

Second Victim Experiences of Health Care Learners and the Influence of the Training Environment on Postevent Adaptation

Lily Huang, BA; Kirsten A. Riggan, MA, MS; Vanessa E. Torbenson, MD; Alayna K. Osborne, BLA; Sherry S. Chesak, PhD, RN; Robyn E. Finney, DNAP; Megan A. Allyse, PhD; and Enid Y. Rivera-Chiauszi, MD

Abstract

Objective: To investigate the experience of medical and graduate learners with second victim experience (SVE) after medical errors or adverse patient outcomes, including impact on training and identification of factors that shape their postevent recovery.

Patients and Methods: The validated Second Victim Experience and Support Tool-Revised (SVEST-R), Physician Well-Being Index, and supplemental open-ended questions were administered to multidisciplinary health care learners between April 8, 2022, and May 30, 2022, across a large academic health institution. Open-ended responses were qualitatively analyzed for iterative themes related to impact of SVE on the training experience.

Results: Of the 206 survey respondents, 144 answered at least 1 open-ended question, with 62.1% (n=91) reporting at least 1 SVE. Participants discussed a wide range of SVEs and indicated that their postevent response was influenced by their training environment. Lack of support from supervisors and staff exacerbated high stress situations. Some trainees felt blamed and unsupported after a traumatic experience. Others emphasized that positive training experiences and supportive supervisors helped them grow and regain confidence. Learners described postevent processing strategies helpful to their recovery. Some, however, felt disincentivized from seeking support.

Conclusion: This multidisciplinary study of learners found that the training environment was influential in postevent recovery. Our findings support the need for the inclusion of education on SVEs and adaptive coping mechanisms as part of health care professional educational curriculums. Educators and health care staff may benefit from enhanced education on best practices to support trainees after stressful or traumatic patient events.

© 2024 THE AUTHORS. Published by Elsevier Inc on behalf of Mayo Foundation for Medical Education and Research. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>) ■ Mayo Clin Proc Inn Qual Out 2024;8(3):232-240

From the Department of Quantitative Health Sciences, Mayo Clinic, Jacksonville, FL (L.H.); Biomedical Ethics Research Program (K.A.R., M.A.A.), Department of Obstetrics & Gynecology (V.E.T., M.A.A., E.Y.R.-C.), Department of Nursing (S.S.C.), and Department of Anesthesiology and Perioperative Medicine and Healing the Emotional Lives of Peers Program (R.E.F.), Mayo Clinic, Rochester, MN; and Division of Community and Employee

Affiliations continued at the end of this article.

Second victim experience (SVE) describes the negative psychological effects experienced by some physicians after medical errors.¹ This definition was later expanded to include health care professionals who observe or are involved in adverse patient events and patient-related injuries, including trainees in medical, allied health, and graduate programs.² Physical and psychological symptoms of SVE include increased blood pressure, sleep disturbances, negative emotions, loss of confidence, anxiety, and depression, which require immediate and long-term support for recovery.³⁻⁵ The high rate of mental health

diagnoses among physicians and nurses had led to increasing recognition of the importance of supporting mental and emotional health after adverse patient events; without treatment, SVE may lead to burnout, depression, and suicidal ideation, causing some to leave the health care field or may even result in death by suicide.^{5,6}

Learners may be at enhanced risk of SVE because they tend to first encounter high acuity patient events or medical errors early during their training.⁷ One survey of 109 trainees found that 58% were involved in a medical error in year 1, compared with

trainees in years 2 (25%) and 3 (12%).⁶ Their mental health may be compromised during this period; depression and suicidal ideation often begin during training, with worsening mental health observed as medical training progresses.⁸ Although much of the data on SVE are limited by small sample size and specific disciplines, studies have identified increased susceptibility and prevalence of SVE in this population, including increased anxiety and depression compared with supervising physicians, after adverse patient events.⁹⁻¹² One recent study in Italy found an overall prevalence rate of 25.58% among nursing and medical students after a patient safety incident.⁷

To date, there have been limited reports on how learners' SVEs, including positive and negative experiences of support from peers and supervisors, influence their postevent coping and training experience. We explored the impact of traumatic events on health care learners through qualitative analysis of survey responses from trainees in medical school, graduate medical education, or health science programs, for in-depth understanding of the unique facets of SVE during training and to identify strategies to improve the support and flourishing of learners, during what is for many, a vulnerable and challenging period.

PATIENTS AND METHODS

Study Design

The multidisciplinary team, including researchers with expertise on SVE, medical education, survey design, and qualitative methods, designed a survey (Supplement 1, available online at <http://www.mcpiqojournal.org>) including the validated Second Victim Experience and Support Tool-Revised (SVEST-R)¹³ and the 9-item Physician Well-Being Index¹⁴ for assessment of SVE and well-being using fixed-answer responses. For in-depth understanding of learner experiences, additional open-ended questions were included on experiences with and support after traumatizing or stressful events, health care dropout, and fixed-answer questions on previous knowledge of the term "second victim" (SV) and demographic characteristics. Mayo Clinic's institutional review board deemed the study exempt.

Data Collection

The survey was created and fielded using Research Electronic Data Capture (REDCap), a secure, web-based application. The survey was distributed through email to all health care learners with clinical experience from April 8, 2022, to May 30, 2022, enrolled in one of the following schools: Mayo Clinic Alix School of Medicine (MCASM), Mayo Clinic School of Graduate Medical Education (MCSGME), and Mayo Clinic School of Health Sciences (MCSHS). Survey responses were collected anonymously. Respondents were informed that by taking the survey, they consented to have their anonymous results used for research.

Data Analysis

All open-ended responses were included for qualitative analysis and were thematically analyzed using NVivo 12.^{15,16} Two researchers (K.R., L.H.) developed a preliminary codebook based on iterative and inductively identified content after an initial review of all responses. The codebook was refined after consensus coding of the open-ended responses of the first 10 survey respondents. The final codebook was applied to all open-ended responses. The responses were divided and coded separately by the 2 reviewers (L.H.: n=75, 52.1%; K.R.: n=39, 26.9%), with intermittent consensus coding of the remainder (n=30, 20.7%) for rigor. The 2 researchers met weekly to review coded content and resolve discrepancies. In accordance with published standards on reporting qualitative research,¹⁷ verbatim quotes are minimally edited for clarity. In this study, we present thematic analysis of content coded to "event type," "provider impact," "event processing," and "support desires." Statistical analysis of quantitative results is reported separately.

RESULTS

Of 2298 survey invitations, 206 respondents completed the survey, with 144 respondents answering at least 1 open-ended question. Of these, 129 answered at least 1 item in the demographic characteristics section. Demographic characteristics are reported in the Table.

TABLE. Demographic characteristics.	
Characteristic ^a	Total (N=129)
Age (y), mean \pm SD (n=95)	31.7 \pm 4.7
Gender identity, n (%)	
Male	51 (38.5)
Female	75 (58.1)
Neither/nonbinary	1 (0.8)
Prefer not to answer	2 (1.6)
Race or ethnicity ^b , n (%)	
White	97 (75.2)
Asian	19 (14.7)
Hispanic	10 (7.8)
Black/African American	5 (3.9)
Native American/Alaskan Native	1 (0.8)
Multiracial	2 (1.6)
Prefer not to answer	9 (7.0)
School or program, n (%)	
School of medicine	11 (9.2)
Graduate medical education	78 (65.0)
School of health sciences	28 (23.3)
Prefer not to answer	21 (2.5)
Year in medical school (n=11), n (%)	
3	6 (54.5)
4	2 (18.2)
Prefer not to answer	3 (27.3)
Resident or fellow (n=78), n (%)	
Resident	41 (52.6)
Fellow	37 (47.4)

^aCompletion rates varied for each question.
^bCould select more than 1 response.

SV and Potential SVE of Learners

Of the 144 respondents included for qualitative analysis, 91 (62.1%) reported at least 1 SVE. Respondents discussed a range of events associated with these incidents, including medical errors, expected and unexpected patient death, severe morbidity, and workplace violence.

“Patient developed mesenteric ischemia overnight and I was alone in covering the service (...) The patient required emergency surgery with a prolonged ICU stay. I wondered if I could have caught it sooner.” (155; MCSGME)

“One time during a Cesarean I cut the neonate’s temple with the scalpel. I am

still traumatized and afraid every time I operate on a pregnant patient. It took me months to put it together and realize this was why.” (5, MCSGME)

Some participants identified racial discrimination, hostility from patients and their family members, and negative training experiences as leading to SVE.

“A patient did not want to be touched or treated by a non-White medical professional and increasingly became louder and upset (...) stating that he would only be touched by the White nurse in the room and later confiding in another White resident that he wasn’t trying to be rude but simply didn’t want ‘those people’ on his team.” (286; MCASM)

“I would say the most stressful situations are when patients or their family members treat us poorly. It feels like there are no boundaries and we are just expected to accept disrespect—it feels like our empathy is turned against us and taken advantage of.” (174; MCSGME)

Many respondents described factors that precipitated or exacerbated an SVE, including threats of litigation and moral distress related to the patient’s or attending provider’s decision. Patient characteristics, including young age, or shared characteristics with themselves or a family member, were also factors that contributed to their distress.

“Another was a patient with no disposition options due to her behavior/dementia, and family refusal to take patient home and threatening to sue everyone on the care team for ‘poor care’ (...) I’m a physician, not as a lackey/glorified customer service agent. Makes me feel like I chose the wrong field of work.” (204; MCSGME)

“Family that did not want to rescind care for critically ill patient (...) When patient coded, he recommended that we do a ‘slow code’ so long as to not prolong the inevitable. This was an ethical quandary for me at the time.” (119; MCSGME)

Fifty-two (35.8%) respondents who did not report a SVE reflected on potentially traumatizing events, including medical error, patient death, patient cardiac codes, severe morbidity, combative or hostile patients, discrimination by patients and family members, staffing issues, and conflicts with supervisors.

“Aggressive, uncooperative patients. This could occur at any age and be due to a mental disability or not. Having a patient code or even die.” (74; MCSHS)

“Life threatening to provider or patient, violence, misogyny, inadequate supervision” (203, MCSGME)

Training Experiences that Influence SVE and Postevent Processing

Many learners reported that the clinical learning environment played a critical role in their ability to process and grow from traumatic experiences. Feeling unheard, unsupported, or blamed for the event by supervisors negatively impacted recovery.

“The way in which a supervisor handles reactions immediately after the event is critical. Blaming vs support and understanding makes all the difference in the long-term impact of traumatic events.” (155; program not reported)

“Sometimes interdisciplinary interactions can be the real reason an event is traumatic. I have had patients suddenly decompensate or go downhill and I have been blamed by other care professionals. I literally had one ICU nurse tell me they are all in NP school to fix the problem with stupid doctors.” (257; MCSHS)

While managing the situation during the event, trainees felt that their concerns and recommendations were often overlooked or ignored.

“I said to him [supervisor] that I did not believe the line was in the right place. I was ignored (...) a surgical consult was

called, and a chest tube placed to evacuate the fluid that came from the misplaced central line.” (300; MCSGME)

“As the [specialty] trainee, I was providing recommendations on how to manage the clinical scenario, and these were being ignored by the (...) consultant.” (94; program not reported)

Lack of support from supervisors and staff exacerbated high stress situations. Poor communication—or the discovery that the situation was discussed without their knowledge—left some learners feeling vulnerable and scrutinized.

“I was consistently told in front of my patients by my clinical instructor how poorly I was performing, but no offer of how to do better was provided. I had a patient escalate quickly to suicidal ideation and agitation and no resources were available for me to decompress from the situation.” (302; program not reported)

“I felt HORRIBLE, which I tried communicating to my preceptor (...) A few days later, another [preceptor] ... said that the preceptor I had had that day had been talking about it with him. I felt so incredibly vulnerable. I knew at that time I had been getting talked about behind my back and I just felt so betrayed.” (300; MCSGME)

Other learners described positive training experiences and supportive supervisors who helped process adverse patient events and traumatic situations. Constructive feedback and communication between learners and supervisors helped learners regain their confidence and mitigate negative emotional and professional impact.

“I think that overall, my supervising attendings handled the situation very well. [They] immediately recognized the problem and started (...) communicating to the team about what was going on and what he wanted to do. Due to the situation being a very rare situation, I did take initiative when I thought

appropriate and when I wasn't actively being asked by [them] to perform a specific duty." (235; MCSGME)

"It was helpful to know that [my supervisor] still trusted me after an adverse event." (221; MCSGME)

Trainees spoke about aspects of their conversations with supervisors that were helpful for postevent processing, including greater context on the situation and reassurance as needed.

"Speaking with supervisors [was helpful] because they come from a position of experience and wisdom. Reinforcement that our thought process was not incorrect and debriefing on what led to the issue is very helpful." (32; program not reported)

"Conversations with my peers and supervisors. As fellow medical professionals, they understand exactly what I am going through and can talk through the situation with a degree of medical knowledge that allows them to provide valuable insight and opinions." (155; program not reported)

Many also described seeking out conversations with family and friends for general emotional support or with fellow trainees to discuss medical facets of the event. One respondent noted, however, that speaking of involvement of medical errors reminds peers of their own vulnerability.

"Talking with my partner was most helpful because I do not have to worry about him judging me for this and that judgment affecting my workplace (...) Surprisingly my peers have sometimes been less supportive and understanding—probably because it scares them to think they might make the same mistakes." (5; MCSGME)

"They (...) all provide support in their own way, I think having multiple avenues for support is essential to success in [training]." (165; MCSGME)

Fear of judgment was cited by some trainees as a disincentive to seek support. Some participants expressed concern about how seeking out supportive resources may negatively impact their career.

"Having resources available without being judged using them. For example, if I were to experience a traumatic event and choose to step away for a moment, etc. I would want to be able to comfortably let whoever know that I was going to do that without feeling like it would (...) reflect badly on me." (74; MCSHS)

Others felt that additional training for supervisors on how to best support trainees would be beneficial to ensure that they are prepared to respond to learners after traumatic and adverse patient events.

"Need (...) program leadership to be required to undergo training to discuss how to emotionally respond to trainees [who report prior trauma]" (180; MCSGME)

"Educate the consultant physicians on how to interact with learners appropriately." (263; MCSHS)

DISCUSSION

The potential for SVE deserves heightened attention among health care learners because they are particularly at risk given baseline characteristics that may leave them more vulnerable. Our findings suggest that the clinical learning environment is essential to helping trainees feel supported, facilitate adaptive coping, and professionally develop after SVEs.

Influence of Training Experiences on SVE

Our thematic analysis suggests that processing occurs both during and after adverse patient events and that support should similarly be provided along the event continuum. Respondents stressed that open and effective communication between the clinical team—including trainees—and the opportunity to debrief as a team or one-on-one with a supervisor facilitate growth. Trainees experienced stronger SVE when they felt unheard, blamed, or

disparaged. Existing hierarchies in academic medicine may disincentivize learners from reporting adverse patient events,¹⁸ and hierarchical cultures may contribute to feelings of fear and intimidation among residents.¹⁹ Some trainees expressed that negative patient outcomes might have been avoided if their concerns were heard and acted on, suggesting that dismissal of concerns is both a patient safety concern and risk factor for SVE.

The culture of the clinical training environment also influences SVEs. Health care learners are often socialized into a culture of stoicism and perceived perfection, manifested as an expectation that health care professionals be immune to emotional harm.^{20,21} Some educational programs may view SVEs as a personal failing or a rare event rather than an expected and addressable outcome. Fears of stigmatization among trainees discourages those seeking support from supervisors or other institutional avenues.^{22,23} A benchmark of clinical perfection is known to inhibit disclosure, communication, and healing after SVEs.^{20,22} Academic programs should be attentive to how the broader institutional culture may hinder learners from seeking and receiving support after difficult clinical scenarios.

Facilitating Healthy Mentor-Mentee Relationships

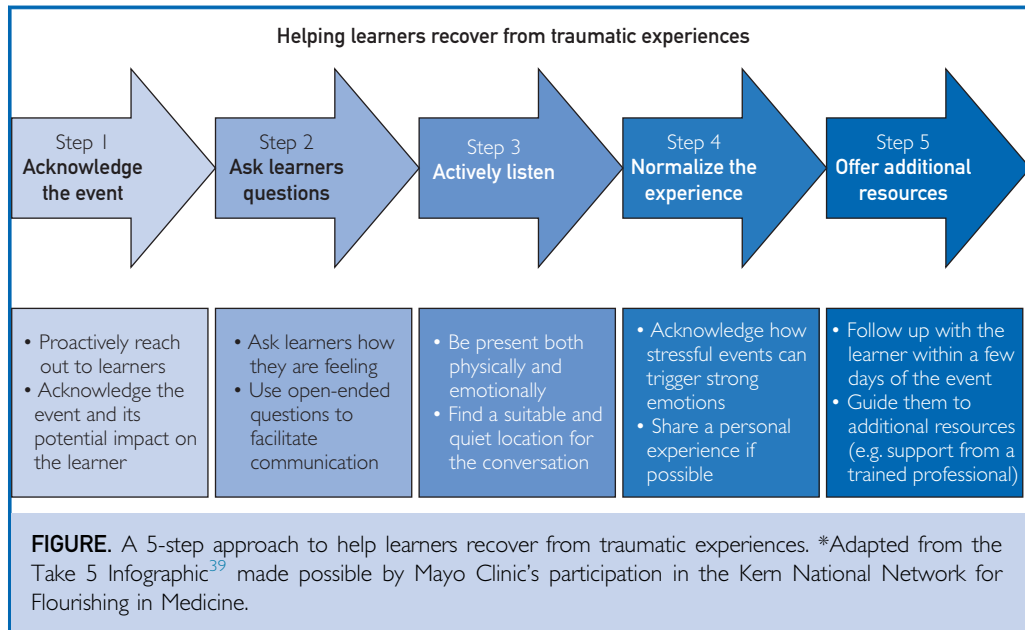
Respondents indicated that training experiences played a significant role in coping and processing after a traumatic event. Power dynamics between supervisors and learners shape training experiences and affect patient safety.^{19,24-26} In a cross-sectional survey, less than half of respondents discussed their most serious self-perceived medical error with the attending physician.⁶ Many expressed that interactions with supervisors directly impact emotional processing. Mentoring structures in health care can have positive impacts on learners by providing role models and mentors for emulation²⁷; some respondents stressed the importance and value of debriefs with a more experienced supervisor. Constructive feedback helped trainees contextualize the experience, regain confidence in their clinical skills, and/or reassured them that the outcome was out of their control. A small number, however, felt that the supervisor's responses

exacerbated the SVE and recommended enriched training on trauma and SVE for optimal postevent support.

Recommendations

Our findings indicate the need for inclusion of education on SVEs and adaptive coping methods as a standard part of health care program curriculums. New strategies to support learners, such as open discussion, emotional debriefs, and training on disclosure, discussion, and response to a traumatic event may be helpful. Educational methods to deliver SVE content may include didactic instruction, role playing, and round table discussions.²⁸⁻³⁰ Adverse events workshops may also be conducted using simulation with standardized actors as the patients and families of adverse patient events.³¹ Scenarios who may be helpful for faculty and health care learners include breaking bad news, high-risk-low-incidence clinical scenarios, and SVEs. Little evidence exists on the outcomes of the inclusion of SVE content in medical school or allied health educational curriculums, but surveys have consistently found limited awareness of the term SV.^{2,32-34} The specialty of nurse anesthesia developed an evidence-based 6-domain SV curriculum to define SV, high-risk situations, barriers for SVs, consequences of SVEs, evidence-based understanding and interventions frameworks, and support systems.³⁵ This framework can be translated to all health care professionals and included in the educational curriculum of any type of health care learner.

Several institutions have implemented peer support programs to support those experiencing SVEs, workplace violence, and other traumatic events, which may be inclusive of learners.^{2,28,36-38} However, more data are needed on how SVEs may uniquely impact learners and how programs can adopt support mechanisms to specifically address these experiences. Responses also suggest that supervisors and faculty may benefit from enhanced education on best practices to support trainees after medical errors or adverse events. Our institution developed a simple 5-step approach that faculty may use when helping health care learners recover from adverse events (Figure).³⁹ This strategy, along with ad hoc or routine debriefs may normalize the



experience and assist in growth and resiliency among trainees.

Strengths and Limitations

Open-ended questions allowed this survey to capture health care learners' experiences and thoughts on SVEs and characterize their support needs. Standard survey limitations apply, such as the reliance on self-reported behaviors, social desirability bias, and recall bias, which may have influenced responses. Trainees may have been reluctant to engage in this sensitive research topic, which may have hindered survey participation. Participants with stronger experiences may have been more likely to participate. Future studies should explore the influence of SVE on burnout, leaving the medical and health care professions, and the effectiveness of specific strategies to facilitate adaptive postevent processing in the learner population.

CONCLUSION

Respondents described clinical scenarios that left them feeling like an SV and how the influences of their clinical learning environment facilitated their postevent adaptation. It is essential that educational programs for health care learners possess awareness of SVEs, use heightened surveillance strategies, and provide

adequate resources for learners to thrive after stressful or traumatic clinical situations.

POTENTIAL COMPETING INTERESTS

The authors declare no conflicts of interest.

ACKNOWLEDGMENTS

The authors thank our respondents for sharing their experiences; Amy Weaver for her assistance with the demographic data; and Mayo Clinic Alix School of Medicine, Mayo Clinic School of Graduate Medical Education, and Mayo Clinic School of Health Sciences for their administrative help. Ms Huang and Ms Riggan contributed equally to this work.

SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at <http://www.mcpiqjournal.org>. Supplemental material attached to journal articles has not been edited, and the authors take responsibility for the accuracy of all data.


Abbreviations and Acronyms: SV, second victim; SVE, second victim experience

Affiliations (Continued from the first page of this article.): Engagement, Mayo Clinic Health System—Southwest Minnesota region, Mankato, MN (A.K.O.).

Grant Support: Financial support for the study was provided by Mayo Clinic's Education Shield. This study was additionally supported by grant ULI TR002377 from the National Center for Advancing Translational Sciences (NCATS). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH.

Correspondence: Address to Enid Y. Rivera-Chiauzzi, MD, 200 First Street SW, Rochester, MN 55905 (Rivera-Chiauzzi.Enid@mayo.edu; Twitter: @DrEnidRivera).

ORCID

Kirsten A. Riggan:  <https://orcid.org/0000-0002-0127-9555>; Enid Y. Rivera-Chiauzzi:  <https://orcid.org/0000-0001-6416-3923>

REFERENCES

- Wu AW. Medical error: the second victim: the doctor who makes the mistake needs help too. *BMJ*. 2000;320(7237):726-727. <https://doi.org/10.1136/bmj.320.7237.726>.
- Scott SD, Hirschinger LE, Cox KR, et al. Caring for our own: deploying a systemwide second victim rapid response team. *Jt Comm J Qual Patient Saf*. 2010;36(5):233-240. [https://doi.org/10.1016/s1553-7250\(10\)36038-7](https://doi.org/10.1016/s1553-7250(10)36038-7).
- Busch IM, Moretti F, Purgato M, Barbui C, Wu AW, Rimondini M. Psychological and psychosomatic symptoms of second victims of adverse events: a systematic review and meta-analysis. *J Patient Saf*. 2020;16(2):e61-e74. <https://doi.org/10.1097/PTS.0000000000000589>.
- Scott SD, Hirschinger LE, Cox KR, et al. The natural history of recovery for the healthcare provider "second victim" after adverse patient events. *BMJ Qual Saf*. 2009;18(5):325-330. <https://doi.org/10.1136/qshc.2009.032870>.
- Seys D, Wu AW, Gerven EV, et al. Health care professionals as second victims after adverse events: a systematic review. *Eval Health Prof*. 2013;36(2):135-162. <https://doi.org/10.1177/0163278712458918>.
- Fatima S, Soria S, Esteban-Cruciani N. Medical errors during training: how do residents cope?: a descriptive study. *BMC Med Educ*. 2021;21(1):408. <https://doi.org/10.1186/s12909-021-02850-1>.
- Rinaldi C, Ratti M, Russotto S, Seys D, Vanhaecht K, Panella M. Healthcare students and medical residents as second victims: a cross-sectional study. *Int J Environ Res Public Health*. 2022;19(19):12218. <https://doi.org/10.3390/ijerph191912218>.
- Klein HJ, McCarthy SM. Student wellness trends and interventions in medical education: a narrative review. *Humanit Soc Sci Commun*. 2022;9:92. <https://doi.org/10.1057/s41599-022-01105-8>.
- Torbenson VE, Riggan KA, Weaver AL, et al. Second victim experience among OBGYN trainees: what is their desired form of support? *South Med J*. 2021;114(4):218-222. <https://doi.org/10.14423/SMJ.0000000000001237>.
- Choi EY, Pyo J, Ock M, Lee H. Second victim phenomenon after patient safety incidents among Korean nursing students: a cross-sectional study. *Nurse Educ Today*. 2021;107:105115. <https://doi.org/10.1016/j.nedt.2021.105115>.
- Huang H, Chen J, Xiao M, Cao S, Zhao Q. Experiences and responses of nursing students as second victims of patient safety incidents in a clinical setting: a mixed-methods study. *J Nurs Manag*. 2020;28(6):1317-1325. <https://doi.org/10.1111/jonm.13085>.
- Van Slambrouck L, Verschueren R, Seys D, Bruyneel L, Panella M, Vanhaecht K. Second victims among baccalaureate nursing students in the aftermath of a patient safety incident: an exploratory cross-sectional study. *J Prof Nurs*. 2021;37(4):765-770. <https://doi.org/10.1016/j.profnurs.2021.04.010>.
- Winning AM, Merandi J, Rausch JR, et al. Validation of the second victim experience and support tool-revised in the neonatal intensive care unit. *J Patient Saf*. 2021;17(8):531-540. <https://doi.org/10.1097/PTS.0000000000000659>.
- Dyrbye LN, Satele D, Shanafelt T. Ability of a 9-item well-being index to identify distress and stratify quality of life in US workers. *J Occup Environ Med*. 2016;58(8):810-817. <https://doi.org/10.1097/JOM.0000000000000798>.
- Corbin J, Strauss A. *Basics of Qualitative Research*. SAGE; 2015.
- Saldana J. *The Coding Manual for Qualitative Researchers*. SAGE; 2012.
- O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med*. 2014;89(9):1245-1251. <https://doi.org/10.1097/ACM.0000000000000388>.
- Cantillon P, De Grave W, Dorman T. Uncovering the ecology of clinical education: a dramaturgical study of informal learning in clinical teams. *Adv Health Sci Educ Theory Pract*. 2021;26(2):417-435. <https://doi.org/10.1007/s10459-020-09993-8>.
- Bould MD, Sutherland S, Sydor DT, Naik V, Friedman Z. Residents' reluctance to challenge negative hierarchy in the operating room: a qualitative study. *Can J Anaesth*. 2015;62(6):576-586. <https://doi.org/10.1007/s12630-015-0364-5>.
- Robertson JJ, Long B. Suffering in silence: medical error and its impact on health care providers. *J Emerg Med*. 2018;54(4):402-409. <https://doi.org/10.1016/j.jemermed.2017.12.001>.
- Bell SK, Mooman DW, Delbanco T. Improving the patient, family, and clinician experience after harmful events: the "when things go wrong" curriculum. *Acad Med*. 2010;85(6):1010-1017. <https://doi.org/10.1097/ACM.0b013e3181dbedd7>.
- Abd Elwahab S, Doherty E. What about doctors? The impact of medical errors. *Surgeon*. 2014;12(6):297-300. <https://doi.org/10.1016/j.surge.2014.06.004>.
- Balogun JA, Bramall AN, Bernstein M. How surgical trainees handle catastrophic errors: a qualitative study. *J Surg Educ*. 2015;72(6):1179-1184. <https://doi.org/10.1016/j.jsurg.2015.05.003>.
- Friedman Z, Hayter MA, Everett TC, Matava CT, Noble LM, Bould MD. Power and conflict: the effect of a superior's interpersonal behaviour on trainees' ability to challenge authority during a simulated airway emergency. *Anaesthesia*. 2015;70(10):1119-1129. <https://doi.org/10.1111/anae.13191>.
- Okuyama A, Wagner C, Bijnen B. Speaking up for patient safety by hospital-based health care professionals: a literature review. *BMC Health Serv Res*. 2014;14:61. <https://doi.org/10.1186/1472-6963-14-61>.
- Pattni N, Arzola C, Malavade A, Varmani S, Krimus L, Friedman Z. Challenging authority and speaking up in the operating room environment: a narrative synthesis. *Br J Anaesth*. 2019;122(2):233-244. <https://doi.org/10.1016/j.bja.2018.10.056>.
- Watling C, Driessen E, van der Vleuten CP, Lingard L. Learning from clinical work: the roles of learning cues and credibility judgements. *Med Educ*. 2012;46(2):192-200. <https://doi.org/10.1111/j.1365-2923.2011.04126.x>.
- Finney RE, Jacob A, Johnson J, Messner H, Pulos B, Sviggum H. Implementation of a second victim peer support program in a large anesthesia department. *AANA J*. 2021;89(3):235-244.
- Rivera-Chiauzzi EY, Huang L, Osborne AK, et al. Rapid expansion of the healing emotional lives of peers program During COVID-19: a second victim peer support program for health-care professionals. *J Patient Saf*. 2024;20(1):28-37. <https://doi.org/10.1097/PTS.0000000000001179>.
- Finney RE, Jacob AK. Peer support and second victim programs for anesthesia professionals involved in stressful or traumatic clinical events. *Adv Anesth*. 2023;41(1):39-52. <https://doi.org/10.1016/j.aan.2023.05.003>.
- Putnam EM, Stratton KJ, Lehrian LE, Rochlen LR, Zisblatt L. A simulation workshop to introduce coping skills. *Clin Teach*. 2023;20(6):e13607. <https://doi.org/10.1111/tct.13607>.

32. Edrees HH, Paine LA, Feroli ER, Wu AW. Health care workers as second victims of medical errors. *Pol Arch Med Wewn*. 2011; 121(4):101-108.
33. Finney RE, Torbenson VE, Riggan KA, et al. Second victim experiences of nurses in obstetrics and gynaecology: a Second Victim Experience and Support Tool Survey. *J Nurs Manag*. 2021;29(4):642-652. <https://doi.org/10.1111/jonm.13198>.
34. Magaldi M, Perdomo JM, López-Baamonde M, Chanzá M, Sanchez D, Gomar C. Second victim phenomenon in a surgical area: online survey. *Rev Esp Anestesiol Reanim (Engl Ed)*. 2021; 68(9):504-512. <https://doi.org/10.1016/j.redare.2020.11.007>.
35. Daniels R, McCorkle R. Design of an evidence-based second victim curriculum for nurse anesthetists. *AANA J*. 2016;84(2): 107-113.
36. Busch IM, Scott SD, Connors C, Story AR, Acharya B, Wu AW. The role of institution-based peer support for health care workers emotionally affected by workplace violence. *Jt Comm J Qual Patient Saf*. 2021;47(3):146-156. <https://doi.org/10.1016/j.jcjq.2020.11.005>.
37. Edrees H, Connors C, Paine L, Norvell M, Taylor H, Wu AW. Implementing the RISE second victim support programme at the Johns Hopkins Hospital: a case study. *BMJ Open*. 2016; 6(9):e011708. <https://doi.org/10.1136/bmjopen-2016-011708>.
38. Rivera-Chiauszi EY, Smith HA, Moore-Murray T, et al. Healing our own: a randomized trial to assess benefits of peer support. *J Patient Saf*. 2022;18(1):e308-e314. <https://doi.org/10.1097/PTS.0000000000000771>.
39. Kern National Network for flourishing in medicine. Take 5: HELP: Healing the Emotional Lives of Peers. 2021: https://mssvideoupload.mayo.edu/media/HELPA+Healing+the+Emotional+Lives+of+Peers/1_jbfpri1/145913572. Accessed December 11, 2023.