Second Victims in Industries beyond Healthcare: a Scoping Review.

AUTHORS

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# Introduction

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# Materials and methods

The present scoping review was designed and conducted following the Joanna Briggs Institute guidelines [Pollock 2023], and reported using the PRISMA-ScR checklist [Tricco 2018]. The PCC (Population, Concept, Context) framework was adopted to construct objectives and selection criteria.

## Eligibility criteria

### Population

The population of interest are all the active workers, defined as subjects of any sex and age performing activities to produce goods or to provide services for use by others or for own use [Department of Statistics 2023]. All the types of workers were considered, regardless of their role, work duties, or compensation scheme.

### Concept

The concept of interest was the acknowledgement of the SVP in industries different from human healthcare. To achieve this objective, we adapted the SV definition provided by Vanhaecht et al. [Vanhaecht 2022] to be suitable for all the diverse industries. Therefore, we considered a SV “*any worker, directly or indirectly involved in an unanticipated adverse event, unintentional error, or injury, and who becomes victimized in the sense that they are also negatively impacted”*.

### Context

The reference context were all the industries, with the exception of human healthcare. Human healthcare is characterized by direct or indirect contact with patients, namely subjects receiving medical or nursing treatments. Therefore, we excluded all the studies conducted on workers from clinical/nursing settings (e.g., hospitals, nursing homes, long term care, ambulance services). In contrast, workers from the social sectors, as well as non-medical emergency responders, were included.

### Types of sources of evidence

Due to the exploratory aim of this review, both scientific and gray literature were considered, without restrictions on study design. Only records for which it was not possible to clearly identify the authors were excluded.

## Search strategy

Search strategy aimed to gather any relevant report. Google Scholar, Scopus, PubMed, CINAHL, Web Of Science, and ProQuest databases were consulted. Search strings are shown in Table 1. Given the exploratory aim of this scoping review, no publication date or language limits were set. Documents in a language not spoken by the research team (namely English, Italian, German, and Spanish) were translated to English using Google Translator software.

## Study selection and data extraction

All the identified records were collected on a Google Sheet database. The screening was performed independently by two reviewers, where inconsistencies were resolved by a third one. Therefore, data extracted from the included report was collected on a standardized form by a researcher (AC) and double checked by another researcher (XX). The form included the following fields: study design (if any), industry, description of the reported SVP, relevant key findings, and preventive/support programmes.

Included articles were also classified according to the five-level SV support model proposed by Seys et al. [Seys 2023] In detail, level 1 represents SVP prevention initiatives for both individuals and organizations; level 2 provides self care of individual and/or teams; level 3,4, and 5 structured support programs led by peers, non clinical, and clinical professionals, respectively. Moreover, we added a “level 0” for identifying reports in which the SVP is explicitly acknowledged. The modified model is shown in Figure X.

# Results

A total of 11,478 records were retrieved. The complete screening process is shown in Figure X as PRISMA flowchart. Of the fifty screened full texts, 18 studies were included in our review. Among them, four were cross-sectional surveys [Perret 2020, Karinakas 2017, Hayes 2018, Heraghty 2018], three case reports [Mosedale 2020, Naweed 2021, Heraghty 2021], and three book chapters [Regher 2018, Smith 2017, De Boer 2022], two qualitative [Gibson 2003, Kvitsiani 2023]. The majority of the studies were conducted in Europe, while it was not possible to identify the country for six of them. Detailed information of included studies is available in Table 2.

## Animal care/veterinary

The case report by Mosedale et al. [Mosedale 2020] described a near miss event (wrong patient) occurred during a surgical castration procedure performed on a horse. While the Authors did not explicitly discussed structured support programs, they mentioned a post-incident team discussion in which the event was debated by all the involved professionals. Moreover, supportive and just culture were mentioned as approaches which can reduce errors, as well as turn incidents into positive learning experiences. While the Authors did not explicitly refer to the involved veterinary professionals as SV, they recognize the similarity of the described case to similar ones in human healthcare context.

The cross-sectional survey conducted in Canada [Perret 2020] aimed to assess mental health (e.g., stress, burnout, anxiety, etc) among veterinarians. As major results, the authors found high levels of stress, burnout, depression, anxiety, compassion and suicidal ideation. Moreover, they found the females in poorer mental health conditions than males. While the Authors stated that research on the impact of veterinarians' mental health on productivity and quality of care is scarce, they recognize a similar phenomenon (i.e, the SVP) in human healthcare. The manuscript did not specifically describe any structured support program; however, the respondents described the support received by family and colleagues as satisfactory and just satisfactory, respectively.

The qualitative study performed by Gibson et al. [Gibson 2023] aimed to provide insights into veterinarians experiences related to adverse events, specifically regarding ethical challenges. Participants reported that, in the aftermath of an adverse event, they experienced concern about taking responsibility, as well as difficulties in balancing honesty, apology, and compensation toward clients. Moreover, authors suggested that such evidence would foster the future development of veterinarians' support programmes aimed to reduce emotional impact associated with such challenges and to improve patient safety. In addition, it was explicitly stated that ethical challenges and moral distress can be associated with the development of SV in veterinary practice. Moreover, the article stated the potential benefits of group discussions as a strategy to reduce the SVP, despite no practical examples of such approach were given.

Timmenga et al. [Timmenga 2022] investigated the design and impact of support programmes for veterinarians toward mental wellbeing. The mixed method study included a quantitative online survey, interviews with two focus groups, and input gathered after webinars. They identified that many animal care organizations established support programmes both at individual and workplace levels. In addition, support from colleagues/relatives after an adverse event was reported as a coping strategy. In contrast, no structured peer program was reported.

White et al. [White 2021] explored both contributing factors and interventions aimed to mitigate risk and increase personal wellbeing among veterinarians. The Authors observed that literature on structured group/peer support for veterinarians is limited. Moreover, they stated that stressors, coping strategies, and roles of the animal care sector are comparable to the human one, from which veterinarians can translate knowledge on personal wellbeing. Therefore, the authors developed a specific training course aimed to enhance veterinary staff knowledge in burnout and fatigue. Interestingly, the Author declared an additional professional experience in different critical industries, namely wildlife care and oil spill response events. While the article supported the introduction of such peer programmes, it also emphasized the logistic barriers that could hamper the participation, for example the fact that most veterinarians are freelance or work in small clinics. It is worth mentioning that, despite the described scenarios were compatible with the SVP definition, the authors did not use the SV term in their manuscript.

## Aviation

The cross-sectional study conducted by Karanikas used a questionnaire to explore whether just culture policy could be introduced to a military aviation organization operating in europe. Moreover, the authors introduced the SV concept within the studied industries, adopting the definition of Dekker [Dekker 2013]. Respondents were propositive towards psychological support and short-term leave after an incident. However, authors concluded that the implementation of a just culture policy, within this specific organization, could be not directly feasible.

Interestingly, Apanay [Apanay 2021] explicitly translated the SV concept from healthcare to aviation. The study aimed to discuss the SVP in the aviation industry and to identify possible strategies to prevent SVs. The author made a parallelism between healthcare and other safety critical industries: both contexts, indeed, have been described as complex organizations in which safety is of paramount importance. With regards to prevention, the Author identified in Crew Resource Management skills, training and procedures potential tools to support SV. Moreover, he advocated early access to supportive interventions aimed at supporting SV. Moreover behavioral, psychological, and cultural/organizational barriers (namely, strategies aimed to mitigate the phenomenon) were identified to prevent the progression of a SV to a more severe condition. Behavioral barriers were identified in a strong social group-based support (e.g. family, friends, colleagues/managers). However, the Author made no distinction between structured programs and informal support. The psychological barriers were identified in tools, such as the “critical stress incident management” approach, used to mitigate the acute psychological distress. In addition, a structured peer support system of colleagues has been identified. Finally, organizational culture barriers were identified in just culture, or positive safety culture.

## Business

The Chapter “Evaluating Just Culture and Restorative Practices: The Business Case” from the book “Restorative Just Culture in Practice” [Dekker 2022] discussed the SVP within a description of restorative just culture. In detail, they identified SV as the target for empowerment within a just culture approach. However, despite the chapter identified the SVP within the business sector, it did not provide any defined strategy to deal with it.

## Construction

Heraghty et al. [Heraghty 2018] cited the SV theory in his manuscript. In detail, the authors analyzed the writing styles of an incident report to assess whether it can influence the proposed different solutions. In detail, 93 construction workers were asked to provide preventive/corrective recommendations after reading an accident report. As a major finding, the Authors stated that the report style can have a significant impact on the outcome of the analysis, and therefore a just culture is needed to maintain a positive and learning culture.

The same research team [Heraghty 2021] published an action research study to assess the approach to accident learning and justice mechanisms. An accident analysis process was introduced in two construction companies, and workers were asked to fill a survey to express their opinions about the newly introduced procedure. As a major result, Authors found that a restorative focused process can give benefits for both workers and organization. In detail, the absence of any punishment supported an open disclosure of accidents. The authors explicitly stated that this approach minimized the second victim syndrome, with positive benefits.

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## Emergency services

IN GERMAN/WORK IN PROGRESS

## Engineering

Hayes et al. [Hayes 2018] explored decision making in this sector, more specifically the defensive engineering through a questionnaire proposed to Australian professionals. They observed that, if a defensive approach in the human healthcare sector was a widely studied topic, the research in defensive engineering was scarce. As major results, they observed that engineers adopt defensive engineering strategies to protect themselves from disaster consequences; however, such measures were not always aligned with the best strategies for disaster prevention. While discussing moral and legal responsibilities, the Authors argued that not only engineers involved in legal issues were impacted by the negative consequences of the event, but also other professionals closely observing the event. The Authors concluded that engineers were developing problems and issues similar to the SVP in healthcare, despite the phenomenon in this sector was not already well defined.

The book published by Smith et al. [Smith 2017] discussed cognitive systems engineering, and an entire chapter (“Speaking for the Second Victim”) is dedicated to SV. They explicitly adopt the definition made by Dekker [REF]. The chapter discusses the approach to understand SV point of view, when the second victim can not express himself (i.e., he/she is deceased). While the Authors did not provide any additional information about how to prevent or manage SVs, they underlined the importance of listening to the SV experience (or, at least, understand their perspective).

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## Pharmacy

The editorial by Arti et al. [Arti 2020] proposed strategies and approaches aimed to manage dispensing error risk in pharmacy. The Authors explicitly mentioned the SVP, adopting the definition by Scott et al. [REF]. Moreover, the article highlighted the importance that SVs are treated using a supportive approach, and they mentioned the components for a potential support program for SVs (e.g., safe space for reviewing the accident, basic peer and professional support).

## Simulation

One case report [Naweed 2021] dealt with SV in simulation. While the students involved in the reported situation were healthcare professionals, this paper was included since it did not directly dealt with clinical practice. The authors highlight how instructors and facilitators were exposed to adverse events during their activity, in a manner similar to the clinical practice. The report described a panic attack of a facilitator during a simulated evacuation scenario. Therefore, the authors highlighted how facilitators “are equally vulnerable to breaches in simulation safety (physical or psychological) as their learners”. In conclusion, the authors stated the importance of self care, and open error disclosure also for simulators.

## Social Workers and Child Protection Systems

A mixed method study [Sugrue 2017] discussed the moral injury phenomenon among child protection professionals. They collected qualitative and quantitative information through surveys among the professionals working in child protection systems of two different counties to assess whether professionals can experience moral injury regarding their work within CPS. The Authors made some parallelism with other sectors, and identified SVs as healthcare professionals experiencing a moral injury. Study participants described moral injurious events as “occurring when actions or inactions by people or systems entrusted with helping or protecting others instead caused harm”. The majority of them identified a lack of resources in their organization as a major cause of the occurrence of moral injurious events. Moreover, they identified issues in laws, policies, and procedures. With regards to the professionals’ psychological response, they reported emotional distress, and existential issues. They identified quitting the job as a major consequence of moral injury.

The work by Kvitsiani [Kvitsiani 2023] aimed to explore the dynamic of moral injury among social workers (e.g., doctors, psychiatrists, call center operators). Similar to Sugrue et al, they identified a parallelism between moral injury and SVP. They conducted a semi-structured interview and explored the situations causing a moral injury, the emotional reactions, and personal changes.

The book “Stress, Trauma, and Decision-Making for Social Workers” by Regher [Regher 2018] explicitly introduced the concept of SV. In detail, in the chapter “Factors contributing to trauma response”, they mentioned that ongoing stressors related to an incident can exacerbate personnel traumatic reactions in firefighters and paramedics, as well as police officers. Next, they identified SVP similar to the experiences by social workers, even if they did not adopt SV terminology for the social context. As possible mitigation interventions, they identified peer support teams as a strategy that, similarly to the SVP, can support morally injured professionals.

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# Discussion

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# Conclusion

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# References

1. Apanay JA, O’Donnell J. Examining the Problems of Creating Second Victims in the Aviation Industry.

2. Dekker S. Second Victim [Internet]. 0 ed. CRC Press; 2013 [cited 2024 Feb 22]. Available from: https://www.taylorfrancis.com/books/9781466583429

3. Dekker S. Introduction to Restorative Just Culture. In: Restorative Just Culture in Practice [Internet]. 1st ed. New York: Productivity Press; 2022 [cited 2024 Feb 2]. p. 1–20. Available from: https://www.taylorfrancis.com/books/9781003162582/chapters/10.4324/9781003162582-1

4. Department of Statistics. Resolution to amend the 19th ICLS resolution concerning statistics of work, employment and labour underutilization [Internet]. Geneva: International Labour Organization; 2023 [cited 2024 Mar 1]. Available from: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms\_230304.pdf

5. Gibson J, Brennan ML, Oxtoby C, Mossop L, White K. Ethical challenges experienced by veterinary practitioners in relation to adverse events: Insights from a qualitative study. Veterinary Record. 2023 Dec 16;193(12):e3601.

6. Haight W, Sugrue EP, Calhoun M. Moral injury among Child Protection Professionals: Implications for the ethical treatment and retention of workers. Children and Youth Services Review. 2017 Nov;82:27–41.

7. Hayes J, Maslen S, Scott-Young C, Wong J. The rise of defensive engineering: how personal liability considerations impact decision-making. Journal of Risk Research. 2018 Sep 2;21(9):1131–45.

8. Heraghty D, Dekker S, Rae A. Accident Report Interpretation. Safety. 2018 Oct 15;4(4):46.

9. Heraghty D, Dekker SWA, Rae A. Modifying an accident process and its justice system – From single narratives and retribution to multiple stories and restoration. Safety Science. 2021 Jul;139:105248.

10. Huth M, DePaul University. The Dialectics of Vulnerability: Can We Produce or Exacerbate Vulnerability by Emphasizing It As a Normative Category? Philosophy Today. 2020;64(3):557–76.

11. Kvitsiani M, Mestvirishvili M, Martskvishvili K, Odilavadze M. Dynamic model of moral injury. European Journal of Trauma & Dissociation. 2023 Mar;7(1):100313.

12. Mosedale P. Improving the quality of care in equine veterinary practice. Equine Veterinary Education. 2020 Mar;32(3):116–7.

13. Naweed A, Dennis D, Krynski B, Crea T, Knott C. Delivering Simulation Activities Safely: What if We Hurt Ourselves? Sim Healthcare. 2021 Feb;16(1):60–6.

14. Perret JL, Best CO, Coe JB, Greer AL, Khosa DK, Jones-Bitton A. Prevalence of mental health outcomes among Canadian veterinarians. javma. 2020 Feb 1;256(3):365–75.

15. Pollock D, Peters MDJ, Khalil H, McInerney P, Alexander L, Tricco AC, et al. Recommendations for the extraction, analysis, and presentation of results in scoping reviews. JBI Evidence Synthesis. 2023 Mar;21(3):520–32.

16. Regehr C. Stress, Trauma, and Decision-Making for Social Workers [Internet]. Columbia University Press; 2018 [cited 2024 Feb 2]. Available from: https://www.degruyter.com/document/doi/10.7312/rege18012/html

17. Seys D, Panella M, Russotto S, Strametz R, Joaquín Mira J, Van Wilder A, et al. In search of an international multidimensional action plan for second victim support: a narrative review. BMC Health Serv Res. 2023 Jul 31;23(1):816.

18. Smith PJ, Hoffman RR, editors. Cognitive Systems Engineering: The Future for a Changing World [Internet]. 1st ed. Boca Raton : Taylor & Francis, CRC Press, 2017. | Series: CRC Press; 2017 [cited 2024 Feb 1]. Available from: https://www.taylorfrancis.com/books/9781317164777

19. Timmenga FSL, Jansen W, Turner PV, De Briyne N. Mental well-being and diversity, equity, and inclusiveness in the veterinary profession: Pathways to a more resilient profession. Front Vet Sci. 2022 Jul 29;9:888189.

20. Tricco AC, Lillie E, Zarin W, O’Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018 Oct 2;169(7):467–73.

21. Vanhaecht K, Seys D, Russotto S, Strametz R, Mira J, Sigurgeirsdóttir S, et al. An Evidence and Consensus-Based Definition of Second Victim: A Strategic Topic in Healthcare Quality, Patient Safety, Person-Centeredness and Human Resource Management. IJERPH. 2022 Dec 15;19(24):16869.

22. Walsh P. What is a ‘just culture’? Journal of Patient Safety and Risk Management. 2019 Feb;24(1):5–6.

23. White B, Yeung P, Chilvers BL, O’Donoghue K. Reducing the “cost of caring” in animal-care professionals: Social work contribution in a pilot education program to address burnout and compassion fatigue. Journal of Human Behavior in the Social Environment. 2021 Oct 3;31(7):828–47.

# Tables

**Table 1.** Search Strings

|  |  |  |  |
| --- | --- | --- | --- |
| **Database** | **String** | **Date** | **Results** |
| Google Scholar | allintitle:"second victim" OR "second victims" | 11/01/2024 | 439 |
| Google Scholar | “second victims” | 11/01/2024 | 7366 |
| ProQuest | title("second victim" OR "second victims") OR abstract("second victim" OR "second victims") | 11/01/2024 | 93 |
| PubMed | "second victims" OR "second victim | 11/01/2024 | 438 |
| Scopus | "second victims" OR "second victim | 11/01/2024 | 2277 |
| Cinahl | "second victims" OR "second victim” | 11/01/2024 | 300 |
| Web of Science | “second victim” OR “second victims” (Title) OR “second victim” OR “second victims” (Abstract)” | 11/01/2024 | 565 |

11478

**Table 2.** Included studies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study** | **Study design** | **Country** | **Sector** | **Levels** |
| Apanay 2021 | Opinion paper | - | Aviation | 0, 1, 2, 3, 4 |
| Arti 2020 | Editorial | - | Pharmacy | 0, 2, 3 |
| De Boer 2022 | Book | - | Business | 0 |
| Gibson 2003 | Qualitative | United Kingdom | Veterinary | 0, 2 |
| Hayes 2018 | Survey | Australia | Engineering | 0 |
| Heraghty 2018 | Survey | Australia | Construction | 1 |
| Heraghty 2021 | Case study | United Kingdom | Construction | 1 |
| Karinakas 2017 | Survey | Europe | Aviation | 0, 4 |
| Koll-Krüsmann | ?? |  | Emergency services |  |
| Kvitsiani 2023 | Qualitative | Georgia | Social-CPS | 0 |
| Mosedale 2020 | Case report | United Kingdom | Veterinary | 0, 2 |
| Naweed 2021 | Case report | Austria | Simulation | 0 |
| Perret 2020 | Cross-sectional | Canada | Veterinary | 0, 2 |
| Regher 2018 | Book | - | Social-CPS | 0, 3 |
| Smith 2017 | Book | - | Engineering | 0 |
| Sugrue 2017 | Mixed method | - | Social-CPS | 0 |
| Timmenga 2022 | Mixed-methods | Worldwide | Veterinary | 2,3 |
| White 2021 | Pilot | New Zealand | Veterinary | 2, 3 |

**Table 3.** Intersection between industries and levels (number of articles mentioning the specific level/total articles).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Level 0** | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **Level 5** |
| **Veterinary** | 3/5 | 0 | 5/5 | 2/5 | 0 | 0 |
| **Aviation** | 2/2 | 1/2 | 1/2 | 1/2 | 2/2 | 0 |
| **Social-CPS** | 3/3 | 0 | 0 | 1/3 | 0 | 0 |
| **Engineering** | 2/2 | 0 | 0 | 0 | 0 | 0 |
| **Construction** | 0 | 2/2 | 0 | 0 | 0 | 0 |
| **Business** | 1/1 | 0 | 0 | 0 | 0 | 0 |
| **Pharmacy** | 1/1 | 0 | 1/1 | 1/1 | 0 | 0 |
| **Simulation** | 1/1 | 0 | 0 | 0 | 0 | 0 |
| **Emergency services** |  |  |  |  |  |  |
| ***Overall*** | *13/18* | *3/18* | *7/18* | *5/18* | *2/18* | *0/18* |

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# Figures

**Figure 1.** PRISMA Flowchart.

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**Figure 2.** The modified version of the five-step model (adapted from Seys et al.).

