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## RESEARCH ARTICLE OPEN ACCESS

# The Silence Is Deafening: Exploring the Impacts of Serious Incidents on Practitioners Across the Outdoor and Adventure Programs Work System

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## ABSTRACT

Findings from studies within safety-critical domains such as healthcare confirm that professionals can experience emotional distress, often long-lasting, from their involvement in serious incidents. Known as “second victims,” these professionals commonly report reactions such as fear, guilt, shame, self-doubt, anger, and disappointment. However, little is currently known regarding the impact of these events on the multiple stakeholders situated further across the work system (e.g., the initial call receiver in the office, managers, coordinators, recruitment, training, and executive staff). This article reports on a study investigating the psychological, emotional and relational impact of serious incidents on practitioners situated across organizational hierarchies within the global outdoor and adventure programs sector. A total of 147 respondents reported 171 incidents, 73 of which were fatal. Respondents occupied a range of roles during these incidents, including instructor, coordinator, managers, and senior directors. Findings reveal that individuals across a wide range of organizational roles—including those not physically present at the incident scene—reported a range of personal and professional psychological, emotional and relational impacts. The most common effects included hypervigilance upon returning to work and negative impacts on personal relationships, experienced by over half of the respondents. These findings have important implications for leaders in safety-critical domains, highlighting the need for whole-of-work system post-incident responses that actively support the well-being of all involved, regardless of their role or proximity to the incident.

## 1 | Introduction

Despite ongoing efforts within the global outdoor and adventure programs (OAP) sector—which includes activities such as kayaking, hiking, rock climbing, and skiing—serious incidents continue to occur (McLean et al. 2022; Salmon et al. 2017). Such events can have a life-changing effect on the victims and their families, and can lead to significant physical, psychological, social, and financial impacts (Ajango 2005; Ottosen et al. 2021; Mazor et al. 2010; Bell et al. 2010). When a serious incident

occurs, the first priority is to attend to and provide support for the victim and their family members (Seys et al. 2013).

As well as the significant harm experienced by the victims and their families, multiple studies have found that professionals directly involved in serious incidents, regardless of their severity, can also experience emotional distress (Scott et al. 2009; Wu 2000; Dekker 2013). The level of distress experienced can vary, frequently influenced by factors such as the severity of the event, perceived responsibility, and victim outcomes (Dekker 2013).

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This distress is known as the “second victim” phenomenon (Wu 2000). Scott et al. (2009) define second victims within the healthcare sector as providers who are involved in an unanticipated adverse event and who become traumatized by it (Scott et al. 2009). Reported reactions of second victims include behavioral, emotional, cognitive, social, and physical impacts (Ullström et al. 2014). Emotional reactions, including fear, guilt, shame, self-doubt, anger, and disappointment, are frequently reported (Seys et al. 2013) and can be similar to those found in posttraumatic stress disorder (Rassin et al. 2005). These emotional effects can last for weeks or up to several years (Wu and Steckelberg 2012; Waterman et al. 2007).

Within health care, it is estimated that half of all practitioners may have experienced a second victim impact at least once in their career (Stewart et al. 2015; Wu and Steckelberg 2012). Additional reported impacts include long-lasting insecurity in the practitioners' professional roles (Ullström et al. 2014), professional paralysis, and increased defensive practice due to the fear of experiencing another serious incident (Dekker 2013). In some cases, skilled practitioners have exited their career entirely (Ullström et al. 2014).

Within health care, regardless of gender, professional position, or years served, the second victim phenomenon has been described as a life-altering experience that leaves a permanent impact on the individual (Scott et al. 2009). To date, the research focus on the impact of serious incidents has largely been directed at the impact on individuals situated at the event itself (nurses, doctors, paramedics) (Scott et al. 2009; Ullström et al. 2014). Little is currently known regarding the impact of these events on the multiple stakeholders situated further across the work system (e.g., the initial call receiver in the office, managers, coordinators, recruitment, training, and executive staff).

Further, within the OAP sector, research aimed at improving safety performance has predominantly focused on topics such as accident prevention and analysis (Ajango 2000; Salmon et al. 2010, 2017), judgment and decision-making (Mees et al. 2022), emergency management planning (Barton 2006), risk communication (Dallat 2009), situation awareness (Aadland et al. 2017), risk assessment (Dallat et al. 2015, 2018), and safety motivation (Jackson 2019). With the exception of Mundo et al. (2023); Dallat (2018) and Ajango (2000, 2005), little attention has been directed towards the personal and professional impacts of serious incidents on OAP practitioners—those situated both proximally to the event, and those further across the work system.

The aim of this study therefore was to investigate the impacts of serious incidents on OAP practitioners who were situated across the organizational work system.

## 2 | Materials and Methods

### 2.1 | Sample and Recruitment

An online voluntary survey study design was adopted, and the research was approved by the Prescott College Human Ethics Committee. Practitioners situated across the global OAP sector who had been directly involved in a serious incident (however they chose to define it), either at the incident site or peripherally

(e.g., as a course director, staff member or administrator) were invited to answer questions about aspects of their experience and emotions after the incident. The study was advertised via several outdoor adventure and professional membership associations, as well as through multiple social media sites and individual OAP practitioners.

### 2.2 | Survey Development

The survey questions were generated based on the research aims, a review of the second victim literature (Scott al. 2009; Seys et al. 2013; Dallat et al. 2021), and insights from the Second Victim Experience and Support Tool (Burlison et al. 2017). In line with the aims expressed above, the questions were developed to elicit information on the personal and professional impacts of serious incidents on OAP practitioners and a better understanding of the extent to which practitioners across the work system may become impacted. Further, the survey questions were targeted to generate insights into the type of interventions that are regarded by OAP participants as helpful to their recovery, following their involvement in a serious incident. For respondents who wished to report on more than one incident, this was facilitated through the survey design (up to six separate incidents). Appendix 1, Survey Questions, displays the survey questions and response options. The first and second authors (C. D. and D. M.) conducted pilot testing on four OAP practitioners from across three countries. Minor adjustments were made to the initial survey layout.

### 2.3 | Procedure

The study involved participants completing an online survey. Practitioners who expressed interest in participating were directed to a secure, web-based application used to collect and organize the data. Participants were requested to enter their responses to the questions posed in Appendix 1, Survey Questions. The data being reported on in this study was collected over a 13-month period (September 2022–October 2023).

### 2.4 | Data Analysis

The data from the online survey tool was downloaded and exported into a Microsoft Excel spreadsheet. Responses to categorial questions were summarized using descriptive statistics, and responses to open-ended questions were qualitatively analyzed. Responses were coded using a thematic analysis approach (adapted from Braun and Clarke 2006) that involved coding responses descriptively into themes. For example, in response to a question requesting recommendations for supporting OAP practitioners following their involvement in a serious incident, the response, “Constant and continual check up with people to ensure they are ok even after the incident,” was coded as “Regular check-ins.” The first author took the lead in the analysis, and two co-authors (V. M. and S. S.) read a subset of open-ended responses and themes generated, and any discrepancies were resolved through discussion with the author team until agreement was reached.

### 3 | Results

#### 3.1 | Respondents

In total, 147 respondents (83 men, 58 women, 5 non-binary, 1 prefer not to answer) completed the survey. On average, respondents were 47.0 years old (SD = 13.2, range: 20–77), and had 20.98 years of experience in the OAP sector (SD = 11.9, range: 1–51 years). Respondents were on average 34.1 years old at the time of the incident they were reporting on (SD = 10.6, range: 21–78 years). Out of 145 respondents, 117 (81%) are currently working in the sector. Two chose not to answer.

Respondents were asked to share their highest level of education at the time of incident. Results indicated that a high level of educational qualifications was held by respondents with a bachelor's degree or higher (Master's, Professional, and PhD) in 122 reported incidents (71%).

##### 3.1.1 | Role Structure at Time of Incident

Respondents were asked to provide information regarding the role structure they were operating within at the time of the incident(s). Most, 84% ( $n = 141$ ) of respondents were in a paid working capacity, with 14 (8%) operating as a volunteer (e.g., ski patrol), and 5 (3%) students. In two incidents, the role structure was not provided.

##### 3.1.2 | Respondents' Role at Time of Incident

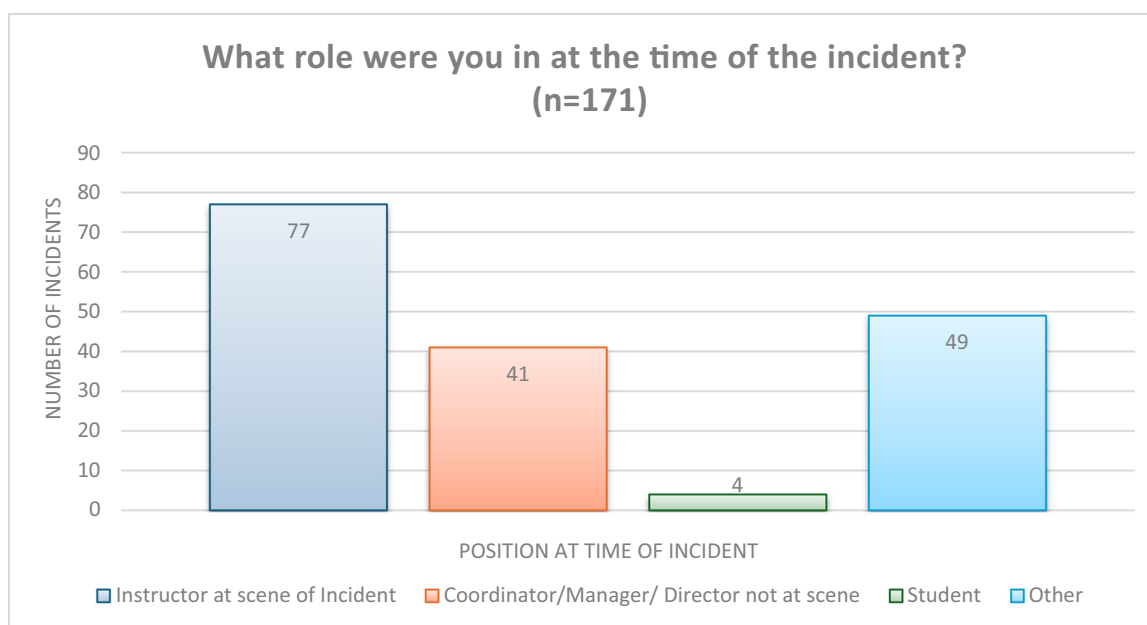
Respondents were asked to provide details of the role they were in at the time of incident. The data presented in Figure 1 indicates that a range of respondents were proximal to the incident scene, and notably, multiple other respondents who were not at the scene and who were operating in a different response capacity.

A total of 77 (45%) respondents were working as instructors at the scene of the incident. Multiple respondents 41, (24%) reported that they were working in an incident supporting role—as either a coordinator, manager or director, and were not at the scene of the incident. Four (2%) respondents stated that they were students at the time of the incident and at the scene. Notably, a significant number of respondents ( $n = 49$ , 29%) identified that they were in other roles from those described above. Of these, 12 (24.5%) reported that they were managers or directors on scene at the time of the incident (not operating in an instructor role), 12 (24.5%) were working in a dedicated medical/search and rescue role, 10 (20%) were ski patrollers, 4 (8%) were practitioners working for another organization proximal to the incident site, 3 (6%) were off duty staff from the organization involved who offered support, and 3 (6%) were colleagues of the staff members responding in the field. Finally, the remaining 5 (10%) of respondents in the “other” category were in roles such as “additional adult volunteer” and “external risk management committee member.”

Overall, a total of 53 (31%) of respondents were in senior operational or leadership roles within the organization involved in the serious incident.

##### 3.1.3 | Relationship Status at Time of Incident

As one of the aims of this study was to further understand the personal and professional impacts of serious incidents on practitioners, respondents were asked to provide details on their relationship status at the time of incident(s). Most respondents reported they were in a married/domestic partnership ( $n = 79$ , 46%). Many, 47 (27%) reported they were dating, and 30 (18%) were single at the time. A few, 5 (3%) were divorced or separated, and 8 (4%) provided other responses (e.g., “it's complicated”). Two (1%) respondents preferred not to answer.



**FIGURE 1** | Respondents' role at time of incident.

## 3.2 | Incidents

### 3.2.1 | Number of Incidents

A total of 171 serious incidents were reported, 73 (43%) of which were fatal (see Figure 2).

### 3.2.2 | Type of Incident(s)

Respondents were invited to share, to the extent they felt comfortable, a description of the serious incident(s) they experienced (see Table 1). Incidents associated with snow-based activities were reported most frequently ( $n = 38$ , 22%) and accounted for the highest number of fatal outcomes ( $n = 21$ , 29%). This was followed by hiking/bushwalking ( $n = 27$ , 16%) with seven fatalities (10%), and water-based activities such as canoeing, kayaking, and rafting ( $n = 22$ , 13%), which resulted in eight fatalities (11%). Single incidents where a fatal outcome occurred were reported in an activity or context, including a workplace shooting, bear attack, sexual violence, bites/stings, and scuba diving. Reported incidents with no fatal outcome included activities involving high ropes/zipline ( $n = 6$ , 3.5%), base camping ( $n = 4$ , 2%), solo (students on their own not directly supervised) ( $n = 4$ , 2%), participants or staff in psychological distress ( $n = 4$ , 2%), other ( $n = 3$ , 1.8%), and occupational violence ( $n = 1$ , 0.5%).

## 3.3 | Impact of Incident(s) on Practitioners

### 3.3.1 | Personal Relationships

Respondents were asked to describe the impact of their involvement in the incident on their personal relationship, as well as the impact of the relationship on their recovery. A total of 126 respondents answered this question (31 respondents were either not in a relationship at the time of the incident or chose not to answer). Of the 140 (74%) respondents who were in a relationship at the time of their incident, 82 (59%) stated that the incident had an impact. Of those 82 respondents, 51 (63%) confirmed that the impact on their relationship was negative, and 31

(37%) reported positive impacts associated with the incident on their personal relationships; these primarily being related to the support they received from their partner. Table 2 provides an overview of the themes as well as example illustrative quotes that emerged from respondents who experienced a negative impact on their personal relationships. Table 3 outlines the themes and example comments associated with those practitioners who reported a positive impact on their personal relationships.

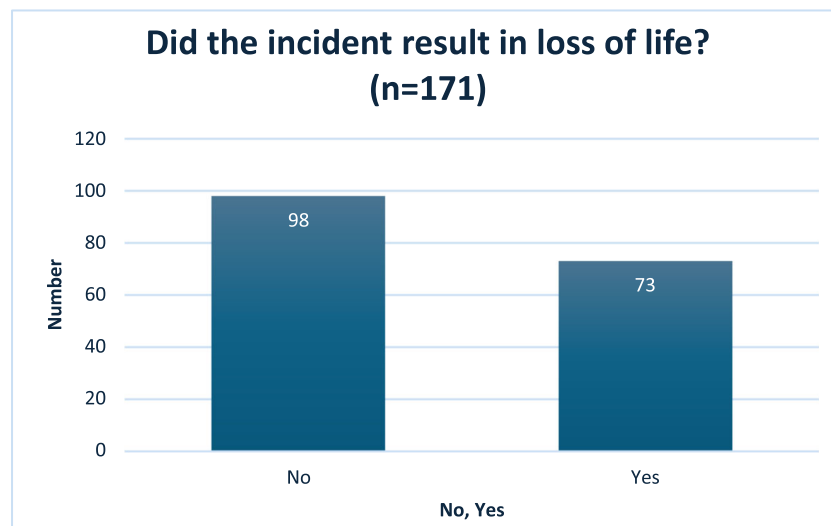
### 3.3.2 | Negative Impact on Personal Relationships

Several themes emerged that were associated with practitioners who reported negative impacts on their personal relationships. A notable theme influencing the incident's negative impact on relationships was one partner's inability—or perceived inability—to understand the severity and context of the incident. Additionally, difficulty in regulating emotions, leading to expressions of anger, withdrawal, and further isolation from their partners, was reported by practitioners. Some respondents commented on their use of alcohol to address their pain. Being unable to safely and openly talk about the incident emerged as a theme for those respondents who reported negative impacts on their personal relationships. This, in turn, was reported to lead to their partner's increased frustration and anger as they did not know how to provide support.

The creation of increased distance between partners was an apparent theme in those who expressed negative impacts in their relationships—this, in turn, led to, for some, even further withdrawal, irritability, and an eventual inability to continue the relationship. Relationships that were not seen as strong, or where there were existing concerns, before the incident, were also highlighted by several respondents as becoming untenable following the incident.

### 3.3.3 | Positive Impact on Personal Relationships

Two dominant themes emerged that were associated with practitioners who reported positive impacts in their personal



**FIGURE 2** | Reported fatal and nonfatal incidents.

**TABLE 1** | Activity/context of reported incidents.

Activity/context	Total incidents reported (n = 171)	Number of fatal incidents (n = 73)	Additional context
Skiing/snowboarding/glissading	38	21	Avalanches, collisions, falls
Canoeing/kayaking/rafting/coasteering	22	8	Drowning
Hiking/bushwalking	27	7	Severe weather, lost participants, falls
Mountaineering/glacier travel	12	6	Falls
Pre-existing medical conditions	9	4	Anaphylaxis, cardiac conditions
Rock climbing	8	4	Falls
Caving (wet)	5	4	Drowning
Vehicle related	7	3	Car/helicopter/quad bike crashes
Ice climbing	3	3	Falls
Death by suicide	3	3	
Tree fall	2	2	Severe weather
Swimming	2	2	Drowning
Mountain biking	6	1	
Workplace shooting	1	1	
Bear attack	1	1	
Sexual violence	1	1	
Scuba diving	1	1	Tsunami event
Bites/stings	1	1	
High ropes/zipline	6	0	Entanglement, falls
Base camping	4	0	Severe burns
Solo (students not directly supervised)	4	0	Severe burns
Participants or staff in psychological distress	4	0	Use of illicit drugs, racism
Other	3	0	Unable to identify, animal death
Occupational violence	1	0	Unknown attack on person

relationships. First, their partner could relate to the incident and their experience. Multiple respondents shared how their partners worked in the OAP sector, and as such, they were able to talk about the incident in a way that their partners understood. Second, the partner was highly supportive, meaning they could talk with them about the incident in a way that was helpful, kind, and empathetic.

### 3.4 | Reported Reactions Following Incident(s) on Practitioners

Figure 3 depicts that the most frequently reported reaction experienced by respondents following an incident was *hyper-vigilance* in relation to risk management when at work ( $n = 90$ , 53%). The second most common experienced reaction was feelings of *anger, guilt, and frustration* ( $n = 80$ , 47%), followed by *depressed mood* ( $n = 70$ , 41%). A *strong need to talk about the incident or access information about it* was a reaction for 67 respondents (39%), closely followed by *recurrent images of thoughts of the incident triggered by non-specific events* ( $n = 65$ , 38%). *Feelings of inadequacy and loneliness* ( $n = 61$ , 36%),

*irritability* ( $n = 57$ , 33%), and *distress at being reminded of the trauma associated with the incident* ( $n = 53$ , 31%) were reported. Over a quarter of respondents reported experiencing a *loss of trust* ( $n = 45$ , 26%), *social isolation* ( $n = 42$ , 25%), and a *desire to connect with others who have experienced similar trauma* ( $n = 46$ , 27%).

A total of 37 respondents (22%) shared additional reactions to those provided See Table 4). Table 4 provides further details of some of these responses.

Three (1.7%) respondents stated that they did not experience any reactions following the incident.

### 3.5 | Impact of Role on Impact Following Serious Incident

As a key aim of this study was to investigate the impact of serious incidents on OAP practitioners positioned across the organizational system, the reported impact by role at the time of the incident was analyzed. Three role categories were



**TABLE 2** | Respondents' comments in relation to the negative impact of the incident(s) on personal relationships.

Theme surrounding negative impact on personal relationships	Example comments	N
Partner unable to relate	<p>"It was distancing, in that my partner could empathise but not really relate."</p> <p>"It was hard for my partner to relate, and it was a contributing factor in divorce."</p> <p>"My spouse doesn't understand any of this medical business and feels like I am dramatic when I describe hard days at work."</p> <p>"The incident caused some anguish, and my husband did not realise the severity of the situation and seemed very apathetic to what had happened."</p> <p>"Initially I didn't want to talk about it to my partner as I didn't think he would understand. I relied heavily on colleagues and a friend. Eventually I had to open up to my partner as I was suffering anxiety and depression as a result."</p>	12
Unable to regulate emotions	<p>"I was emotionally distraught and unable to regulate which caused stress to my partner, I would get very upset over small things and threaten to leave the relationship because I felt powerless to change my circumstances."</p> <p>"I was so angry and withdrawn and abused alcohol."</p> <p>"I was numb with the pain/loss."</p> <p>"I became pretty depressed after the incident. On my relationship this led to some tension in not knowing how to express my misery besides fixating on the event. I stuck with a partner I might've left if not for it because I needed the security of someone loving me, and I pushed for us to move in together for my own security needs."</p> <p>"I was frustrated and angry. Time spent on follow up impacted home life. Partner was supportive- but didn't understand level of distress given that incident was serious, but not a fatality."</p>	10
Communication difficulties	<p>"It put noticeable stress through lack of communication and being unaware of the support I was needed. This led to a far longer recovery due to the relationship turmoil adding to the emotional stress I was already under."</p> <p>"I was stunned and had difficulty communicating with my wife for several weeks after the incident."</p> <p>"Our relationship was significantly affected. My spouse wanted to 'fix' the problem and grew angry and frustrated when I talked about our post-accident response, but I simply needed to talk. He wasn't able to listen the way I needed to be listened to."</p> <p>"We were both involved. We didn't talk about it; it was too painful. We both were highly distracted by the death for a few years and eventually separated."</p>	9
Need for extra support	<p>"It definitely strained my relationship; my now-wife was my partner at the time, and she noticed many effects of this incident. I was unable to perform many of the outdoor tasks that were normally in my role in our outdoor partnership--lead climbing, making risk decisions in skiing, etc. I also drank heavily, which I know my partner noticed at the time."</p> <p>"I struggled emotionally to process the incident, and it strained my relationship as it created one more thing that came between us or that she had to support me with."</p>	7
Creation of distance	<p>"I guess it's made me compartmentalise this aspect of my life to everyone, even including myself."</p> <p>"I shielded myself and put up a strong facade. I don't think he ever truly understood what I went through?"</p> <p>"The person I was in a relationship with at the time was very supportive throughout, however, I felt very distant from them and ultimately ended the relationship as I found it hard to be with them and preferred the idea of being alone and isolated myself."</p> <p>"I became irritable, withdrawn, distant, and impatient with my spouse."</p>	7
Highlighted existing relationship concerns	<p>"We were already having troubles. Ending the relationship at such a bad time when we were both struggling emotionally made me feel guilty and like an awful person, but I still thought it was better than both of us planning a new life together somewhere else, knowing that it wouldn't last."</p> <p>"My relationship came to an end a bit later."</p> <p>"Might've hastened the end of a serious relationship."</p>	3
Other	<p>"My wife was very pregnant at time of incident. The birth of my son was difficult and traumatic and focused a lot of my attention post incident."</p>	3

**TABLE 3** | Respondents' comments in relation to the positive impact of the incident(s) on personal relationships.

Theme surrounding positive impact on personal relationships	Example comments	N
Partner could relate	<p>“My husband was also a ski patroller at the time, so we were able to talk about the incident, which was helpful.”</p> <p>“My partner is my rock. We are both [name removed] guides and can rely on each other for support during serious incidents. For example, when I found my friend's body, I used my Inreach to contact my partner, he orchestrated a 911 response from his place of work. My relationship with my common-law partner has been paramount in my recovery.”</p> <p>“I spoke about the incident extensively with my girlfriend. She is also a patroller, and we debriefed the event the night of and spoke about it the following day.”</p> <p>“If anything, it brought us closer together because he had experienced similar things (he also was an outdoor educator at the time).”</p> <p>“My partner was guiding a different group at the time, but because he was present for the after-accident portion, it was helpful for me to process.”</p> <p>“I think it increased my dependency on my partner. They were supporting and encouraging and also an outdoor professional. I'm not sure I would've stayed in the outdoors without their support.”</p> <p>“This incident created an incredible amount of trauma for both my husband and me. We leaned on each other heavily, because we did not have anyone else. It brought us closer together because of our shared trauma.”</p> <p>“I received excellent support from my husband, who was the [detail removed] at the time. He worked with me closely to make a plan for addressing the situation. It contributed positively to our relationship.”</p>	14
Partner was supportive and easy to talk with about incident	<p>“My spouse was very supportive and empathetic as were all my friends. The incident involved a child; my wife was pregnant with our first at the time.”</p> <p>“I had someone to talk to about my fears, and to talk with about what I thought had gone well and what hadn't in my management.”</p> <p>“My life partner is a psychiatrist; she knows the shit.... I can't say that accidents have brought us closer, but clearly these situations have helped us discover our areas of vulnerability. But knowing one another in the relationship inevitably brings a strengthening of it. My spouse was very supportive and understanding.”</p> <p>“I relied on my partner for support, which they provided unconditionally.”</p> <p>“I have no idea how I would have navigated this incident without [name removed] support and help; she was definitely a key component to my return to college and normal society overall. She was a stable and slightly removed source of friendship and relationship while I was processing the incident, but also deeply understood and was part of my experience during it, which was so incredibly important.”</p> <p>“Temporarily very distracted from other elements of life in the aftermath of incident, spent a lot of time discussing with partner. Lost confidence in professional ability for a long time and the support of partner helped me grow in confidence and redevelop trust in self and workplace.”</p> <p>“I became unsocial, isolated myself and became very irritable. I suffered from what I describe as operational stress and would snap at the smallest things. Fortunately, my wife is super understanding and supportive, without her support I might well be in a different place today.”</p> <p>“I share everything with my spouse and was grateful to be able to talk about it. He is very supportive.”</p> <p>“My relationship helped me to talk through the incident, be able to sleep, be able to cry and to move forward.”</p>	14
Stabilizing impact of relationship	“My relationship provided a stabilising force during and after the incident.”	2
Other	“I gained some new respect for my partner's willingness to step back and keep detailed notes and times as the situation unfolded.”	1



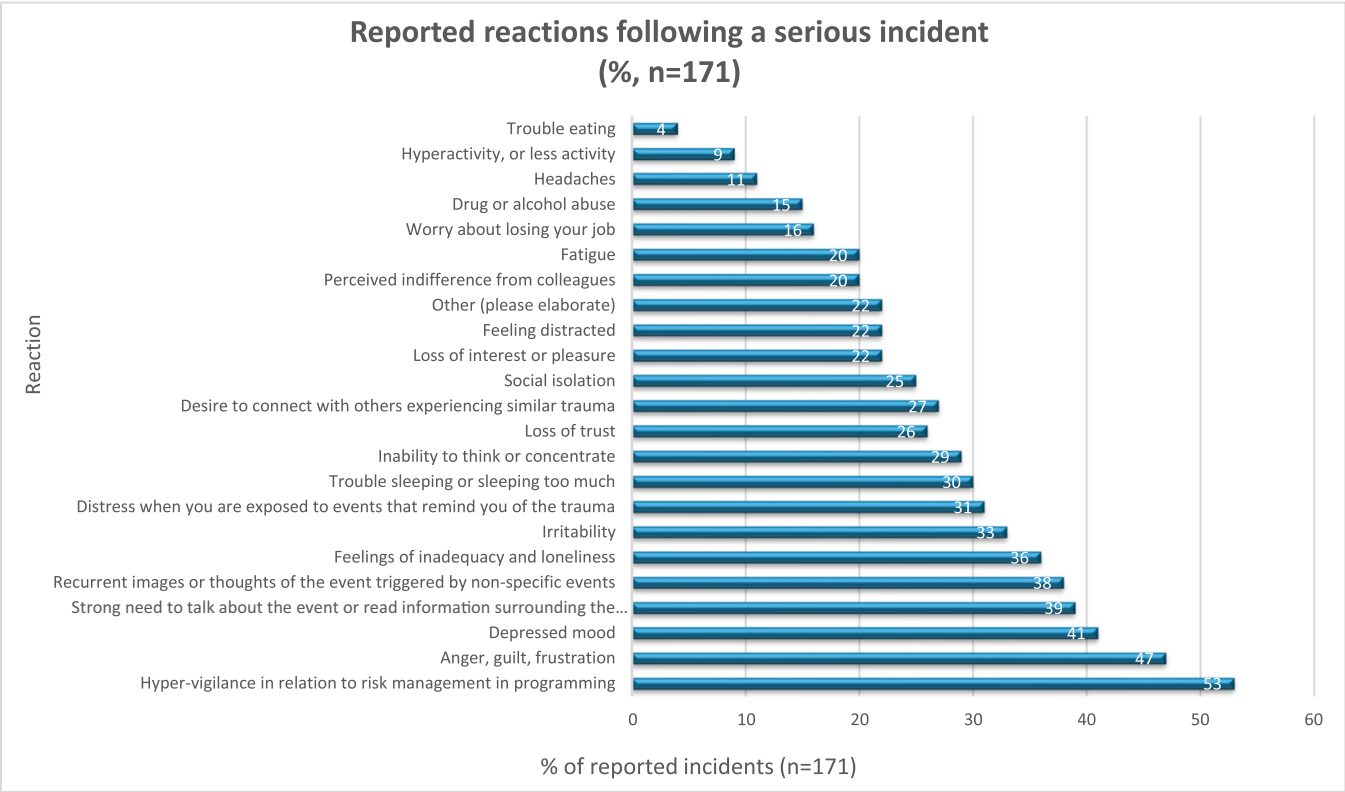


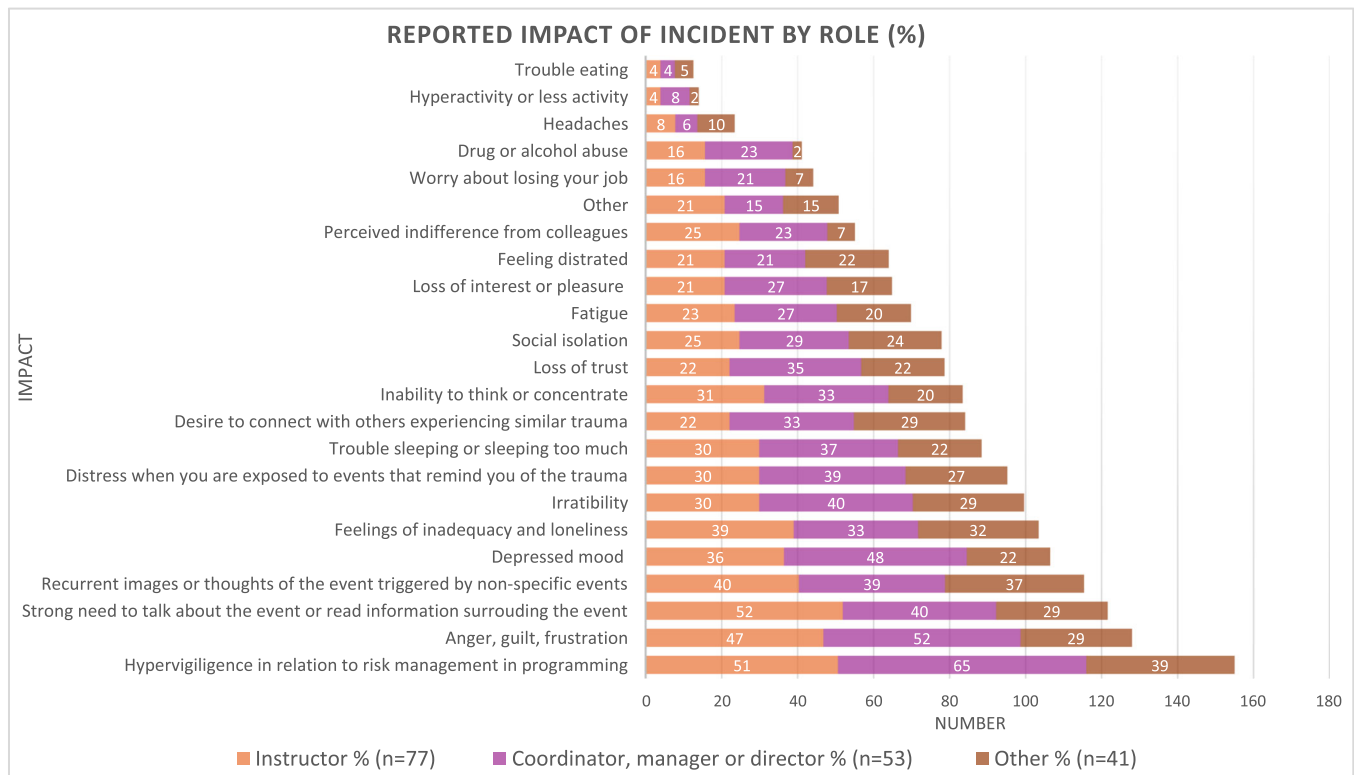
FIGURE 3 | Reported reactions following a serious incident.

TABLE 4 | Example comments in “Other” category of practitioner reactions to incident.

“A feeling that the organisation didn’t take the incident seriously.”
“I was worried most about what I might have done to elicit this mental breakdown. Did I push too hard? Was the combination of task and environment overwhelming? Did I miss obvious signs of distress before things reached a breaking point?”
“Questioning why we don’t talk about how to deal with these kind of events as trip leaders’ post-incident.”
“Have ‘often’ felt anger as a result of ‘encountering’ other groups on the same river that we have suddenly found ourselves, of whom are obviously ill-prepared, understaffed, and under trained.”
“Feeling like I can’t do this job anymore if someone dies on me.”
“I was in a leadership position, but it was extremely difficult to make decisions with any confidence.”
“Physical challenges that were ultimately diagnosed as emotional response to stress.”
“Overwhelmed with the scope of changes and corrections that needed to occur throughout my organisation. Loss of passion and meaning for the education that I was providing.”
“Upset that I was not invited to the incident debrief.”
“Desire to meet the victim or family.”
“Dysregulated from my normal healthy approach to looking after myself. I wanted to end my life on several occasions. Lots of prejudice from group. Lots of anxiety from a lawsuit that came about two years after the incident.”
“Uncomfortable in thunderstorms.”
“Questioning the program mission, program competence.”

identified—respondents who identified as *Instructors* ( $n = 77$ ), those who were in a *Program coordination, managerial or director role* ( $n = 53$ ), (both at and away from the incident scene), and a category for *Others* ( $n = 41$ ) (e.g., students at scene, first responders, volunteer teacher). Figure 4 shows that for OAP respondents

in an *Instructor* role, over half ( $n = 40$ , 52%) reported experiencing both a *Strong need to talk about the event or read information surrounding the event* and *Hypervigilance* ( $n = 39$ , 51%). Just under 50% of instructors also reported feelings of *Anger, guilt, and frustration* ( $n = 36$ , 47%).



**FIGURE 4** | Reported impact by role.

The two most frequently reported impacts experienced by those working in a *Program coordination, managerial or director* role were consistent with *Instructors*, however, at a different rate. Over 65% ( $n = 34$ ) of coordinators, managers, and directors reported *Hypervigilance*, followed by *Anger, guilt, and frustration* ( $n = 27, 52\%$ ). Notably, a *Depressed mood* was the third most frequently reported impact for this role, with close to half of the respondents reporting it ( $n = 25, 48\%$ ).

Respondents in the *Other* category were consistent regarding *Hypervigilance* being the most frequently reported impact ( $n = 16, 39\%$ ). Notably, *Recurrent images or thoughts of the event triggered by non-specific events* were the second most frequently reported impact for those in the *Other* category ( $n = 15, 37\%$ ), followed by *Feelings of inadequacy or loneliness* ( $n = 13, 32\%$ ).

### 3.6 | Practitioner Coping Strategies

Respondents were asked to share how they coped with the impacts of the incident(s) and were provided with a list to select from (see Table 1). They could select all that applied, as well as add their own. Overall, the most frequently reported strategy employed by respondents was *coping with my emotions on my own* ( $n = 94, 64\%$ ). This was followed by *other*, where respondents could provide details of their own specific coping strategies ( $n = 56, 38\%$ ), see Table 5. The coping strategy of *I sought help from outside my workplace* was the third highest reported ( $n = 47, 32\%$ ). A total of 45 (31%) respondents stated that they were *still coping with the effects of the incident(s)*, and 44 (30%) shared that they *accepted the help that was offered from within their organisation*. A fifth of all respondents ( $n = 30, 20\%$ )

shared that they *seriously contemplated leaving the outdoor and adventure programs sector*.

### 3.7 | Practitioner Recommended Supportive Strategies Following a Serious Incident

Respondents were invited to recommend supportive strategies for OAP practitioners who have experienced a serious incident. They could initially select from a list provided (developed from the literature), and were then invited to provide an open-ended response to the question: *Please describe your recommendations for supportive strategies if you or another OAP colleague are involved in a serious incident*.

Figure 5 illustrates the recommended strategies selected from the list provided. More than 90% of respondents agreed on the top three selected strategies, indicating strong consensus. A total of 136 (93%) respondents recommended *access to counselling, psychological, or psychiatric services*. Additionally, the importance of informal support was considered consequential with 135 (92%) recommending *access to informal (peer to peer) support*. Moreover, 132 (90%) respondents recommended access to *Prompt debriefing, crisis intervention stress management (either for individual or for the group/team)*. Access and opportunity to discuss with fellow professionals who have expertise in incident management and reviewing was considered highly important to recovery; this being the fourth most recommended supportive strategy ( $n = 121, 82\%$ ). The importance of time to recover and heal from the incident featured in the recommended supportive strategies ( $n = 117, 80\%$ ), as well as the opportunity to safely contribute to providing insights into enhancing safety in the

**TABLE 5** | Example comments in “Other” category surrounding practitioner coping strategies.

“Support from work colleagues and peers.”

“Became an expert on lightning safety.”

“I actually learned how much I loved that type of situation, so I became a full-time EMT.”

“I sought further education from professionals.”

“Medication, low dosage of antidepressants so I could sleep and keep my head above the water. Lots of support from within my industry.”

“I changed the nature of the work I did. I moved away from extended trips in Wilderness Therapy and looked for programs where children/families/and staff were approached with more compassion, curiosity, and desire for understanding.”

“I have shared the experience with others. I also have had some brief interventions such as going off the grid in the bush for a few days. Have occasionally sought out professional help but not for long.”

“I quit my position but eventually found my way back to outdoor education.”

“Peer support and my own resources (as a clinical social worker).”

“I have a very good therapist and saw her more often for a few weeks.”

“I sought spiritual counselling from a member of the clergy of my religious denomination.”

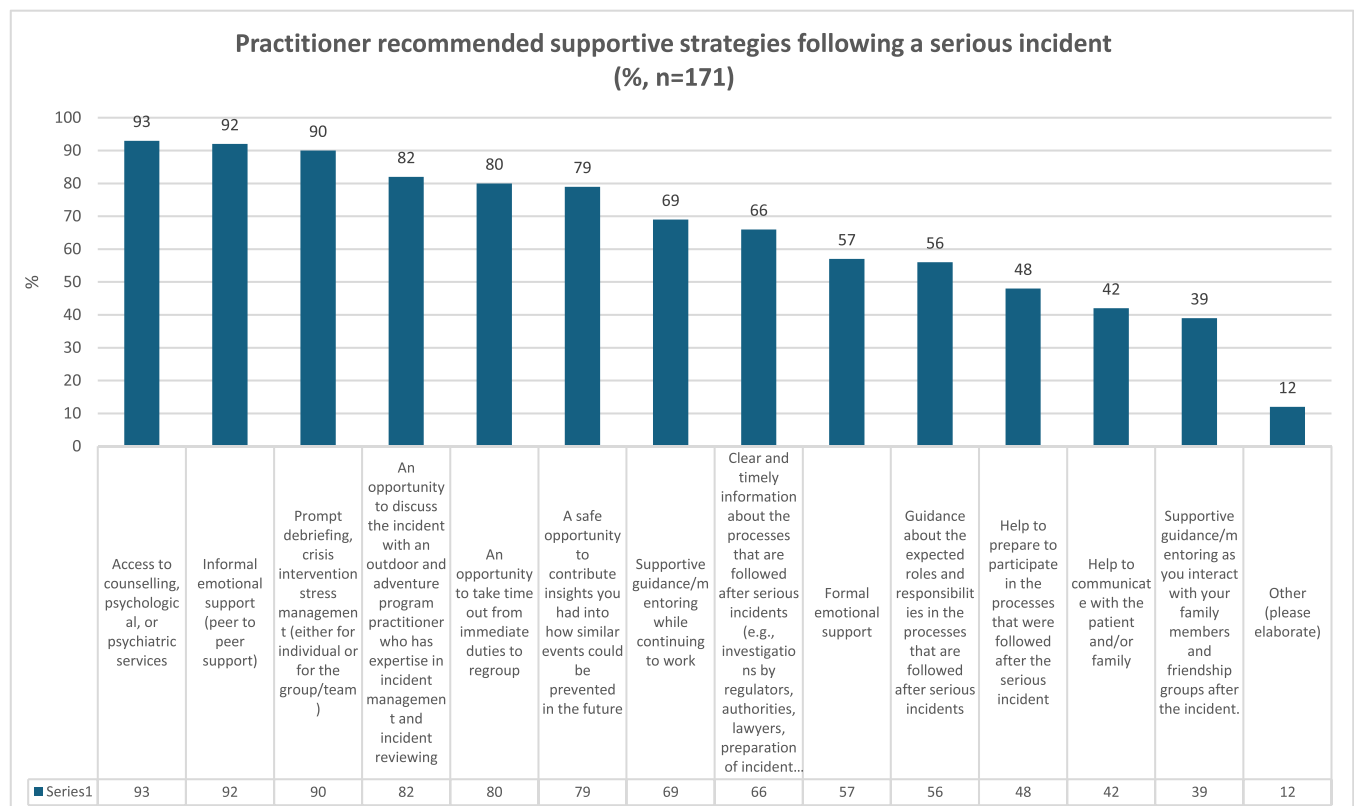
“While I was not looking for a new job/industry, an opportunity presented itself and I accepted it. Now that I am removed from the outdoor industry, I see the impact those events had upon me. I am generally happier and enjoy my new profession.”

“Just kept talking about it with friends. No help was offered by my organisation.”

“I talked ALOT with the other responders involved.”

“I talked with close friends and family.”

“I can’t afford to see a psychologist.”

**FIGURE 5** | Recommended support strategies for practitioners following a serious incident.

future, with 116 (79%) recommending this as a supportive strategy. Support to return and/or continue to work was also important, with 102 respondents (69%) recommending this as a strategy for OAP colleagues who experience serious incidents.

### 3.8 | Open-Ended Responses (To Question: Recommendations for Supportive Strategies If You or Another OAP Colleague Are Involved in a Serious Incident)

Several themes emerged from the responses highlighting key areas of support that would assist OAP colleagues or themselves in the event of a serious incident. Table 6 depicts these themes, as well as example illustrative quotes from respondents. As depicted, respondents offered multiple supportive strategies, the primary ones being, increasing organizational support immediately and ongoing following a serious incident ( $n = 82$ ), access to peer support, from someone who has lived experience of a serious incident in the OAP sector ( $n = 78$ ).

Respondents were also mindful that a “one size fits all” approach is not appropriate, and as such, access to professional support by those with mental health and psychological counseling support should be made available, in particular to support guided debriefs and any ongoing support required ( $n = 76$ ). An opportunity to take time away from work duties and/or reallocate workload was a strategy identified by multiple respondents ( $n = 35$ ). Several respondents ( $n = 22$ ) considered that more preventive planning for such incidents would support them in the event of a serious incident occurring. This planning included tasks such as incident scenario training, plans to send senior managers to the site to support, and provision of adequate resources, ahead of time. The importance of not forgetting the ongoing impact on those involved and ensuring regular check-ins for those involved was highlighted ( $n = 19$ ), and several respondents provided examples of how this could be achieved (e.g., 3 days, 3 weeks, and 3 months).

A work environment to return to following the serious incident that withheld judgment and blame on those involved was important to some respondents ( $n = 14$ ). This included acknowledging concerns surrounding job security and potential legal action.

## 4 | Discussion

This study was designed to investigate the impacts of serious and adverse events on OAP practitioners situated across the organizational work system. The findings are compelling, not only for the OAP sector but also for enhancing understanding, interventions, and support for individuals experiencing second victim impacts across all safety-critical domains.

The findings highlight that potential distress is not limited to those professionals working directly at the incident scene; such a burden can extend throughout the organizational hierarchy to also include those operating in other roles, for example, coordination and management. In other words, these findings suggest that a worker does not need to be at the incident scene to experience

a second victim response. These findings are consistent with those reported in healthcare settings by Dekker (2013).

Notably in this study, the type of impact experienced by OAP practitioners situated across different roles was not the same; although both instructors and those operating in managerial roles reported impacts of hypervigilance and anger, guilt and frustration, the extent to which these were experienced varied across these groups. Additionally, certain impacts were distinct to each group; for instance, those in managerial roles reported higher levels of depressed mood, while instructors had a greater need to talk about the incident or access more information related to it. These insights support the view that in complex systems, where people, tools, processes, and technology interact (Rasmussen 1997), stakeholders at different hierarchical levels often have unique and varied perspectives on the system due to their specific roles, responsibilities, and access to information (Leveson 2011). Workers involved in direct interaction with operational processes or tasks are likely to have a different view of the risks and constraints than those situated further away from operational processes, such as those in management, coordination, and leadership positions (Leveson 2011; Dallat et al. 2023). Therefore, it may not be entirely surprising that this study found OAP practitioners across different levels of the organizational hierarchy experience certain impacts distinct to their specific roles following serious incidents. Workers across each hierarchical role appear to experience the impact and interpret the incident through a distinct lens shaped by their specific responsibilities and perspective. This finding further supports the perspective that safety is a shared responsibility of stakeholders situated right across the work system (Rasmussen 1997), and at a minimum, it further underlines the need to plan for and extend the level of support following a serious incident to all those involved across the organizational hierarchy.

A second finding from this study, supported by the literature, is that professionals directly at the incident scene often experience significant effects on their personal and professional lives (Marmon and Heiss 2015; Scott et al. 2009; Gazoni et al. 2012). This study further extends these insights by highlighting the largely negative—and sometimes life-changing—impacts that serious incidents can have on the close personal relationships of practitioners involved across the organizational hierarchy.

A third finding from this study points to the risk of systemic performance-inhibiting impacts upon return to work, following a serious incident. Hypervigilance has been found to alter how workers who have been directly involved in a traumatic incident perceive and process information, narrowing their attention to trauma-related cues and potentially distorting their situational awareness and decision-making (Buodo et al. 2018). Reporting on findings from health care, Dekker (2013) proposed that although often well-intentioned, hypervigilance can often contribute to defensive practices, as well as constrain both individual and team performance in dynamic work environments. Although hypervigilance is recognized as a risk factor for practitioners directly involved in serious incidents (Vanhaecht et al. 2019; Dekker 2013), little investigation has been centered on how these performance-inhibiting constraints may also affect practitioners higher up the organizational

**TABLE 6** | Recommended supportive strategies.

Theme surrounding recommended supportive strategies	Example comments	N
Increasing organizational support	<p>"It's shocking to see that nothing at all was offered to us. Wow. I am a mental health professional now and I have not thought about this incident in a long time, but to see the organisational absence of care surrounding this is stunning."</p> <p>"Acknowledge it."</p> <p>"A person to deliver the information to your family to warn them that said loved one may not be themselves and this doesn't mean forever."</p> <p>"An environment of trust, honesty and confidentiality. I think it is important to be able to gauge who needs to be involved to begin to set that environment of trust and support and then seek to understand what happened and provide the open doors to the support the individual/s needs. Understanding that every person is different and what they need for support is very different and may come at different times."</p> <p>"Looking back, I didn't receive anything beyond being told by the owner of the business to simply follow the medical orders and come back to work when you are fit and ready. I have since realized that outdoor professionals should at the very least receive a timeline of healing, outside resources to speak to (therapy) and a full debrief of the incident with an outside source like a consultant or insurance business."</p> <p>"Individual meetings with each staff involved asking what type of emotional support would be helpful (e.g., taking time off work, emotional support while on the job, shifting of responsibilities for a time period, opportunity to talk about what happened with management/others involved/in counselling."</p> <p>"My employer not only made mental health services available to myself and my coworkers, but they also brought in a professional from a local provider to do a group therapy session. He explained some of the things we could reasonably expect to experience in the coming weeks and what services they had available to help us process through it. Not only giving people a number to call but bringing someone in to explain the help that is available."</p> <p>"Be flexible and offer options but realise that there is no single solution that is best for everyone. No forced processes or attempts to 'fix' it."</p> <p>"My recommendation is for organisations to never downplay the emotional impact to staff of an incident like this - immediate offer for help or support should be offered even if they are accepted or not."</p> <p>"Training of all team members to help recognise symptoms, and openness to discuss with team members signs of trauma related symptoms. Better access to counselling and therapy as a workplace resource."</p> <p>"Have a plan in place, be sure your employees know it, debrief/AAR immediately and provide regularly scheduled check in with all involved. Don't make the employee ask for help, get them the resources they need so they don't have to ask."</p> <p>"Structured support system for individual. Unconditional support from the employer."</p> <p>"Ensuring that the person coordinating the incident has the authority to match the responsibilities of the work, and support and guidance from higher in the organization to be confident that there is a process and they're on track."</p>	82
Access to peer/professional support	<p>"Immediate access to peer support or outside trusted professional support. Follow up from same over following weeks/months."</p> <p>"Opportunity to connect with other professionals who have managed a similar incident and/or circumstance(s)."</p> <p>"Talking with someone who 'gets it' is extremely helpful. This person understands why we go outdoors and take risks, they understand the benefits and can relate to the situation. This person also is totally non-judgmental and is willing and able to simply listen. When this type of atmosphere exists, it can be very helpful for the person to tell their story out loud."</p> <p>"Every person, every incident, is different. There needs to be a trusted, non-judgmental person who can help you navigate this wilderness, with the gritty wisdom to know you will never be the same."</p>	78

(Continues)

TABLE 6 | (Continued)

Theme surrounding recommended supportive strategies	Example comments	N
Professional support (initially and ongoing)	“Debrief among those involved in a peer-to-peer environment. A no blame and supportive discussion.”	76
	“Peer support throughout a 3-month process after the incident, with ability to have a mental health professional therapy.”	
	“Immediate support from a trusted individual in the form of emotional/psychological/logistics. Especially if there is risk of litigation, understanding the steps of the process and being able to take care of your own needs without feeling like the rest of your life is disintegrating.”	
	“Share with someone who has had a similar experience. It is often easier to open up to someone who has already experienced a similar situation.”	
	“Immediate debriefing amongst group members. Outline of process depending on severity of the event. Access to counselling.”	
	“Personally, having a group discussion facilitated by one of our own who is trained in these defusals is very valuable. Having a vulnerable and open space to speak together as a group can be very therapeutic. It can be intimidating with outside resources.”	
	“Critical incident debriefing from someone who has experience in outdoor adventurous activities.”	
	“A debrief immediately after the incident with follow up with a mental health professional and support from the companying this.”	
	“I definitely think a critical incident debrief should be done. Counselling should be offered as well. Neither of these things occurred in our case.”	
	“Thoroughly debriefing the incident and following up with information about the patient's condition.”	
Time off/reallocate workload	“Immediate debrief with scheduled future check-ins specific to that incident.”	35
	“Trained professional help should be mandatory! Peer to peer is a crucial step, but not the only piece.”	
	“Do not dismiss the effects of the accident. I presented well and because of this, I was told multiple times that ‘it wasn't that bad’ or ‘it must've been misdiagnosed’. These perspectives were hurtful.”	
	“I would have liked to have more therapy I think all the way around. We had therapists fly down to talk to us if we needed, and I did utilize one a handful of times. But I don't think really anybody knows how to deal with grief, and I think it would have been good for all of us to almost have been required to have one on one's with prompted questions to really debrief things personally.”	
	“Offering time off, checking in with the individual on a regular basis.”	
	“Paid leave from employers.”	
	“Moment to assess selfcare to see if able to return to activity.”	
Increased pre-incident preparation	“Take time to pause, process the incident, discuss it with someone, or as many people that you feel is appropriate. Do this even if you are not suffering any adverse impacts.”	22
	“Reduced workload. Clear process to support front line workers.”	
	“More direct involvement from senior leadership in addressing the immediate aftermath of the incident and reallocation of work duties and responsibilities to seek support and establish a new baseline.”	
	“I had very, very little pre-event training; I think that is essential in preparing first responders on how to move through these sorts of events.”	
	“Send senior staff members to scene for support.”	
Regular check-in's	“Assure there are adequate resources provided to staff directly managing the incident- they will not be able to carry out all of their normal tasks while also managing the incident and members.”	19
	“Appropriate Risk Management training, and incident scenario practice.”	
	“Having someone(s) to talk with. Follow up check ins down the road.”	
	“Constant and continual check up with people to ensure they are ok even after the incident.”	

(Continues)



TABLE 6 | (Continued)

Theme surrounding recommended supportive strategies	Example comments	N
Avoidance of a blame focus	“Formal and clear guidelines for debriefing (in person) and regular check-ins. While I tried to talk to people at my org, everyone brushed me off that ‘all was well’ and made administrative changes to avoid the serious issues that occurred, but no one ever checked in with me except for immediately after the event.”	14
	“Avoid ‘passing the buck’, those directly involved accept their responsibility rather faulting administration.”	
	“Review of situation, regular chats, job security reassurance.”	
	“Opportunities for reflection, analysis, supervision, discussion must be on-going as required by the person/team and a non-blaming culture is established where ‘what could be done differently’ is questioned. But, if negligence has occurred, and this requires disciplinary action, this needs to be done very carefully and with expertise and follow up support offered.”	
	“To withhold judgement. To have the first thought be ‘how can we help’.” “Care for people first.”	
	“I think that, first and foremost, listening on the part of upper management, without bias or assumption, is very helpful. It is difficult to talk about incidents when there is a fear of judgment or not being taken seriously.”	

hierarchy. The impact of these constraints may be significant. The OAP sector has similar features in that it operates across particularly dynamic conditions and environments—where the interaction of participants, weather, terrain, and multiple additional hazards, create a complex and unique risk profile (Dallat et al. 2018; McLean et al. 2022). These environments require individuals and teams, both in the field and in management offices, to be continuously situationally aware, responsive, and flexible (Aadland et al. 2017). Given these shared demands, the impact of hypervigilance across the organizational hierarchy after a serious incident may inadvertently lead to the introduction of new risks created through the failure to identify and manage them.

A fourth finding relates to the sharp disconnect between what OAP practitioners reported would support their recovery (an opportunity to talk to someone, e.g., professional, others who were involved, and/or a peer who has lived experience of incidents), versus what most of them reporting doing (coped with their feelings on their own). Multiple studies have confirmed the importance of supportive interactions with others where the professional involved in a serious incident can share their experiences without judgment (Barker and Pistrang 2002; Huang et al. 2022; Mayer and Hamilton 2018). Second victim studies from other domains have found that participants often do not know how to ask for support and who to ask, contributing to them “suffering in silence” (Ullström et al. 2014; Rinaldi et al. 2016). Notably, help-seeking behaviour among leaders and managers is often hindered by various barriers, such as concerns about exposing perceived weaknesses, fears of damaging their professional image, and potential loss of influence (Paterson, 2021; Nir 2009; Lee 1997). To help ensure that leaders and managers involved in serious incidents are both aware of available support and feel comfortable accessing it (Dekker 2013), systemic and well-designed interventions

will be needed to provide non-judgmental, needs-based assistance.

Finally, this study's findings align with health care (Ullström et al. 2014) in that although they may not have accessed such support themselves, many OAP practitioners have clear views and perspectives of how to support professionals who have been involved in a serious incident. Consistent with research across other safety-critical domains, the importance of good organizational support following a serious incident was highlighted (Ullström et al. 2014). In general, this involved access to immediate, individualized emotional support, recognizing that needs can vary among practitioners. The importance of structured support systems, accessible mental health resources, and a non-blaming, flexible approach was viewed as critical to providing effective support following a serious incident. In short, an organization's culture, capability, and readiness to quickly respond to the needs of its workers involved in serious incidents are deemed critical to their recovery and ability to heal from the incident (Hauk 2018; Seys et al. 2013; Scott et al. 2009). Critically, this support must extend across all levels of the organizational hierarchy, and to be effective, must be considerate of the multiple barriers outlined above (Nir 2009; Lee 1997).

A key limitation of this study surrounds the respondents being volunteers, raising the potential for self-selection bias. However, despite this, the number of responses as well as the variation in age, experience level, geographic location, activity/incident context, and role at time of incident meant that general themes and patterns could be identified. Future research should further investigate the impact of serious incidents and the support needs of practitioners across the hierarchies of the OAP sector and safety-critical domains more generally. Specifically, the presence and extent to which a systemic network of “second



victims” exists across these types of organizations following serious incidents should be explored.

## 5 | Conclusion

Despite continued efforts, serious incidents and fatalities occurring in OAP programs globally. As well as significant impacts on victims and their families and friends, these incidents can also place a substantial, long-lasting burden on the professionals involved. This study has found that the psychological, emotional and relational impacts of serious incidents in the OAP sector permeate across the organizational hierarchy, affecting not only those at the incident scene but also coordinators, managers, directors, and others. It has been identified that different roles experience varied impacts, indicating that second victim responses can be both broad and role-specific within complex systems. These findings underscore the necessity for organizations operating across safety-critical domains to recognize and address the unique impacts of serious incidents across all organizational hierarchical levels.

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## Conflicts of Interest

The authors declare no conflicts of interest.

## Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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## Appendix

### Table A1.

**TABLE A1** | Survey questions.

Question	Response option
Age	Number
Gender	Woman, Man, Non-Binary, prefer not to answer, my gender is not on your list (option to comment)
Where were you born	List provided, and open-ended response option
Current relationship status	Dating Divorced/Separated Married/or in a domestic partnership Single, never married Prefer not to answer I describe my relationship status as:
Highest level of education	High school Bachelor's degree Master's degree PhD Professional degree Other
What country do you currently reside in?	Open-ended
Do you currently work in OAP programs?	Yes, no
Please tell us the years that you have worked in the outdoor and adventure programs sector (e.g., 1997–present or 2019–2020)	Open-ended
Please tell us what part of the outdoor and adventure programs sector you currently work in.	Adventure/outdoor education Adventure/outdoor recreation

(Continues)

TABLE A1 | (Continued)

Question	Response option
	Therapeutic Tourism University/higher education Other
What position level do you currently hold?	Instructor Coordinator Educator Managerial Executive Other
We realize that you may have experienced more than one serious incident. Please tell us how many	1, 2, 3, 4, 5, 6 or more
For the incident you are reporting on, what age were you at the time?	Open-ended
What was your highest level of education at the time of the incident?	High school Bachelor's degree Master's degree PhD Professional degree Other
At the time of incident, were you a	Paid staff member Volunteer Student None of the above Other
What was your relationship status at the time of the incident	Dating Divorced/Separated Married/or in a domestic partnership Single, never married Prefer not to answer My relationship status was:
Describe to us the impact of your involvement in the incident on your relationship, as well as the impact of your relationship on your recovery, if any.	Open-ended
What country and state/territory/county were you working in at the time of the incident?	Open-ended
What position were you in at the time of the incident?	Instructor Field Coordinator Manager Executive/CEO level Student Other (please specify)
Did the incident involve loss of life?	Yes, no
We'd like to know about the activity, the terrain/water conditions and a brief description of the incident. Be as brief or detailed as you like, and please take care of your needs.	Open-ended
People who experience a traumatic event encounter it differently, however they typically have reactions that fall into these five categories, psychological/emotional, cognitive, physical, behavioral and spiritual. Listed below are some of the experiences described in the research literature by those who have been involved in a serious incident at their place of work. You may have	Hypervigilance in relation to risk management in programming Anger, guilt, frustration Depressed mood Recurrent images or thoughts of the event triggered by nonspecific events Strong need to talk about the event or read information surrounding the traumatic event

(Continues)

**TABLE A1** | (Continued)

Question	Response option
experienced some of these; please check all that have applied to you anytime after the incident you were involved with:	Irritability Feelings of inadequacy and loneliness Distress when you are exposed to events that remind you of the trauma Trouble sleeping or sleeping too much Inability to think or concentrate Desire to connect with others experiencing similar trauma Loss of trust Social isolation Fatigue Responses Feeling distracted Loss of interest or pleasure Perceived indifference from colleagues Drug or alcohol abuse Worry about losing your job Hyperactivity, or less activity Headaches Trouble eating Other (please elaborate)
What are some ways that you coped with the impacts of this incident? Please check all that apply.	I coped with my emotions on my own I accepted the help that was offered within my organization I am still coping with the effects of the incident I sought help from outside my workplace I seriously contemplated leaving the outdoor and adventure sector I accepted the help that was offered by outdoor and adventure representatives I asked my organization to help me I left the outdoor and adventure sector None of the above Other (please elaborate)
Below are some supportive strategies that have been recommended in the literature. Check all that you believe would support outdoor and adventure practitioners who have experienced a serious incident.	Access to counseling, psychological, or psychiatric services Informal emotional support (peer-to-peer support) Prompt debriefing, crisis intervention stress management (either for individual or for the group/team) An opportunity to take time out from immediate duties to regroup An opportunity to discuss the incident with an outdoor and adventure program practitioner who has expertise in incident management and incident reviewing A safe opportunity to contribute insights you had into how similar events could be prevented in the future Supportive guidance/mentoring while continuing to work Clear and timely information about the processes that are followed after serious incidents (e.g., investigations by regulators, authorities, lawyers, preparation of incident reports) Formal emotional support Guidance about the expected roles and responsibilities in the processes that are followed after serious incidents Help to prepare to participate in the processes that were followed after the serious incident Help to communicate with the patient and/or family Supportive guidance/mentoring as you interact with your family members and friendship groups after the incident. Other (please elaborate)
Please describe your recommendations for supportive strategies if you or another outdoor and adventure programs colleague are involved in a serious incident.	Open-ended