Development and validation of a questionnaire to assess incidence and reactions of second victims in German speaking countries (SeViD)

Reinhard Strametz
Hochschule RheinMain
Miriam Abloescher
Krankenhaus Hietzing
Wolfgang Huf
Krankenhaus Hietzing
Brigitte Ettl
Krankenhaus Hietzing
Matthias Raspe (matthias.raspe@charite.de)
Charite Universitatsmedizin Berlin https://orcid.org/0000-0003-3916-6297

Research

Keywords: second victim, medical error, PTSD, clinical risk management

Posted Date: January 28th, 2020

DOI: https://doi.org/10.21203/rs.2.22033/v1

Abstract

Background Second victims, defined as health care team members being traumatized by an unanticipated clinical event or outcome, are supposed to be a common phenomenon in health care. Surveys in the US health care system indicate high incidence rates among physicians between 10 and 44%. However, no systematic assessment of second victims in health care in German speaking countries has been published yet and no validated German questionnaire for assessing incidence of and impact on second victims exists. Therefore, we initiated the SeViD (Second Victims im Deutschsprachigen Raum/second victims in German speaking countries) project and developed a German questionnaire for the assessment of second victim incidents. Methods Based on an intensive literature review of available questionnaires in English we defined a preliminary version of our questionnaire consisting of 4 domains and 14 items. This version was subject to cognitive pretesting using paraphrasing, probing and think aloud methods in order to ensure content validity. Retest reliability of second victim symptoms was assessed three weeks after the initial pretest. Results Fifteen health care professionals (physicians, nurses, therapeutic and diagnostic professions and administrative staff) of hospitals in Germany (n=6) and Austria (n=9) with or without previous second victim experience participated as volunteers for all pretests after informed consent. Seven items in three domains were slightly modified based on cognitive pretests. Retest reliability for second victim symptoms was rho = 0.76. Mean duration of completion for this questionnaire took 9:01 (±3:05) minutes in case of a previous second victim experience and otherwise 4:19 (±0:59) minutes and was regarded acceptable by all volunteers. No volunteer regarded any question to be inappropriate. Conclusion We successfully developed a validated questionnaire assessing the impact of the second victim phenomenon in inpatient health care facilities. This questionnaire will be used in different settings for health care professionals and for stand-alone baseline assessment as well as pre/post-survey along with complex educational interventions to reduce negative impacts of the second victim phenomenon.

Background

Health care is associated with relevant risks not only for patients, but also for health care professionals like infections or needle stick injuries [1–7]. Besides those well-known risks to physical integrity, unanticipated clinical events or outcomes, often caused by mistakes in health care, do not only traumatize patients but also health care professionals, who may become thus so-called second victims [8, 9]. Being a second victim can lead to dysfunctional coping strategies [10] resulting in change in working behavior leading with reduced quality of care to further negative patient- and employee-related outcomes like isolation, reduced quality of life up to PTSD [10–12] or even suicide [13]. Previous surveys in English speaking countries indicate prevalence between 10 and 42 % of the second victims among health care professionals [14, 15]. Based on research of the natural history of second victim traumatization [8] several interventional programs for health care professionals were launched in English speaking countries [16, 20] showing beneficial evidence regarding employee-related outcomes [16, 17] and cost-effectiveness [18].

In Germany the association of statutory accident insurances defined standards for the care of employees after traumatizing events [19]. In opposite to sectors like rail services [21] or air traffic [22], where psychological support for employees after a traumatizing events has been addressed already, no systematic assessment of this phenomenon in the German speaking health care sector has been published yet.

We therefore initiated the SeViD (Second Victims im Deutschsprachigen Raum/second victims in German speaking countries) project. As a first step of this project we developed and validated a German-language questionnaire for assessment of second victim experiences as well as pre/post-evaluation of intervention programs to reduce the impact of second victim incidents.

Methods

We conducted a systematic literature search in MEDLINE and Google scholar to identify questionnaires previously developed and/or used to evaluate the second victim phenomenon in health care, including only publications in English or German. We developed a German speaking version based on all identified questionnaires. In order to ensure comparability of surveys in different settings of health care we designed all questions in a multiprofessional way and did not intend to customize items to any medical specialty apart from demographic information. Duration of answering the questionnaire was intended not to exceed five minutes in case of absence of a second victim experience to ensure acceptable response rates and to avoid selection bias. The preliminary version of this questionnaire was subject to cognitive pretesting using paraphrasing, probing and think aloud methods [23] in order to ensure content validity.

We included health care professionals of different professional groups (physicians, nurses, therapeutic and diagnostic professions and administrative staff) of the Department of Internal Medicine, Infectious Diseases and Respiratory Medicine of Charité (Berlin, Germany) and Hietzing Hospital of Vienna Hospital Association (Vienna, Austria) with or without previous second victim experience to participate as volunteers for all pretests after informed consent. Sample size of volunteers was set to a minimum of 15 volunteers based on recommendations of Willis [24] and Lenzner [23]. All volunteers received the same questionnaire three weeks after initial assessment to confirm retest reliability for the domain second victim symptoms [25]. Cognitive pretests were conducted by a researcher independent from both participating hospitals who was unknown to all participating volunteers to minimize the risk of observation bias.

To ensure standards of data protection, questionnaires were completely anonymized using respondent-generated codes to match tests and retests. Anonymized use of data for scientific reasons was declared in all questionnaires. Descriptive analyses were computed using Microsoft Excel© 2016.

Results

We identified six questionnaires related to nine resources to be potentially suitable for partial inclusion in our preliminary questionnaire [8, 10, 20, 26–30, 31]. Details of included questionnaires are shown in **Table 1**. The first draft of our questionnaire consisted of the three domains general experience with second victim phenomenon, second victim symptoms and second victim support strategies and was limited to 40 items, that were taken over by or adapted from included questionnaires as shown in **Table 2**. For the symptoms domain participants answered by a 3-point (strongly pronounced, weakly pronounced, not pronounced) and for the support strategies domain by a 4-point (very helpful, rather helpful, rather not helpful and not helpful) ordinal scale. The options “Don’t know” and “I cannot judge this”, respectively, were also included.

Fifteen Health care professionals (physicians, nurses, therapeutic and diagnostic professions and administrative staff) of Charité, Berlin (n=6) and Hietzing Hospital, Vienna (n=9) participated in pretesting the preliminary questionnaire. Among all participating health care professionals 3 of 15 (20 %) had previous second victim experience(s) which is comparable with published prevalence from studies in English speaking countries [15].

Seven items in all three domains were slightly modified based on cognitive pretests. All participants were able to rephrase selected questions or to paraphrase technical terms like second victim correctly, even if they reported that they had never heard about the second victim phenomenon before our pretest. All participants completed retest of this questionnaire three weeks after initial assessment. Retest reliability for the domain second victim symptoms was acceptable with rho = 0.76. Mean duration of completion for this questionnaire took 9:01 (±3:05) minutes in case of a previous second victim experience and otherwise 4:19 (±0:59) minutes which was regarded acceptable by all volunteers. No volunteer regarded any question to be inappropriate or important information to be missing in this questionnaire.

Discussion

We were able to develop and pretest a questionnaire to assess second victim experiences in health care professionals in German speaking countries, that was regarded acceptable by all participating volunteers during cognitive pretesting. Although pretesting a small subgroup of participants is always associated with the risk of selection bias or Hawthorne effect, reactions of participating volunteers with previous second victim experiences indicate absence of mayor observation bias.

The selection of items were based on previously developed English questionnaires to ensure content validity also resulting in an acceptable level of retest reliability. Changes to the preliminary version were marginal and mostly related to effects caused by translation of existing questions to German.

Conclusion

We successfully developed a validated questionnaire assessing the impact of the second victim phenomenon in inpatient health care facilities. This questionnaire will be used in different settings for

health care professionals for stand-alone baseline assessment as well as pre/post-surveys along with complex educational interventions to reduce harm of the second victim phenomenon, like e.g. the initiative KoHi (Kollegiale Hilfe / collegial help) at Hietzing Hospital in Vienna, Austria (intervention in progress, results not yet published).

Abbreviations

SeViD: Second Victims im Deutschsprachigen Raum (second victims in German speaking countries)
KoHi: Kollegiale Hilfe (collegial help)

Declarations

Acknowledgements

We acknowledge support from the German Research Foundation (DFG) and the Open Access Publication Funds of Charité – Universitätsmedizin Berlin. The authors thank all volunteers participating in validation of this survey.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Availability of data and materials

The questionnaire is set up in the German language and therefore not suitable for international use. Interested researchers are encouraged to contact the authors for the provision of the used questionnaire.

Authors' contributions

RS, MA, WH, BE and MR conceived the study. RS, MA and MR collected data and provided the first draft. All authors read and approved the manuscript.

Ethics approval and consent to participate

Because of the research design, no formal vote of the Ethics Committee was required. To ensure data protection all data were collected without any demographic information allowing identification of participants. All participants gave their consent to use of data for this study.

Consent for publication

All participants were informed about the study and gave their consent to publication of survey data.

Competing interests

The authors declare that they have no competing interests.

References

1. Strametz R, Schneider T, Pitz A, Raspe M. Survival-Day @ Wiesbaden business school - evaluation of a short-term educational intervention to reduce work-associated health risks during nursing internships of students in health care economics. J Occup Med Toxicol. 2019;14:30. doi:10.1186/s12995-019-0251-z.
2. Strametz R, Schneider TH, Pitz A, Raspe M. Gefährdungsanalyse für Studierende im Krankenpflegepraktikum. Zbl Arbeitsmed. 2019;69:350–4. doi:10.1007/s40664-019-00362-w.
3. Michaelis M, Hofmann FM, Stößel U, Hofmann F. Norovirusausbrüche und Kooperation zwischen Hygienepersonal und Betriebsärzten im Krankenhaus. Zbl Arbeitsmed. 2017;67:309–13. doi:10.1007/s40664-017-0206-0.
4. Richarz S. Psychische Belastung in der Gefährdungsbeurteilung. Zbl Arbeitsmed. 2018;68:334–7. doi:10.1007/s40664-018-0290-9.
5. Quart J, Deutsch T, Carmienke S, Döpfmer S, Frese T. Willingness to commute among future physicians: A multicenter cross-sectional survey of German medical students. J Occup Med Toxicol. 2018;13:17. doi:10.1186/s12995-018-0200-2.
6. Appel P, Schuler M, Vogel H, Oezelsel A, Faller H. Short Questionnaire for Workplace Analysis (KFZA): Factorial validation in physicians and nurses working in hospital settings. J Occup Med Toxicol. 2017;12:11. doi:10.1186/s12995-017-0157-6.
7. Brütting M, Hermanns I, Nienhaus A, Ellegast R. Muskel-Skelett-Belastungen beim Schieben und Ziehen von Krankenbetten und Rollstühlen. Zbl Arbeitsmed. 2017;67:64–77. doi:10.1007/s40664-016-0150-4.
8. Scott SD, Hirschinger LE, Cox KR, McCoig M, Brandt J, Hall LW. The natural history of recovery for the healthcare provider "second victim" after adverse patient events. Qual Saf Health Care. 2009;18:325–30. doi:10.1136/qshc.2009.032870.
9. Wu AW. Medical error: The second victim. BMJ. 2000;320:726–7. doi:10.1136/bmj.320.7237.726.
10. Waterman AD, Garbutt J, Hazel E, Dunagan WC, Levinson W, Fraser VJ, Gallagher TH. The emotional impact of medical errors on practicing physicians in the United States and Canada. Jt Comm J Qual Patient Saf. 2007;33:467–76. doi:10.1016/s1553-7250(07)33050-x.
11. Laue N von, Schwappach D, Hochreutener M. "Second victim" - Umgang mit der Krise nach dem Fehler. Ther Umsch. 2012;69:367–70. doi:10.1024/0040-5930/a000300.
12. Schwappach DL, Boluarte TA. The emotional impact of medical error involvement on physicians: A call for leadership and organisational accountability. Swiss Med Wkly. 2009;139:9–15.
13. Grissinger M. Too many abandon the "second victims" of medical errors. P T. 2014;39:591–2.
14. West CP, Huschka MM, Novotny PJ, Sloan JA, Kolars JC, Habermann TM, Shanafelt TD. Association of perceived medical errors with resident distress and empathy: A prospective longitudinal study.

JAMA. 2006;296:1071–8. doi:10.1001/jama.296.9.1071.

15. Seys D, Wu AW, van Gerven E, Vleugels A, Euwema M, Panella M, et al. Health care professionals as second victims after adverse events: A systematic review. Eval Health Prof. 2013;36:135–62. doi:10.1177/0163278712458918.
16. Edrees H, Connors C, Paine L, Norvell M, Taylor H, Wu AW. Implementing the RISE second victim support programme at the Johns Hopkins Hospital: A case study. BMJ Open. 2016;6:e011708. doi:10.1136/bmjopen-2016-011708.
17. Burlison JD, Quillivan RR, Scott SD, Johnson S, Hoffman JM. The Effects of the Second Victim Phenomenon on Work-Related Outcomes: Connecting Self-Reported Caregiver Distress to Turnover Intentions and Absenteeism. J Patient Saf 2016. doi:10.1097/PTS.0000000000000301.
18. Moran D, Wu AW, Connors C, Chappidi MR, Sreedhara SK, Selter JH, Padula WV. Cost-Benefit Analysis of a Support Program for Nursing Staff. J Patient Saf 2017. doi:10.1097/PTS.0000000000000376.
19. Deutsche Gesetzliche Unfallversicherung e.V., editor. DGUV Information 206-023: Standards in der betrieblichen psychologischen Erstbetreuung (bpE) bei traumatischen Ereignissen. Berlin: DGUV Deutsche Gesetzliche Unfallversicherung Spitzenverband; 2017.
20. Scott SD, Hirschinger LE, Cox KR, McCoig M, Hahn-Cover K, Epperly KM, et al. Caring for our own: Deploying a systemwide second victim rapid response team. Jt Comm J Qual Patient Saf. 2010;36:233–40.
21. European Parliament and the Council. Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004: L 138; 26.5.2016.
22. European Parliament and the Council. Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91: L 212/1; 22.8.2018.
23. Lenzner T, Neuert C, Otto W. GESIS Survey Guidelines. 2016. https://www.gesis.org/fileadmin/upload/SDMwiki/LenznerNeuertOtto_Cognitive_Pretesting.pdf
24. Willis GB. Cognitive interviewing: A tool for improving questionnaire design. Thousand Oaks: Sage; 2005.
25. Bortz J, Döring N. Forschungsmethoden und Evaluation: Für Human- und Sozialwissenschaftler. 5th ed. Berlin: Springer; 2015.
26. Burlison JD, Scott SD, Browne EK, Thompson SG, Hoffman JM. The Second Victim Experience and Support Tool: Validation of an Organizational Resource for Assessing Second Victim Effects and the Quality of Support Resources. J Patient Saf. 2017;13:93–102. doi:10.1097/PTS.0000000000000129.

27. Gazoni FM, Amato PE, Malik ZM, Durieux ME. The impact of perioperative catastrophes on anesthesiologists: Results of a national survey. Anesth Analg. 2012;114:596–603. doi:10.1213/ANE.0b013e318227524e.
28. Harrison R, Lawton R, Stewart K. Doctors' experiences of adverse events in secondary care: The professional and personal impact. Clin Med (Lond). 2014;14:585–90. doi:10.7861/clinmedicine.14-6-585.
29. The Second Victim Experience Survey. https://www.surveymonkey.com/r/CaringforOurOwn. Accessed 7 Jan 2020.
30. Edrees HH, Paine LA, Feroli ER, Wu AW. Health care workers as second victims of medical errors. Polish Archives of Internal Medicine. 2011;121:101–8. doi:10.20452/pamw.1033.
31. Medically Induced Trauma Support Services (MITSS). MITSS Staff Support Survey. 2010. http://www.mitsstools.org/uploads/3/7/7/6/3776466/mitss_staff_support_survey.pdf. Accessed 7 Jan 2020.

Tables

Table 1. Included English questionnaires identified by literature search

Questionnaires are reported in alphabetical order of first author.

First author	Name of questionnaire/study	setting/invited participants	related publications or other resources identified
Burlison, JD	Second Victim Experience and Support Survey (SVEST)	staff members of a pediatric hospital treating children with catastrophic illnesses including, but not limited to, nurses, physicians, pharmacists, and medical technicians	[26]
Edrees, HH	Second Victim Questionnaire	350 health care workers from various professions who registered to participate in the “Johns Hopkins Medicine 1st Annual Patient Safety Summit” and who attended a plenary session entitled “Healthcare Workers: the ‘Second Victims’	[30, 31]
Gazoni, FM	Perioperative Catastrophes Survey	self-administered postal survey to 1200 randomly selected members of the American Society of Anesthesiologists	[27]
Scott, SD	The Second Victim Experience Survey	10-item Web-based survey to approx. 5.300 faculty and staff members at University of Missouri Health Care	[8, 20, 30]
		online survey, currently available open access	[29]
Waterman, AD	n.a.	anonymous paper or a Web-based survey on clinically active physicians in internal medicine, surgery (general surgery and all specialties), family medicine, at 13 hospitals in the US and 2.400 physicians (internists/surgeons) drawn from the Canadian Medical Directory	[10, 28]

		online survey to fellows and members of the Royal College of Physicians (RCP)	

Table 2. List of domains and items of the SeViD questionnaire

Domain	Item
general experience with second victim phenomenon	knowledge of the term second victim
	lifetime prevalence of second victim experience
	12 month prevalence of second victim experience
	type of key incident
	seek for support after key incident
	types of groups supporting after key incident
	self-perceived time to full recovery after key incident
second victim **symptoms** (listed in alphabetical order of German version of the questionnaire)	fear of social exclusion from colleagues
	fear of losing the job
	lethargy
	depressed mood
	concentration problems
	reactivation of situation outside job site
	reactivation of situation at job site
	aggressive, risky behavior
	defensive, overprotective behavior
	psychosomatic reactions (headaches, back pain)
	difficulties to sleep or excessive need to sleep
	use of substances (alcohol/drugs) due to this event
	sense of shame
	feelings of guilt
	lower self-confidence
	social isolation
	anger against others
	anger against oneself
	desire to get support from others
	desire to work through the incident for deeper

	understanding
second victim **support strategies**	immediate time out to recover
	access to counseling including psychological/psychiatric services
	possibility to discuss emotional and ethical issues
	clear information about processes (e.g. root cause analysis, incident reporting)
	formal peer to peer support
	informal emotional support
	prompt debriefing/crisis intervention
	supportive guidance for continuing clinical duties
	help to communicate with patients
	clear guidance about the roles to be expected after the incident
	help to actively participate to work through this incident
	safe opportunity to contribute insights to prevent similar events in future
	opportunity to seek for legal advice after an incident