



## Development and validation of an online questionnaire (PERoPA-M)

An international online survey on patient and visitor aggression in healthcare organizations from the nurse managers' perspective.

This international online survey is part of the PERoPA Project aimed at exploring the perceptions of and behaviours towards patient and visitor aggression in healthcare organizations.

The project is under the overall lead of Prof Sabine Hahn, PhD and conducted by the International Research Collaborative on Clinical Aggression (i- RCCA)<sup>1</sup>

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## Table of Contents

|     |  |    |
|-----|--|----|
| 1   | Introduction .....   | 4  |
| 2   | Detailed description of the instruments .....                                    | 4  |
| 2.1 | SOVES-G-R (Survey of Violence Experienced by Staff, German version revised)..... | 4  |
| 2.2 | POAS-S (The Perception of Aggression by Nurses – Short Version).....             | 5  |
| 2.3 | POIS (Perception of Importance of Intervention Skills Scale).....                | 5  |
| 2.4 | MAVAS (Management of Aggression and Violence Attitude Scale) .....               | 5  |
| 3   | Phase 1: The German version (PERoPA-M-G) .....                                   | 6  |
| 3.1 | Development and pretesting .....   | 6  |
| 3.2 | Assessment of the feasibility of PERoPA-M-G - post hoc.....                      | 7  |
| 4   | Phase 2: The English version (PERoPA-M-E).....                                   | 10 |
| 4.1 | Translation and shortening .....   | 10 |
| 4.2 | Evaluation.....  | 10 |
| 5   | References.....  | 11 |

# 1 Introduction

This document provides information on the development and validation of an online questionnaire that was designed to explore nurse managers' perception of the prevention and management of aggression in healthcare: The Survey of Perception of Patient and Visitor Aggression by Management (PERoPA-M).

The document is intended to supplement publications resulting from the international online survey within the PERoPA (Perception of Patient and Visitor Aggression) project<sup>2</sup>. PERoPA is a mixed-methods project that examines the prevention and management of PVA at the organizational level. The first part of the project comprised a qualitative interview and focus group study with nurse managers (2015-16). The second part consists of two international cross-sectional survey data collections. Phase 1 includes German-speaking countries (2016-17), phase 2 English-speaking countries (2018-19).

In phase 1, a German version was developed, evaluated and used in an international data collection across German-speaking countries (PERoPA-M-G) in 2016/17. The tool can be viewed on the [PERoPA website](#) (tab 'Instrument').

In the second phase of the project, PERoPA-M-G was translated to English and adapted to the cultural context of English-speaking countries. During the process, the questionnaire was again critically reviewed by experts and shortened to enhance its feasibility.

The PERoPA-M survey tool was designed to collect comprehensive information about the perception of patient and visitor aggression (PVA), its prevention and management, from the perspective of nurse managers.

The tool comprises four validated tools that were initially designed to capture the attitudes towards, experience, with or the management of aggression:

- the Survey of Violence Experienced by Staff (German version revised) (SOVES-GR) (Hahn et al., 2011; Hahn et al., 2010)
- the shortened Perception of Aggression Scale (POAS-S) (Hahn et al., 2011)
- the Perception of Importance of Intervention Skills Scale (POIS) (Hahn et al., 2011)
- the Management of Aggression and Violence Scale (MAVAS) (Duxbury, 2003)

## 2 Detailed description of the instruments

### 2.1 SOVES-G-R (Survey of Violence Experienced by Staff, German version revised)

The original version of the SOVES was developed by McKenna (2004). The questionnaire collected information about workplace aggression and included patients, healthcare staff, visitors and the environment, as well as demographic characteristics. The questionnaire is divided in two sections. Section A collects demographic and participant data. Section B investigates the experience of workplace aggression in terms of source and frequency. Section C investigates the consequences of workplace aggression. Section D contains questions about employer support. Section E uses closed-ended questions to explore the level and content of training received. A panel of eight experts from the European Violence in Psychiatry Research Group reviewed the instrument for content validity

<sup>2</sup>[https://www.gesundheit.bfh.ch/de/forschung/pflege/projekte/aggression\\_im\\_gesundheitswesen/peropa\\_the\\_nurse\\_managers\\_perspective\\_englisch/tabs/background.html](https://www.gesundheit.bfh.ch/de/forschung/pflege/projekte/aggression_im_gesundheitswesen/peropa_the_nurse_managers_perspective_englisch/tabs/background.html)

(McKenna, 2004). In addition, the SOVES' subscales achieved good levels of internal consistency (Cronbach's alphas 0.87-0.91) in a trial and study with healthcare staff (McKenna, 2004). The SOVES contains Visual Analogue Scales (VAS) as well as Likert scales. The SOVES-G-R is a translated and adapted version of the original. All VAS were replaced by Likert scales, questions about the sources of aggression from co-workers and others were removed (Hahn et al., 2011).

Face and content validity of the SOVES-G-R were established in a cognitive pre-test including 17 healthcare professionals. The SOVES G-R was revised as per feedback, but overall the statements were deemed comprehensible, comprehensive and meaningful (Hahn et al., 2011).

## 2.2 POAS-S (The Perception of Aggression by Nurses – Short Version)

The German version of the POAS-S (Hahn et al., 2011; Needham et al., 2004) consists of 12 items. Six of these correspond to one of two factors. The factors represent patient aggression as either positive (functional/ desirable) or a negative (dysfunctional/ undesirable) phenomenon. The questions are answered on a five-point Likert scale.

The German version was tested in a mental health setting and demonstrated satisfactory internal consistency with a Cronbach's alpha of 0.69 for factor 1 (aggression as dysfunctional) and 0.67 for factor 2 (aggression as functional). On testing the tool in Swiss general hospitals, the Cronbach's alpha for factor 1 was 0.59 (factor 1) and 0.68 (factor 2) (Hahn et al., 2011). A panel of nine German-speaking experts in aggression in healthcare reviewed the POAS for relevance and content validity. Overall the statements were deemed comprehensible, comprehensive and meaningful.

## 2.3 POIS (Perception of Importance of Intervention Skills Scale)

The POIS (Hahn et al., 2011) is a nine-item tool that focuses on the importance of intervention skills such as verbal communication or self-awareness in interactions. The answer options range from 'important' to 'not important' on a three point-Likert scale. The questionnaire was validated for relevance and content validity by panel of nine German-speaking experts in aggression in healthcare and rated as good. The construct validity was confirmed by factor analysis and revealed two factors. Factor 1 (structured interventions and evaluations are important to manage aggression) comprises six items, factor 2 (importance of preventive measures to manage aggression) three items. The reliability was satisfactory with Cronbach's alphas 0.67 (factor 1) and 0.52 (factor 2).

## 2.4 MAVAS (Management of Aggression and Violence Attitude Scale)

The MAVAS explores the attitudes towards causes of aggression and approaches to its management in 27 items. It covers four relevant factors: the interactional perspective (six items), the external perspective (six items), the internal perspective (nine items) and views about approaches to patient management (six items) (Duxbury, 2003; Hahn et al., 2006). Answers were originally recorded on a VAS (0 millimeter 'strongly agree' to 100 millimeters 'strongly disagree').

The MAVAS was tested for validity and reliability in a factor analysis and received descriptive subject feedback. Overall, the statements were deemed to be valid. Test-retesting of the tool demonstrated a reliability coefficient of 0.89 (Pearson's r) (Duxbury, 2003).

The MAVAS was translated into German and back translated. Five experienced nurses from acute psychiatric nursing, who assessed the German version for face validity found the tool to be understandable, comprehensive and meaningful (Hahn et al., 2006).

### 3 Phase 1: The German version (PERoPA-M-G)

#### 3.1 Development and pretesting

The German version of the PERoPA-M-G questionnaire was developed and tested in three steps between 2015– 2016 (see Figure 1)

1. Expert validation  
The Survey of Violence Experienced by Staff German version revised (SOVES-GR) (Hahn et al., 2011) was reviewed by the team of the International Research Collaborative on Clinical Aggression (i- RCCA)<sup>3</sup> and adapted to the aims of the PERoPA Study.
2. Literature review and interview study  
Four validated tools were included in the first draft
  - the Survey of Violence Experienced by Staff (German version revised) (SOVES-GR) (Hahn et al., 2011; Hahn et al., 2010)
  - the shortened Perception of Aggression Scale (POAS-S) (Hahn et al., 2011)
  - the Perception of Importance of Intervention Skills Scale (POIS) (Hahn et al., 2011)
  - the Management of Aggression and Violence Scale (MAVAS) (Duxbury, 2003)

These tools were initially designed to assess patient and visitor aggression from the staff perspective. There is to date no tool to assess the management perspective of patient and visitor aggression. To ensure that the PERoPA M-G also captured this view, additional items were included in the draft. These had emerged from the interview study (Heckemann et al., 2017) and the literature search. They addressed topics such as

- Organizational support, policies and guidelines
  - Organizational Norms
  - Communication of incidents
  - Prevention and intervention strategies
  - Team-efficacy
  - Collaboration
3. Pre-testing for face validity and ease of use in three rounds with volunteers from Austria, Switzerland and Germany between June and September 2016. A final review was undertaken by BH and SH.

The final German version of the survey comprised 86 items and 13 domains (see Table 1). Cronbach's alphas for the items added from the interview study were calculated post hoc (see Table 1), after data collection in German speaking countries.

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<sup>3</sup> The i-RCCA is an international academic collaboration of experts in the field of aggression. Current members are: Switzerland: Prof S. Hahn, Dr B. Heckemann; UK: Prof J. Duxbury; USA: A/prof Dr Joanne Iennaco; Canada: Ms S. Riahi; Australia: A/prof Dr B. Hamilton.

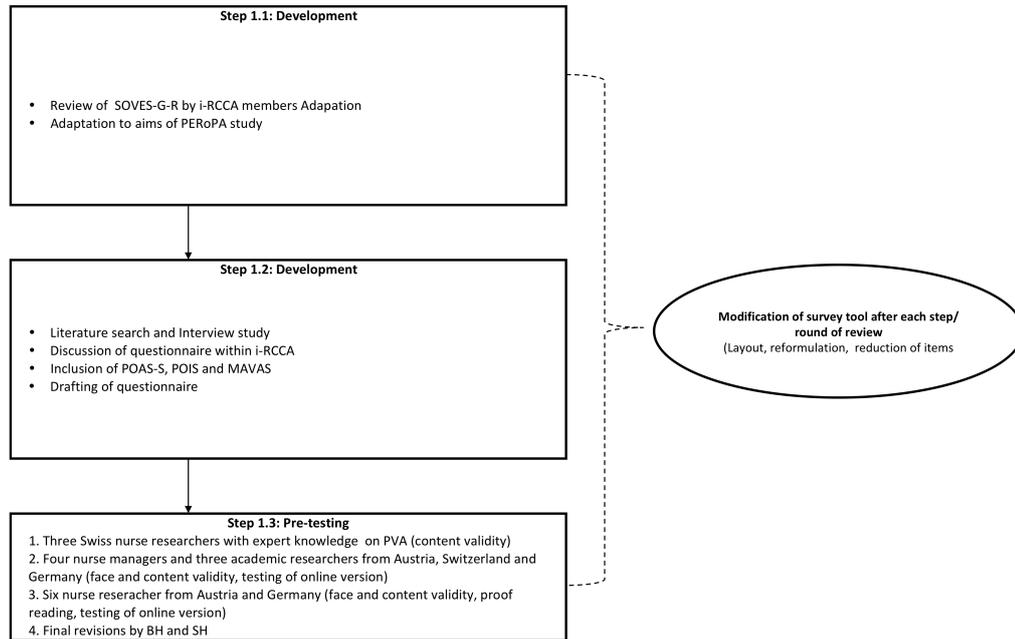


Figure 1: Development and testing of questionnaire (German version)

### 3.2 Assessment of the feasibility of PERoPA-M-G - post hoc

The PERoPA-M-G 86-item version took about 30- 45 minutes to complete. During the testing phase, a few testers felt the questionnaire was too lengthy, however, the majority of volunteer testers did not comment on its length. SH and BH therefore decided to use the 86-item version as it had the potential to provide a wealth of insight on PVA from the management perspective.

However, we carefully examined the completion rates after the data collection in the German-speaking countries. The analysis showed that a fraction of respondents who started filling out the German version of the questionnaire did not complete: Out of 646 participants who started the survey, 464 completed it. An attrition analysis revealed that the drop out rate was approximately linear, i.e. there was no point in the questionnaire where a disproportionate number of participants dropped out. This also indicates that that questionnaire was somewhat taxing for the participants due to its length, but also that there were no 'trigger points' that made participants drop out at a higher than expected rate. The i-RCCA team therefore decided to critically review the PERoPA-M-G to reduce the number of items.



Table 1: German survey questionnaire: domains, items, evaluation

| <i>Domain/ factor</i>                           | <i>Item No</i>    | <i>Instrument/ source</i>     | <i>Reference</i>  | <i>Feasibility</i> | <i>Content validity</i>                   | <i>Reliability (Cronbach's alpha)</i>                                  | <i>Construct validity (Kaiser-Meyer Olkin (KMO))</i> |
|---|-------------------|-------------------------------|---|--------------------|---|--|--|
| Socio-demographic characteristics               | 2-10, 14-22       | SOVES-G-R (adapted)           | Hahn et al. (2011)<br>Hahn et al. (2010)                  | Good               | Good (cognitive pretesting)               |  |  |
| Information about the organization              | 11-13             | Interview study               | Heckemann et al. (2017)                                   |                    | see Figure 1                              |  |  |
| Experience with Aggression                      | 23-38, 76, 77, 79 | SOVES-G-R                     | Hahn et al. (2011)<br>Hahn et al. (2010)                  |                    | Good (cognitive pretesting)               |  |  |
| Perception of Aggression                        | 39, 40            | POAS-S                        | Hahn et al. (2011)<br>Needham et al (2004)                |                    | Good (validated by panel of nine experts) | 0.67 (aggression as dysfunctional),<br>0.68 (aggression as functional) | 0.72   |
| Organizational support, policies and guidelines | 41-63             | POIS<br><br>Literature search | Hahn et al. (2011)<br>(Hahn et al., 2010)<br>(Hahn, 2012) |                    | Good (validated by panel of nine experts) | 0.67 (structure and evaluation)  | 0.76   |
| Organizational Norms                            | 64                | Interview study               | Heckemann et al. (2017)                                   |                    |   | 0.89*  | 0.89*  |
| Communication of incidents                      | 65-66             | Interview study               | Heckemann et al. (2017)                                   |                    |   | 0.53*  | 0.59*  |
| Prevention and intervention strategies          | 67-72             | Literature search             | Hahn (2012)   |                    |   |  |  |



| Domain/ factor  | Item No | Instrument/ source | Reference                               | Feasibility | Content validity   | Reliability (Cronbach's alpha) | Construct validity (Kaiser-Meyer Olkin (KMO)) |
|---|---------|--------------------|---|-------------|--|--------------------------------|---|
| Consequences of PVA                                       | 73      | Literature search  | Hahn (2012)                             |             |  |                                |   |
| Team-efficacy   | 74      | Interview study    | Heckemann et al. (2017)                 |             |  | 0.59*                          | 0.68*   |
| Collaboration   | 75      | Interview study    | Heckemann et al. (2017)                 |             |  | 0.33*                          | 0.50*   |
| Knowledge, training and importance of Intervention Skills | 76-83   | POIS               | Hahn et al. (2011), (Hahn et al., 2010) |             | Good (validated by panel of nine)  | 0.52 (prevention)              | 0.76  |
| Attitude towards violence and aggression                  | 84-86   | MAVAS              | (Duxbury, 2003; Hahn et al., 2006)      |             | Face and content validity good for original and German translation, panel of experts |                                |   |

\*post hoc evaluation

## 4 Phase 2: The English version (PERoPA-M-E)

The English version of the PERoPA-M was developed between 2017-2018. The German instrument was translated, shortened, adapted and evaluated.

### 4.1 Translation and shortening

BH translated the PERoPA-M-G. The translation was critically reviewed by the native English-speaking members of the i-RCCA group, who also reviewed the content for potential to shortening of the questionnaire.

The PERoPA M-G was reduced from 86 to 51 items across 12 domains. The domain collaboration was deleted. (Table 2).

Table 2: English survey questionnaire: domains and items

| <i>Domain/ factor</i>                                     | <i>Item No</i>        | <i>Instrument/ source</i>            | <i>Reference</i>                           |
|---|-----------------------|--------------------------------------|--|
| Socio-demographic characteristics                         | 2-10,<br>14-15        | SOVES-G-R (adapted)                  | Hahn et al. (2011)<br>Hahn et al. (2010)   |
| Information about the organization                        | 11-13                 | Interview study                      | Heckemann et al. (2017)                    |
| Experience with Aggression                                | 16-17                 | SOVES-G-R                            | Hahn et al. (2011)<br>Hahn et al. (2010)   |
| Perception of Aggression                                  | 21                    | POAS-S                               | Hahn et al. (2011)<br>Needham et al (2004) |
| Organizational support, policies and guidelines           | 22-37                 | POIS                                 | Hahn et al. (2011)<br>(Hahn et al., 2010)  |
| Organizational Norms                                      | 38                    | Literature search<br>Interview study | (Hahn, 2012)<br>Heckemann et al. (2017)    |
| Communication of incidents                                | 39-40                 | Interview study                      | Heckemann et al. (2017)                    |
| Prevention and intervention strategies                    | 42-46                 | Literature search                    | Hahn (2012)                                |
| Consequences of PVA                                       | 47                    | Literature search                    | Hahn (2012)                                |
| Team-efficacy   | 48                    | Interview study                      | Heckemann et al. (2017)                    |
| Knowledge, training and importance of Intervention Skills | 18-20<br>41, 49<br>50 | POIS                                 | Hahn et al. (2011), (Hahn et al., 2010)    |
| Attitude towards violence and aggression                  | 51                    | MAVAS                                | (Duxbury, 2003; Hahn et al., 2006)         |

### 4.2 Evaluation

The PERoPA-M-E was pilot tested by two volunteers from the UK, the USA and Canada (September-October 2018), who provided written feedback on the content and feasibility. The questionnaire will be adapted accordingly.

The PERoPA-M-E questionnaire is currently available online for preview (draft version):  
<https://de.surveymonkey.com/r/VTY78LC>

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