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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THE SECOND VICTIM
PHENOMENON AND OCCUPATIONAL BURNOUT IN HEALTHCARE

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CARRIE BRANNON

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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THE SECOND VICTIM
PHENOMENON AND OCCUPATIONAL BURNOUT IN HEALTHCARE

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BY THE COMMITTEE CONSISTING OF

Dr. Jennifer L Kisamore, Chair

Dr. Eric Day

Dr. Chad Johnson

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Abstract

Adverse events are unexpected events or outcomes in healthcare that create considerable harm or lasting damage to a patient (Mira et al., 2015). Providers who have been affected by such events are referred to as “second victims.” This study investigated the relationship between healthcare provider involvement in adverse events and occupational burnout. Based on a convenience sample of 127 healthcare providers, results showed that second victims reported significantly higher rates of burnout than did unaffected healthcare providers. Among the 96 self-identified second victims, results revealed a significant positive correlation between personal distress and burnout and a significant negative correlation between organizational support and burnout. Qualitative results indicated that participants would like to see support from peers as well as system and process improvements to help them cope with adverse events. Results of the current study suggest that healthcare organizations should prioritize support mechanisms for second victims to potentially mitigate undesirable employee and organizational outcomes related to adverse patient events.

Keywords: burnout; second victim; organizational support; adverse events; patient safety

An investigation of the relationship between the second victim phenomenon and occupational burnout in healthcare

As healthcare advances into a more technological and complex system, providers are working with sicker patients who have more acute illnesses and injuries. Nationwide staffing shortages have necessitated that healthcare professionals work longer shifts and take on more extra hours than ever before (Blouin & Podjasek, 2019). These prolonged, highly demanding work expectations put healthcare providers at a greater risk for making medical errors or being involved in adverse events (Blouin & Podjasek, 2019). *Adverse events* are unexpected events or outcomes in healthcare that create considerable harm or lasting damage to a patient (Mira et al., 2015). While researchers previously focused on patient safety and improving systems, processes and communication, the last decade has brought about a different emphasis in research. Research is evolving to examine the psychological impact involvement in adverse events may have on healthcare providers (Burlison, Quillivan, Scott, Johnson & Hoffman, 2018).

The current study seeks to examine personal and organizational outcomes related to involvement in adverse events. Personal consequences such as psychological and physical symptoms including burnout as well as organizational outcomes such as turnover intention will be examined. Additionally, organizational support will be examined as a possible means to prevent undesirable outcomes to healthcare providers and organizations alike.

Second Victims

While patients are likely to be the party directly impacted by an adverse event, healthcare providers may also be affected by these undesirable occurrences. Broken processes and poor communication channels in healthcare organizations put all healthcare providers at risk for making medical errors, even competent and highly experienced ones (Scott et al., 2009). In 2000,

Albert Wu, M.D. coined the term “second victim” in his writings about how systemic errors can lead to patient harm and subsequently negatively impact physicians psychologically (Wu, 2000). The term “second victim” derived from the acknowledgement that patients are the first victims of such adverse events but are not the only ones affected. While Wu’s (2000) work focused on physicians as second victims, Denham’s (2007) work in developing the 5 rights of a caregiver subsequently expanded the concept of a second victim to include all other healthcare providers. Scott and colleagues (2009) further refined the definition of a second victim and described the reactions and outcomes second victims may experience. According to Scott and colleagues (2009),

Second victims are healthcare providers who are involved in an unanticipated adverse patient event, medical error and/or a patient-related injury and become a victim in the sense that the provider is traumatized by the event. Frequently, these individuals feel personally responsible for the patient outcome. Many feel as though they have failed the patient, second-guessing their clinical skills and knowledge base (p. 233).

Quillivan, Burlison, Browne, Scott and Hoffman (2016) indicated healthcare providers who experience the second victim phenomenon often experience personal distress such as undesirable physical, psychological and professional outcomes. For instance, second victims may experience psychological impact as is evidenced by episodes of depression as well as feelings of anger, guilt and shame. Second victims may also experience physical symptoms including but not limited to bouts of insomnia, anxiety and nausea. A second victim’s professional identity may also be affected; second victims may experience burnout, decreased job satisfaction, loss of job confidence and job-related stress among other unfavorable outcomes. Work by Shanafelt and colleagues (2010) revealed that involvement in an adverse event can leave a psychological impact on a physician that can last for years.

Burnout

Occupational burnout is a “behavioral reaction to the cumulative effects of workplace stressors” (Hatch, Potter, Martus, Rose & Freude, 2019, p 1). Burnout is pervasive in the healthcare sector; in fact, the study of burnout began in caregiving and service occupations.

Qualitative research has been conducted to identify causes and features of burnout; results suggest burnout is not a simple response to work overload but instead it is a multifaceted construct (Maslach, Schaufeli, & Leiter, 2001). Early work by Maslach and Jackson (1981) conceptualized burnout as consisting of three dimensions: emotional exhaustion, depersonalization or cynicism, and reduced personal accomplishment. More recent work suggests that burnout has only two dimensions, namely emotional exhaustion and cynicism, while reduced personal accomplishment is an outcome, not a dimension of burnout (Demerouti, Mostert, & Bakker, 2010). Meta-analytic work by Lee and Ashforth (1996) indicated that emotional exhaustion and depersonalization work in tandem with one another rather than independently.

The Job-Demands Resources model suggests that lack of resources such as performance feedback, job control, participation in decision-making, job security and support from supervisors all lead to exhaustion and disengagement (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Job demands such as the physical, psychological or social aspects of a job are connected to certain physical and psychological costs. Lack of resources, such as supervisor, peer or organizational support, will lead to an employee’s inability to meet the demands of the job, which leads to higher levels of burnout and withdrawal behaviors (Demerouti et al., 2001).

Even in the best of circumstances, healthcare providers are prone to experience occupational burnout. Changes in the way in which is healthcare delivered, increased staffing

shortages and the implementation of electronic health records contribute to burnout. Healthcare providers who suffer psychologically after adverse events, however, are at an even greater risk of occupational burnout (Van Gerven et al., 2016). Consequently, burnout is a common outcome that second victims experience (Gupta et al., 2019). Thus, it is predicted that:

Hypothesis 1. Healthcare providers who have been involved in an adverse event will report a significantly higher level of occupational burnout than will healthcare providers who have not been involved in an adverse event.

While burnout in any occupation is undesirable, burnout in healthcare is problematic especially in occupations like nursing or in rural locations where provider shortages are common. Organizational outcomes of burnout in every occupation typically include reduced productivity, financial loss such as the costs associated with absenteeism and high turnover. In healthcare, outcomes of burnout also include reduced quality of care, higher medical error rates, and reduced patient safety (Montgomery, Panagopoulou, Esmail, Richards & Maslach, 2019). Among American surgeons, high levels of burnout have been found to be correlated with an increase in the reporting of a medical error within the last three months (Shanafelt et al., 2010).

Organizational Culture and Support

In the aftermath of involvement in an adverse event, how a healthcare provider copes is unique to each person. Some second victims may suffer alone because they are too embarrassed to utilize their organization's employee assistance program for fear that it is not confidential or that there is a stigma attached to utilizing it (Edress, Morlock & Wu, 2017). Alternatively, second victims may believe that employee assistance counselors will not be able to give them effective counsel because they cannot really understand what it is like to be involved in adverse event. While most organizations offer employee assistance programs as formal organizational support mechanisms for second victims and other employees experiencing difficulty coping with life events, recent work by Krzan, Merandi, Morvay, and Mirtallo (2015) indicated that 83% of

healthcare providers at the University of Missouri Health Care System expressed need for support programs for second victims that involved peers or supervisors.

Hypothesis 2. Organizational and supervisor support will be negatively correlated both with burnout (H2a) and physical and psychological symptoms (H2b) for those involved in adverse events.

Research Question. What support resources do second victims believe would be most beneficial to them in coping with adverse patient events?

Healthcare organizations need to foster emotionally supportive cultures; such emotionally supportive cultures can promote emotional healing and reduce the suffering second victims face as a result of being involved in an adverse event (Quillivan et al., 2016). The Job Demands-Resource Model advises that by increasing job resources there should be a reduction in experiences of burnout (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). By providing resources such as organizational and supervisor support after adverse events, healthcare organizations can help their employees cope with the job demands. A literature review conducted by Chan, Khong and Wang (2017) suggested that an understanding organizational culture that has support mechanisms in place can alleviate the psychological impact of a healthcare provider's experience with an adverse event.

Hypothesis 3. Lack of support and physical and psychological distress will interact to predict burnout.

Employee Withdrawal

For this study, employee withdrawal is defined as behaviors employees take to physically separate themselves from the workplace; withdrawal behaviors can include tardiness, absenteeism and intentions to quit the organization. Turnover intention is an employee's intent to leave the organization voluntarily; turnover is costly for organizations as replacing employees requires recruitment, orientation time and other employees time to precept (Knudsen, Ducharme, & Roman, 2009). Turnover may create staffing shortages and even unrest in the affected

department due to the departure of long-tenured, well-respected employees. Absenteeism and tardiness also create staffing shortages, increase costs, and interrupt the continuity of care provided. Healthcare providers who harbor feelings of guilt over involvement in an adverse event and doubt their skills are likely to have intentions to leave the organization or even the occupation (Van Gerven et al., 2016). Thus, it is predicted that:

Hypothesis 4. Organizational and supervisor support will be negatively correlated with withdrawal behaviors (H4a) while physical and psychological distress will be positively correlated with withdrawal behaviors (H4b) for those involved in adverse events.

Given that burnout is believed to occur as the result of prolonged imbalances in employees' job demands and their available resources, burnout is likely to mediate the relationship between these stressors and employee withdrawal behaviors. Thus, it is hypothesized that:

Hypothesis 5. Burnout will mediate the positive relationship between physical and psychological distress and withdrawal behaviors (H5a) and the negative relationship between supervisor and organizational support and withdrawal (H5b) for those involved in adverse events.

Methods

Participants and Procedures

The study was approved by the Institutional Review Board for the Protection of Human Subjects at the University of Oklahoma (see Appendix A) prior to survey dissemination. The entire study, including consent and survey administration, was conducted online through Qualtrics. Recruitment of participants was conducted through social media sites (e.g., Facebook, LinkedIn and Twitter). A network sampling approach was used; the researcher's personal and professional networks served as the seed sample. Potential participants were asked to forward the study recruitment script to relevant members of their personal and professional networks to increase potential sample size. Additionally, the researcher joined several registered nurse groups via Facebook in order to distribute the survey to a larger population. The population of interest

for this study was healthcare providers who potentially who had been involved in an adverse event.

Potential participants first viewed a consent information screen that included information about the purpose of the research, the approximate time commitment for participation, and information related to risks and benefits of participation. Individuals who consented to participate were then asked the question, “Are you a current or former healthcare provider practicing in the last five years?” Participants who responded “yes” were directed to begin the survey; participants who responded “no” were redirected to a thank you screen and exited out of the survey. A total of 204 individuals consented to participate in the study. Of those, 127 were current or former healthcare providers while the remaining 77 respondents indicated that they were not a healthcare provider and thus not eligible to complete the survey.

Total healthcare provider sample. Of the sample of 127 healthcare providers, including those who were not involved in an adverse event, respondents were predominantly female (92.3%); all other respondents identified as male (7.7%) although other alternatives were provided. The modal age group was 45 to 54 years and comprised approximately 33% of the sample. Approximately 36% of respondents indicated having a 4-year college degree and about 45% of the sample reported a tenure in healthcare of 6 to 15 years. More than half (51.5%) of all respondents that answered the question “What type of healthcare setting are you employed in” indicated they worked in an acute care hospital. Of the total sample of healthcare providers, 40.8% self-identified as registered nurses, 7.7% indicated they were licensed practical nurses or licensed vocational nurses, and 19.2% indicated they worked in healthcare management. The remaining 32.3% of respondents worked in various occupations such as physical, occupational or speech therapy, physician’s assistant/nurse practitioner and licensed physician.

Second victim subsample. Skip logic was used so that those participants who had not experienced an adverse event were directed out of the survey after completing the Oldenburg Burnout Inventory. Of the 127 healthcare participants, 96 reported they had been involved in an adverse event. The characteristics of the second victims were similar to the total sample with 90.6% identifying as female and 9.4% male. The second victim subsample was comprised of 82% participants identifying as white with 7% as black and 7% as American Indian or Alaska native. Of the second victim subsample, 42% were registered nurses and 19.8% indicated they worked in healthcare management. In terms of work setting, the majority of second victims (57.3%) indicated working in an acute care hospital while the remaining second victim respondents indicated working in skilled nursing facilities (10.4%), physician's practices (7.3%). Twenty-four respondents (25%) chose the option of "other" when completing the question regarding "what type of healthcare setting are you in employed in."

Measures

Both quantitative and qualitative data were gathered. All measures were self-reported by participants and administered online through Qualtrics. All measures demonstrated acceptable internal consistency reliability.

Burnout. Burnout was measured using the Oldenburg Burnout Inventory (OBI) developed by Demourti, Bakker, Vardakou and Kantas (2003). The OBI is composed of 16 items designed to measure two dimensions of burnout: exhaustion and disengagement from work (see Appendix B). The OBI scale includes both positively and negatively worded statements. A sample item is "During my work, I often feel emotionally drained." Responses were made on a 7-point Likert-type scale with response options ranging from *strongly disagree* to *strongly agree*. Items were scored so that higher scores were indicative of higher levels of burnout. A principal

axis factor analysis using an oblique rotation was conducted to examine the factor structure of the OBI in the current sample. Results suggested items loaded clearly on an overall burnout scale rather than on two separate dimensions of burnout. Composite burnout scores were computed based on all 16 items. Cronbach's alpha based on the current data set was good ($\alpha=.88$).

Adverse event experience. One item was used to assess whether or not a respondent should be classified as a second victim. The item was "As a healthcare provider, I have been involved in an adverse patient event."

Second Victim Experience and Support Tool (SVEST). The second victim experience and support tool (SVEST) was developed by Burlison and colleagues (2017) in response to the lack of validated survey tools to measure second victim experiences and the appropriateness of organizational support resources. The SVEST consists of 29 items representing 7 dimensions including: psychological distress, physical distress, colleague support, supervisor support, institutional support, non-work-related support and professional self-efficacy (Burlison et al., 2017). The survey instrument utilized a 5-point Likert-type scale with response options ranging from *strongly agree* to *strongly disagree*. The complete scale is available in Appendix C.

Although factor analytic work by Burlison and colleagues (2017) indicated the SVEST is comprised of 7 scales, a series of factor analyses conducted with the current sample produced disparate results. An initial scree plot suggested 2, 6 or 7 factor solutions were most tenable; however, attempts to conduct principal axis factor analyses with 6 or 7 factors extracted were undefined. Extraction of two factors using an oblique rotation, specifically a promax rotation, yielded good results; the two factors extracted were labeled "personal distress" and "organizational support." See Table 1 for the retained items and factor loadings.

Personal distress. The personal distress scale was composed of 11 items from the physical distress, psychological distress, and professional self-efficacy scales. A sample item is “The mental weight of my experience is exhausting.” Higher scores were indicative of anguish manifesting in physical, emotional, and psychological symptoms as well as career-related angst. Cronbach’s alpha for the current sample was .907.

Organizational support. Organizational support was measured using 6 items from the supervisor support and institutional support scales. Higher scores were indicative of the impact supervisor and organizational support can have to mitigate the personal distress a provider may feel after involvement in an adverse event. A sample item is “My organization understands that those involved may need help to process and resolve any effects they may have on healthcare providers.” Cronbach’s alpha for the current sample was .879.

Withdrawal behavior. Withdrawal behavior was measured using 4 items used by Burlison and colleagues (2017). Higher scores were indicative of employees’ thoughts or actions of temporarily or permanently withdrawing through absenteeism or turnover intentions. A sample item is “Sometimes the stress from being involved with these situations makes me want to quit my job.” Cronbach’s alpha for the current sample was .747. See Appendix D for the full scale.

Demographic data. Demographic data was collected in order to describe key characteristics of the sample and for possible use as controls. Data was collected regarding gender, age, ethnicity, education level, years of experience as a healthcare provider, type of setting employed and current position.

Desired support resources. Participants were also asked to respond to an open-ended question in order to determine what types of support resources may be most beneficial for

helping healthcare providers cope with adverse events. The question was “What is your opinion on what would be the most helpful for helping healthcare providers cope with adverse events?”

Results

Quantitative analyses were conducted using IBM’s SPSS 24.0. Means, standard deviations, reliability coefficients, and bivariate correlations based on the current study’s quantitative data are reported in Table 2. Qualitative analyses were conducted by reviewing all comments and sorting responses into two categories: peer support versus process and systems improvement.

Hypothesis 1

Hypothesis 1 predicted that burnout scores would be significantly higher for healthcare providers who reported being involved in an adverse event as compared to those who did not report adverse event involvement. Results of an independent-samples t-test indicated that the healthcare providers who have been involved in an adverse event had significantly higher levels of burnout ($M=3.88$, $SD=.972$) than those who were not involved in an adverse event ($M=3.46$, $SD=.836$), $t(119)=-2.074$, $p=.040$. Thus, Hypothesis 1 was supported.

Hypothesis 2

Hypothesis 2 predicted that that organizational and supervisor support would be negatively correlated with burnout (H2a) and physical and psychological symptoms (H2b) for those healthcare providers who have been involved in an adverse event. Results showed that organizational support was significantly negatively correlated with burnout (H2a), $r(78) = -.461$, $p<.001$ and significantly negatively correlated with personal distress (H2b), $r(80)= .557$, $p<.001$. Thus, Hypothesis 2 was supported.

Hypothesis 3

Hypothesis 3 predicted there would be a moderation effect such that organizational support and personal distress would interact to predict burnout. Results supported H3 by showing that there is an accentuating effect on burnout. As shown in Figure 1 and Table 3, organizational support and personal distress interacted to predict burnout.

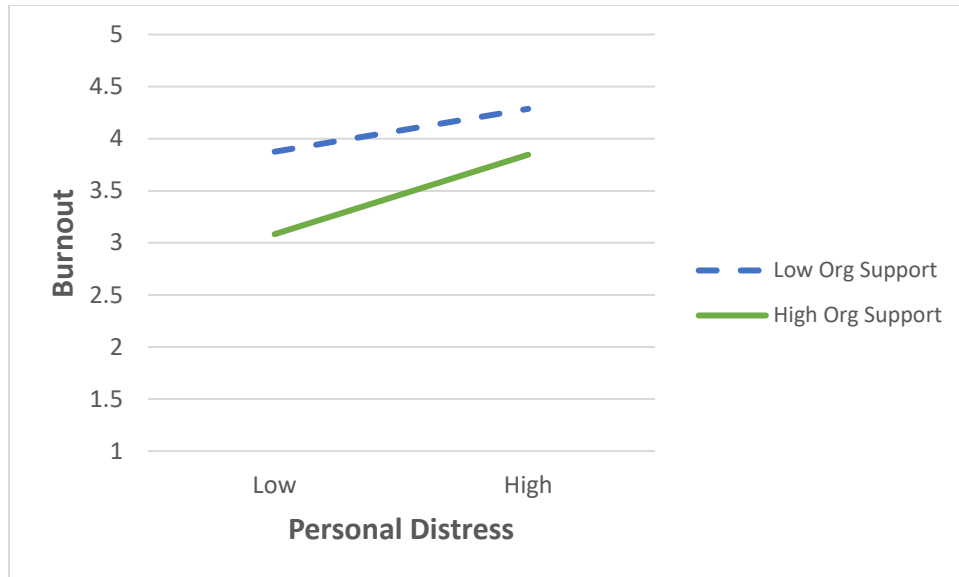


Figure 1. Interaction between personal distress and organizational support in the prediction of burnout.

Hypothesis 4

Hypothesis 4 predicted that for healthcare providers who were involved in adverse events, organizational and supervisor support would be negatively correlated with withdrawal behaviors (H4a) while personal distress would be positively correlated with withdrawal behaviors (H4b). Results supported both H4a and H4b. Organizational support was significantly negatively correlated with withdrawal behaviors, $r(81) = -.347, p = .001$. Furthermore, personal distress was significantly positively correlated with withdrawal behaviors, $r(80) = .556, p < .001$.

Hypothesis 5

Hypothesis 5 predicted burnout would significantly mediate the relationship between both personal distress and withdrawal behaviors (H5a) and organizational support and withdrawal behaviors (H5b). Results for H5a were not significant. The 95% bootstrap confidence interval for the indirect effect included zero [-.0208, .3014]. Results for H5b, however, were significant. As shown in Figure 1, this hypothesis was tested with Hayes' (2019) PROCESS macro for SPSS based on Model 4 and 5000 bootstrap samples (Hayes, 2018) and revealed the negative relationship between organizational support and withdrawal behaviors was partially mediated by burnout. The 95% bootstrap confidence interval for the indirect effect did not include zero [-.3080, -.0769]. Percent mediation was 52.9%.

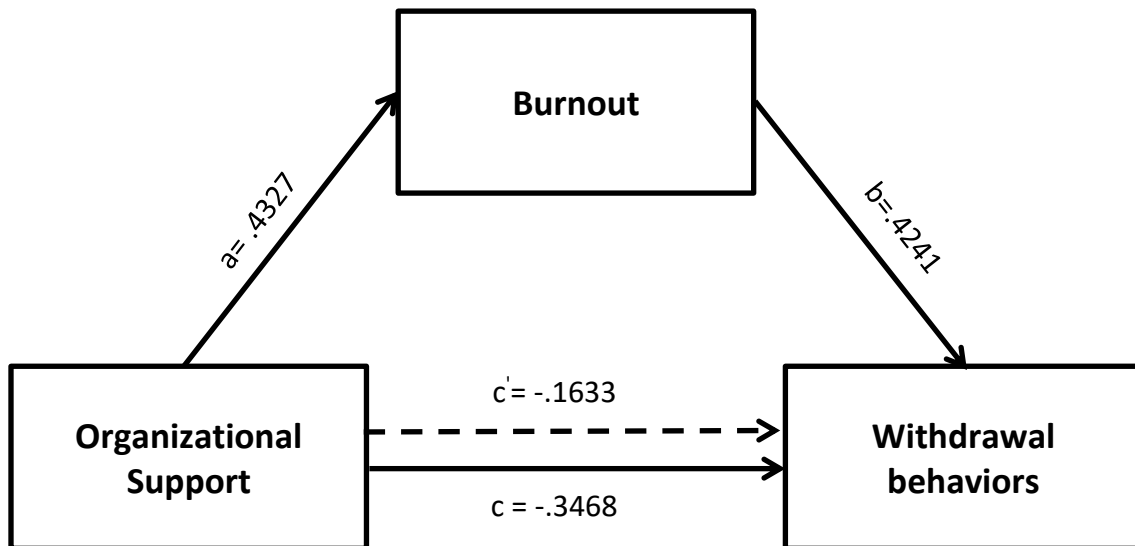


Figure 2. Significant mediation model in which occupational burnout mediates the relationship between organizational support and withdrawal behaviors.

Research Question

Survey participant comments regarding their opinion on what would be most beneficial for helping second victims cope with adverse events were downloaded and placed on individual notecards. Comments were then sorted based on response to determine if any themes emerged.

Two general themes emerged from the responses: the desire for support resources versus the desire for process and system improvements in the wake of an adverse event.

Support resources. The desire to debrief after the event with co-workers or trained professionals occurred in approximately 62% of responses. Respondents indicating finding peer support, a place to be able to openly discuss the event, opportunities for professional counseling and an optional day of paid time off following the event as important methods for coping with adverse event experiences.

Process and system improvements. Approximately 38% of respondents indicated desiring process and system improvements after experiencing adverse events. Respondents cited the need to have planned follow-up sessions months after the event to determine lessons learned and how to improve current systems and processes in order to prevent an adverse event from happening again. By allowing a follow-up session months later, respondents would be able to think more clearly. Respondents also indicated the need to foster a just culture in order to reduce a provider's fear that they would experience retribution for their involvement in an adverse event. Respondents noted that complex processes and systems make it cumbersome for healthcare providers to report adverse events or near misses. Without these reports, however, the organization is not able to determine the root causes of such events and subsequently address process and system limitations to increase the likelihood such events will occur in the future.

Discussion

The current study focused on second victims in the healthcare sector to better understand how feelings of distress and the availability of organizational support resources are associated with second victim outcomes including burnout and withdrawal behaviors. Specifically, results showed lack of organizational support, whether formal or informal, has a significant relationship

with burnout, which is related to employee withdrawal behaviors. This means that employees who do not perceive support from a supervisor or organization after involvement in an adverse event are more apt to have absenteeism issues and potentially leave the organization or healthcare all together. While personal distress and organizational support interact to predict burnout, it is important to understand that organizations cannot control employees' experiences or perceptions of experience but can mitigate the effects by providing adequate organizational support for healthcare providers involved in such events.

Implications for Healthcare Organizations

Results suggest that healthcare organizations should prioritize support mechanisms to potentially mitigate undesirable employee and organizational outcomes related to adverse patient events. Higher levels of burnout can lead to increased absenteeism and turnover in the organization and a decrease in quality of care (Jacobs, Nawaz, Hood & Bae, 2012). In order to support employees, organizations must make it a priority to establish formal support programs and foster an environment that also promotes informal support mechanisms for providers who are involved in adverse patient events. Healthcare providers who completed this survey noted they want “a safe place to discuss the problem and process it” and the ability to “talk through the event with another empathetic/sympathetic coworker “as well as process improvements in order to figure out what went wrong and how to prevent it from happening again. Santomauro, Kalkman and Dekker’s (2014) study of physicians found that only one in four healthcare providers received any type of organizational support after involvement in an adverse event.

The healthcare industry is still evolving in the way in which adverse events are addressed. Industries such as law enforcement and aviation have led the way in how employees are supported after a critical incident. Air traffic control organizations in Europe have formal

critical incident and stress management programs that are designed to deal with physical and psychological distress (Santomauro et al., 2014). By creating cultures that allow healthcare providers to report their involvement in adverse events without fear of retaliation and which offer support to affected providers, organizations and society at large will benefit by reducing distress among providers, enhancing provider well-being and potentially retaining providers in the healthcare sector.

Limitations of the Study

The current study has several limitations. Due to the cross-sectional design of the study, cause-and-effect relationships cannot be inferred, for instance, between involvement in adverse events, personal distress, burnout and withdrawal behaviors. Additionally, participants were recruited using a network sampling strategy which may limit the diversity of types of healthcare providers who served as participants. This is likely because the researcher's personal and professional networks were used for recruiting and people tend to network with those who are like themselves. Thus, the participants may be a unique subgroup within the target population of healthcare providers. Use of random sampling would help ensure a representative sample that would allow generalization to the population of healthcare providers from which the sample was drawn.

Directions for Future Research

There are several ways in which this study could be improved upon for future research. First, longitudinal research is needed that explores whether adverse events are antecedents or consequences of healthcare provider burnout. As discussed previously, healthcare providers are often working long hours in understaffed organizations. Thus, it is unclear whether adverse events lead to burnout, whether burnout leads to adverse events, or if the relationship is

reciprocal in nature. Longitudinal research is needed to determine the causal links between involvement in an adverse event, burnout, and withdrawal behaviors.

Additionally, future research should focus on how organizations can decrease the level of burnout among healthcare providers. For those organizations that do have support mechanisms in place, research is needed to determine what types of support mechanisms are most beneficial and whether there are other factors that affect the efficacy of different support mechanisms in different circumstances.

Conclusion

Healthcare providers practice in an ever changing and complex environment. As the potential for involvement in adverse events rises, healthcare organizations need to consider the outcome on their greatest asset – their providers. Without implementation of formal or informal support programs, organizations will likely become burdened with higher staff absenteeism rates, increases in voluntary turnover and symptoms of personal distress among caregivers. On the contrary, organizations that support their healthcare providers through these events will potentially gain a more loyal and engaged workforce due to the investment in the emotional wellbeing of providers after involvement in an adverse event.

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Table 1*Factor loadings of retained SVEST items*

<i>Item</i>	<i>Factor 1 Personal Distress</i>	<i>Factor 2 Organizational Support</i>
The mental weight of my experience is exhausting.	.891	
My experiences have made me feel miserable.	.895	
My experience with these occurrences can make it hard to sleep regularly.	.894	
I feel deep remorse for my past involvements in these types of events.	.898	
Thinking about these situations can make it difficult to have an appetite.	.897	
The stress from these situations had made me feel queasy or nauseous.	.899	
I have experienced embarrassment from these instances.	.901	
I appreciate my coworkers' attempts to console me, but their efforts can come at the wrong time.	.904	
My involvement in these types of instances has made me fearful of future occurrences.	.901	
Following my involvement, I experienced feelings of inadequacy regarding my patient care abilities.	.903	
My experience makes me wonder if I am not really a good healthcare provider.	.900	
My supervisor's responses are fair.		.846
I feel that my supervisor treats me appropriately after these occasions.		.843
I feel that my supervisor evaluates those situations in a manner that considers the complexity of patient care practices.		.859
My supervisor blames individuals.		.860
My organization understands that those involved may need help to process and resolve any effects they may have on healthcare providers.		.860
My organization offers a variety of resources to help me get over the effects of the involvement with these instances.		.878

Note: Loadings <.25 were omitted to facilitate interpretation.

Table 2*Means, standard deviations, and correlations*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Burnout	3.785	.979	(.877)			
2. Personal Distress	3.010	.938	.557***	(.907)		
3. Organizational Support	3.343	1.033	-.461***	-.459***	(.879)	
4. Withdrawal Behaviors	2.618	1.066	.461***	.556***	-.347**	(.747)

N=varies between 79 and 83 due to missing responses; * $p < .05$; ** $p < .01$, *** $p < .001$

Note: Cronbach alpha coefficients are listed on the diagonal

Table 3*Results of Moderated Regression Analysis*

Variables	Burnout			
	R ²	Adj. R ²	β	<i>p</i>
Step 1	.364	.347		.000
Personal distress			.442	.000
Organizational support			-.258	.014
Step 2	.408	.384		.000
Personal distress			-.458	.000
Organizational support			-.346	.002
Personal distress x Organizational support			-.230	.021

N=79

Appendix A

Oldenburg Burnout Inventory

Instruction: Below you will find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with each statement.

	Strongly Agree	Moderately Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Moderately Disagree	Strongly Disagree
1. I always find new and interesting aspects in my work.	1	2	3	4	5	6	7
2. There are days when I feel tired before I arrive at work.	1	2	3	4	5	6	7
3. It happens more and more often that I talk about my work in a negative way.	1	2	3	4	5	6	7
4. After work, I tend to need more time than in the past in order to relax and feel better.	1	2	3	4	5	6	7
5. I can tolerate the pressure of my work very well.	1	2	3	4	5	6	7
6. Lately, I tend to think less at work and do my job almost mechanically.	1	2	3	4	5	6	7
7. I find my work to be a positive challenge.	1	2	3	4	5	6	7
8. During my work, I often feel emotionally drained.	1	2	3	4	5	6	7
9. Over time, one can become disconnected from this type of work.	1	2	3	4	5	6	7
10. After working, I have enough energy for my leisure activities.	1	2	3	4	5	6	7
11. Sometimes I feel sicken by my work tasks.	1	2	3	4	5	6	7
12. After my work, I usually feel worn out and weary.	1	2	3	4	5	6	7
13. This is the only type of work I can see myself doing.	1	2	3	4	5	6	7
14. Usually, I can manage the amount of my work well.	1	2	3	4	5	6	7
15. I feel more and more engaged in my work.	1	2	3	4	5	6	7
16. When I work, I usually feel energized.	1	2	3	4	5	6	7

Note: Disengagement items are 1, 3(R), 6(R), 7, 9(R), 11(R), 13, 15. Exhaustion items are 2(R), 4(R), 5, 8(R), 10, 12(R), 14, 16. (R) means reversed item when the scores should be such that higher scores indicate more burnout.

Appendix B

Second Victim Experience and Support Survey (SVEST)

Survey Dimensions and Outcome Variables

The following survey will evaluate your experiences with adverse patient safety events. These incidents may or may not have been due to error. They also may or may not include circumstances that resulted in patient harm or even reached the patient (i.e., *near-miss* patient safety events). Please indicate how much you agree with the following statements as they pertain to yourself and your own experiences your organization. The responses are rated on a 1-5 Likert scale.

	Strongly Agree	Someone Agree	Neither Agree nor Disagree	Somewhat disagree	Strongly Agree
Psychological Distress	1	2	3	4	5
I have experienced embarrassment from these instances.	1	2	3	4	5
My involvement in these types of instances has made me fearful of future occurrences.	1	2	3	4	5
My experiences have made me feel miserable	1	2	3	4	5
I feel deep remorse for my past involvement in these types of events.	1	2	3	4	5
Physical Distress					
The mental weight of my experience is exhausting.	1	2	3	4	5
My experience with these occurrences can make it hard to sleep regularly.	1	2	3	4	5
The stress from these situations has made me feel queasy or nauseous.	1	2	3	4	5
Thinking about these situations can make it difficult to have an appetite.	1	2	3	4	5
Colleague Support					
I appreciate my coworkers' attempts to console me, but their efforts can come at the wrong time.	1	2	3	4	5
Discussing what happened with my colleagues provides me with a sense of relief. ^a	1	2	3	4	5
My colleagues can be indifferent to the impact these situations have had on me.	1	2	3	4	5
My colleagues help me feel that I am still a good healthcare provider despite my mistakes I have made. ^a	1	2	3	4	5

Supervisor Support

I feel that my supervisor treats me appropriately after these occasions. ^a	1	2	3	4	5
My supervisor's responses are fair. ^a	1	2	3	4	5
My supervisor blames individuals.	1	2	3	4	5
I feel that my supervisor evaluates these situations in a manner that considers the complexity of patient care practices. ^a	1	2	3	4	5

Institutional Support

My organization understands that those involved may need to help process and resolve any effects that may have on care providers. ^a	1	2	3	4	5
My organization offers a variety of resources to help me get over the effects of involvement with these instances. ^a	1	2	3	4	5
The concept of concern for the well-being of those involved in these situations is not strong at my organization.	1	2	3	4	5

Non-Work-Related Support

I look to close friends and family for emotional support after one of these situations happens. ^a	1	2	3	4	5
The love from my closest friends and family helps me get over these occurrences. ^a	1	2	3	4	5

Professional Self-efficacy

Following my involvement, I experienced feelings of inadequacy regarding my patient care abilities.	1	2	3	4	5
My experience makes me wonder if I am not really a good healthcare provider.	1	2	3	4	5
After my experience, I became afraid to attempt difficult or high-risk procedures.	1	2	3	4	5
These situations do not make me question my professional abilities. ^a	1	2	3	4	5

^a Reverse-coded item

Appendix C

Withdrawal Behaviors

	Strongly Agree	Someone Agree	Neither Agree nor Disagree	Somewhat disagree	Strongly Agree
My experience with these events has led to a desire to take a position outside of patient care.	1	2	3	4	5
Sometimes the stress from being involved with these situations makes me want to quit my job.	1	2	3	4	5
My experience with an adverse patient event or medical error has resulted in me taking a mental health day.	1	2	3	4	5
I have taken time off after one of these instances occurs.	1	2	3	4	5

Appendix D

IRB Approval Letter



Institutional Review Board for the Protection of Human Subjects
Approval of Initial Submission – Exempt from IRB Review – AP01

Date: December 17, 2019

IRB#: 11545

Principal Investigator: Carrie Lynn Brannon

Approval Date: 12/16/2019

Exempt Category: 2

Study Title: Effect of second victim phenomenon on occupational burnout in healthcare

On behalf of the Institutional Review Board (IRB), I have reviewed the above-referenced research study and determined that it meets the criteria for exemption from IRB review. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Request approval from the IRB prior to implementing any/all modifications as changes could affect the exempt status determination.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- Notify the IRB at the completion of the project.

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or irb@ou.edu.

Cordially,

A handwritten signature in blue ink that reads 'Fred Beard'. The signature is written over a horizontal line.

Fred Beard, Ph.D.
Vice Chair, Institutional Review Board