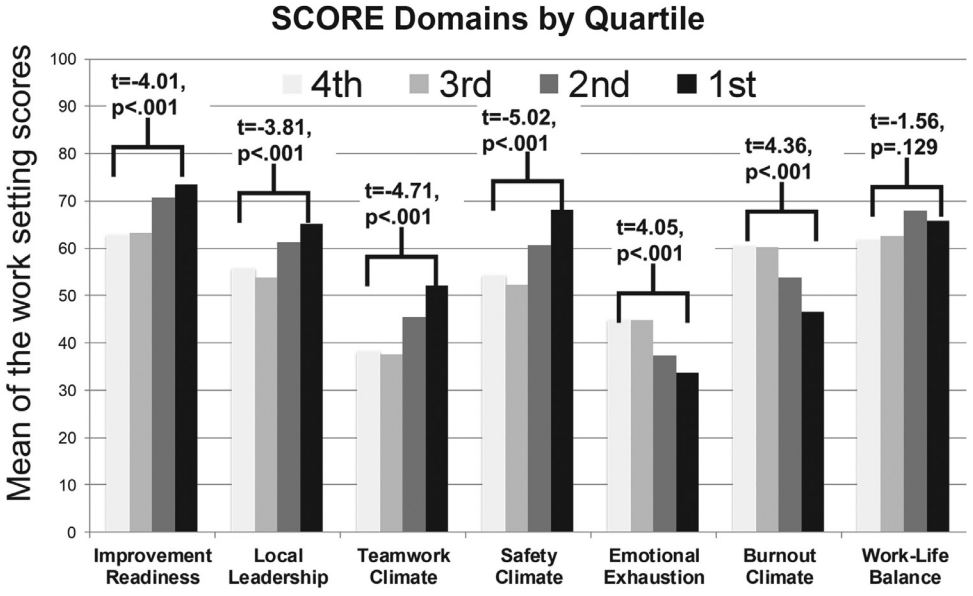

Figure 2: Shown here are SCORE domains by quartile of % agreement that second victims receive appropriate support from this health system. All respondents are included in the above figures and analyses (that is, this was not limited to those who reported awareness of a second victim).

of second victims, compared to those who were not. (See Supplemental Table 1.)

DISCUSSION

Given that perceived support buffers against the harmful effects of stress in general,[7–14] it follows that perceived institutional support for second victims may do the same for HCWs' perceptions of safety culture and workplace well-being. One out of four HCWs in this study did not perceive adequate support from their institution, and this was significantly associated with overall assessments of safety culture. Perceiving adequate institutional support after a colleague experiences an adverse event is linked to robust differences

Table 2. Correlation Matrix for Perceptions of Institutional Support and Safety Culture and Well-Being Domains at the Work Setting Level*

Variable	1	2	3	4	5	6	7	
1. Adequate Institutional Support								
2. Improvement Readiness	0.251†	**(.92)**						
3. Local Leadership	0.233†	0.727†	**(.94)**					
4. Teamwork Climate	0.258†	0.661†	0.607†	**(.76)**				
5. Safety Climate	0.271†	0.756†	0.706†	0.733†	**(.87)**			
6. Emotional Exhaustion	-0.231†	-0.690†	-0.567†	-0.636†	-0.656†	**(.92)**		
7. Burnout Climate	-0.220†	-0.642†	-0.527†	-0.661†	-0.685†	0.813†	**(.90)**	
8. Work-Life Balance	0.106‡	0.405†	0.367†	0.367†	0.424†	-0.545†	-0.527†	**(.83)**

* All respondents across 396 work settimgs are included (that is, this was not limited to those who reported awareness of a second victim). Correlations use percent positive (agreement) scores at the work setting level. Cronbach's alpha for each domain are included in the diagonal in bold, calculated at the individual respondent level, $N = 10{,}627$.

† $p < 0.01$.

‡ $p < 0.05$.

in six of seven domains of safety culture and workforce well-being. Although these data are correlational in nature, it is possible that perceptions of poor institutional support for second victims could have a detrimental ripple effect on the culture inside and outside that work setting.

We found the same pattern of results for the full sample broken into perceived support quartiles (Figures 1 and 2), as we did when we analyzed at the individual level and dichotomized perceived support (percent agree vs. disagree; Supplemental Figure 2). The most pronounced results were for the subset of respondents who reported being aware of a second victim in their work setting (Supplemental Figure 2, Supplemental Table 1). Leaders (administrator/manager/supervisor; Table 1) perceived more institutional support than any other HCW role and likely need better data and better insight into how supporting second victims is part of their role.

These results are consistent with previous research demonstrating a link between safety culture and staff distress from the second victim phenomenon in a sample of 144 nurses[23] using a 29-item survey.[24] Here we extend this line of research using one carefully phrased item that can be added to any safety culture or employee engagement assessment. This item can help leaders see where there are gaps in perceived support and pinpoint where to direct resources and communications. For example, if an organization has a strong second victim support structure, but it is not well known, this survey item would reveal that communication efforts are necessary. After it is communicated, well-being and safety culture might improve.

With the exception of Work-Life Balance, all SCORE domains of perceived institutional support for second victims were significantly different for first and fourth quartiles. Specifically, perceiving adequate vs. inadequate second victim support was associated with Improvement Readiness, Local Leadership, Teamwork Climate, Safety Climate, Emotional Exhaustion, and Burnout Climate. The two lowest quartiles of second victim support (bottom 50% of work settings) for perceptions of support appear very similar across SCORE domains and very different from the top two quartiles. In prior work, we've found a threshold of 60% agreement in work settings to meaningfully reflect safety culture.[25] Perhaps the differences in the lowest and highest quartiles are approximating the 60% agreement threshold that we have seen elsewhere,[25] providing additional protection for work settings in the highest quartiles (akin to psychological herd immunity).

We relied on participants' subjective sense of "adequate support from the health system," and their colleagues' "emotional trauma following from an unanticipated clinical event," both of which are in the eye of the beholder. This study did not actually clarify what respondents expected, desired, or observed in terms of support. This phrasing allows the items to be used in any health care work setting. Anecdotally, from our work with second victims, patient safety experts, and hospital leaders, we find that most people view "receiving support" to mean that someone (1) approached the second victim and acknowledged that they may have been affected by the event, (2) talked to this individual with openness and kindness about the event, and (3) suggested other support mechanisms, including institutional resources for second victims (for example, employee assistance program). We acknowledge that there is a variety of ways to provide support, and institutions may use these and/or other approaches.

Limitations

This study is limited by its use of self-reported data, which are at risk for response, selection, and social desirability biases. The good psychometric results for SCORE, as well as the high response rate, help to buffer against some of these biases. A further limitation is that the items used to assess prevalence and institutional support were created for this study and have not been used before. Until this study,

no benchmarking data were available. Careful wording allowed respondents to answer without admitting that they were the second victims, which likely inflated rates of prevalence due to multiple respondents referring to the same individual in their work setting. However, the advantage of this phrasing allows perceptions of support from the institution (and specifically the work setting) to be directly assessed and linked to safety culture, again, without admitting that the respondent was the one traumatized. Another limitation is that these data reflect a large academic health system, so broad generalizability is not known.

CONCLUSION

Perceived institutional support for second victims was associated with a better safety culture and lower emotional exhaustion in a large sample of health care workers. These robust associations of feeling supported by the mothership and all of the safety culture and workforce well-being scales suggest that investment in programs to support second victims may enhance overall safety culture and HCW well-being.

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SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jcjq.2020.12.001.

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