BMJ Open Quality

Identifying patient safety research priorities in Estonia: results of a Delphi consensus study

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To cite: Freimann T, Põlluste K, Calsbeek H, *et al*. Identifying patient safety research priorities in Estonia: results of a Delphi consensus study. *BMJ Open Quality* 2022;**11**:e001907. doi:10.1136/bmjoq-2022-001907

Received 21 March 2022
Accepted 26 August 2022

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INTRODUCTION

Patient safety research aims to create new knowledge and find evidence-based solutions to improve patient safety and reduce avoidable adverse events in healthcare.[1] More than a decade ago, the WHO recommended that all countries identify, analyse and prioritise areas where patient safety research could reduce avoidable harm and improve healthcare systems.[2] However, only a few articles about this topic have been published,[3–6] and only one examined research priorities for patient safety at the national level.[6]

The Patient Safety Research and Development Centre (PSR&DC) at the Faculty of Medicine of the University of Tartu plays a national role in introducing research-based patient safety practices in Estonia. Its work group previously identified patient safety research in Estonia as limited, fragmented and unsystematic.[7] There is not enough reliable information to support patient safety practices in the Estonian healthcare system. As a part of the Patient Safety Research and Development Strategy 2022–2026 by PSR&DC, this study aimed to collect expert judgements and determine a consensus for patient safety research priorities in Estonia.

METHODS

Study procedure

Based on modified Delphi technique, two online surveys and a virtual consensus meeting (three Delphi rounds) were conducted among patient safety experts from June to November 2021.[8] The first round of the study aimed to assess the relevance and feasibility of patient safety research priorities and to complete the list of priorities. The second round aimed to assess the relevance and feasibility of all research priorities, including those collected and analysed in the first round. The aim of the third round was to determine a consensus among patient safety experts on the priorities for patient safety research in Estonia.

Expert panel

Prior to the three Delphi rounds (in the pre-Delphi period), the experts were selected by identifying a diverse group with knowledge, skills and experience in the area of patient safety.[8] Representatives of healthcare providers, professional societies and organisations, academic staff, patients and policy-makers were selected for the expert panel. Altogether, 161 experts were invited to participate in the Delphi study and 58 were enrolled for the first round. Out of them, 38 participants continued to the second round (see figure 1).

Questionnaire development

The questionnaire was developed based on existing studies[1 9] and included 17 research priorities. In the first round, the experts were asked for suggestions on additional priorities for patient safety research. In the first and second round, the participants were asked to assess the importance and feasibility of each research priority. All research priorities were rated on a scale of 0–7 as 'not at all important—extremely important' and 'not at all feasible—very easy to carry out.'

Data analysis

Expert assessments collected in the first and second rounds of the study were analysed quantitatively and the expert's proposals for additional patient safety research priorities were analysed qualitatively to find similarities in terms of priorities. The results were presented to the participating experts with the opportunity for them to revise their judgements before the next round of the study.[10] The results of the second round were open for discussion at the consensus meeting in the

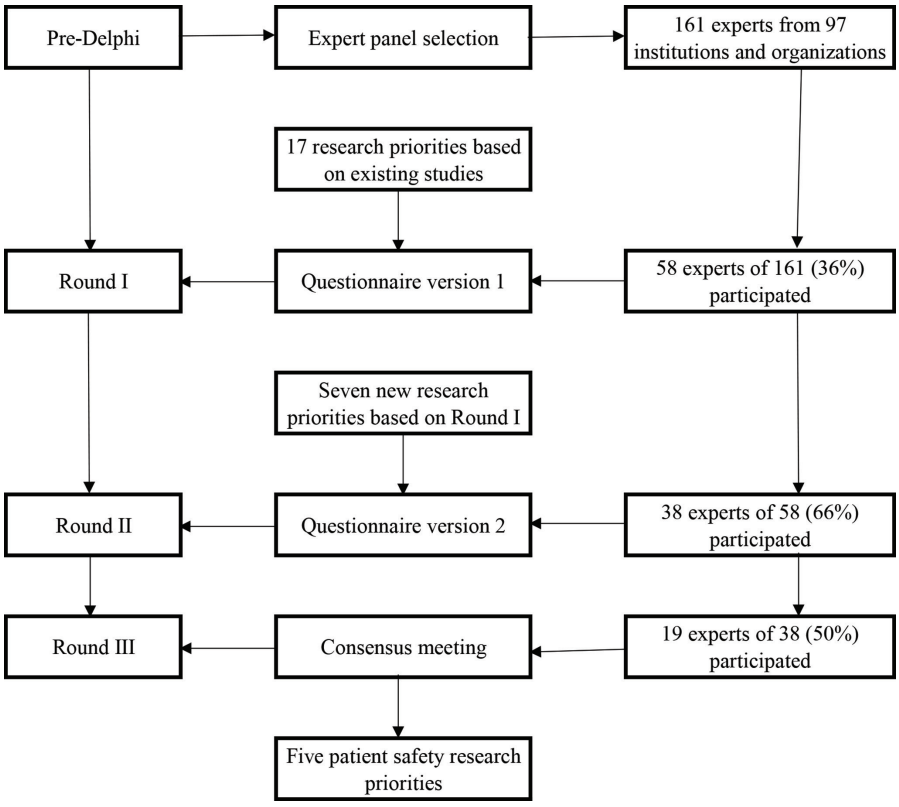

Figure 1 Delphi diagram of the study process.

third Delphi round. In order to reach a consensus, the nine most highly rated research priorities were to identify top priorities.

RESULTS

A total of 58, 38 and 19 experts from 31, 22 and 12 healthcare institutions, professional and patient organisations, respectively, participated in the 3 rounds of the Delphi study (see figure 1). The first round was attended by 40 (69%) healthcare professionals and employers, 10 (17%) educators and researchers, 3 (5%) representatives of patient organisations and 5 (9%) policy-makers. In the second round, the participants were 23 (61%) healthcare professionals and employers, 10 (26%) educators and researchers, 3 (8%) representatives of patient organisations and 2 (5%) policy-makers.

In the first round, experts recommended seven new research priorities which were added to the second version of the questionnaire (see figure 1). In the second round, over 70% of the participants rated 9 out of 24 priorities of patient safety research as very important (6 or 7 on a scale of 0–7). Ten other research priorities were rated as very important by 50%–70% and five priorities by less than 50% of participants; 86.5% of the participants considered the patient safety culture in healthcare institutions to be a very important priority of research. The research priority perceived as easiest to study was the competence and training needs of healthcare professionals. As a result of the three Delphi rounds, the panel of experts reached an agreement on five priority areas of research: patient safety culture in healthcare facilities; patient treatment pathways; patient safety improvement strategies; patient safety competencies; and patient safety training needs.

DISCUSSION

This is the first Delphi study conducted in Estonia that explored patient safety research priorities based on the assessments of experts with knowledge, skills and experience in the field of patient safety. We identified five research priorities to be used in the Patient Safety Research and Development Strategy 2022–2026. These require further implemented through research activities, education and training, and dissemination, outreach and policy development.

Patient safety culture in healthcare facilities was identified as the top research priority in all three rounds of our study. The expert panel found that this priority area could include other patient safety research priorities and provide information for a comprehensive development of patient safety in healthcare settings. For example, the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on Patient Safety Culture version 2.0 includes various patient safety research priorities, including reporting patient safety events, and staffing and work pace,[11] which were separate research priorities in the WHO recommendations.[1] In a previous Delphi study conducted in Iran, adverse drug events and its epidemiology was the highest ranked national research priority.[6] In our study, adverse drug events were rated sixth based on the results of the second round. All other

research priorities agreed by the expert panel, including patient treatment pathways, patient safety improvement strategies, patient safety competencies and patient safety training needs, will provide significant benefits to the development of patient safety practices in healthcare.

Some limitations of this study need to be recognised. The study had a low number of participants and only a 36% response rate in the first round. However, a low response rate is common in Delphi surveys[12] and professionals, employers, educators, researchers, patients and policy-makers were represented in our study. Another limitation was the use of a modified Delphi technique, wherein the online survey was not preceded by expert interviews. According to previously published studies, the use of modified Delphi techniques, which do not have fully clarified criteria, is quite common.[8]

CONCLUSION

Estonian experts achieved reliable consensus in determining patient safety research priorities. These included patient safety culture, patient treatment pathways, patient safety improvement strategies, patient safety competencies and patient safety training needs, which were all incorporated into the Patient Safety Research and Development Strategy 2022–2026.[7]

Acknowledgements We appreciate all PATSAFE project (Developing the University of Tartu to a well-networked PATient SAFEty research centre in Estonia) team members and partners for their support with this Delphi study. Thanks to all the experts who participated in the study.

Collaborators Helle Karro, Siim Läänelaid, Mai Rosenberg-Ots, Riina Runnel, Urmas Siigur, Heli Tähepõld, Ere Uibu (Patient Safety Research and Strategy Development Group of the Faculty of Medicine at the University of Tartu).

Contributors TF, KP, HC, MK, ML, CO, AvT, HV-R and JS planned and designed the study; KP conducted the data collection; TF and KP analysed data; TF and KP wrote the manuscript; all authors reviewed the final manuscript.

Funding The Delphi study was carried out as a part of the PATSAFE project, which was funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 857359.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Ethical approval was not required for this study. All humans participated in this modified Delphi study as experts in the field of patient safety. Participants agreed to participate in the study by completing anonymous online questionnaires and voluntarily attending a consensus meeting.

Provenance and peer review Not commissioned; externally peer reviewed.

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REFERENCES

1 World Health Organization. Global priorities for patient safety research. better knowledge for safer care. In: *A world Alliance for safer health care*. WHO, 2009.
2 World Health Organization. *Global patient safety action plan 2021–2030: towards eliminating avoidable harm in health care*. WHO, 2021.
3 Plint AC, Stang AS, Calder LA, *et al*. Establishing research priorities for patient safety in emergency medicine: a multidisciplinary consensus panel. *Int J Emerg Med* 2015;8:1.
4 Dewa LH, Murray K, Thibaut B, *et al*. Identifying research priorities for patient safety in mental health: an international expert Delphi study. *BMJ Open* 2018;8:e021361.
5 Morris RL, Stocks SJ, Alam R, *et al*. Identifying primary care patient safety research priorities in the UK: a James Lind alliance priority setting partnership. *BMJ Open* 2018;8:e020870.
6 Ravaghi H, Sajadi HS. Research priorities in the field of patient safety in Iran: results of a Delphi study. *J Patient Saf* 2019;15:166–71.
7 Freimann T, Karro H, Lember M, *et al*. Patsiendiohutuse teadus- JA arendustegevuse strateegia 2022–2026. Tartu Ülikool meditsiiniteaduste valdkond, 2022. Available: https://kliinilinemeditsiin.ut.ee/sites/default/files/2022-02/T%C3%9C%20patsiendiohutuse%20TA%20strateegia%202022-2026_0.pdf
8 Nasa P, Jain R, Juneja D. Delphi methodology in healthcare research: how to decide its appropriateness. *World J Methodol* 2021;11:116–29.
9 La Regina M, Tanzini M, Venneri F. Patient safety recommendations for COVID-19 pandemic outbreak. In: *International Society for quality in health care*, 2021.
10 Niederberger M, Spranger J. Delphi technique in health sciences: a MAP. *Front Public Health* 2020;8:457.
11 Sorra J, Yount N, Famolaro T. AHRQ Hospital survey on patient safety culture version 2.0. In: *AHRQ publication*. , 2021: 19, 76.
12 Staykova MP. Rediscovering the Delphi technique: a review of the literature. *Adv Soc Sci* 2019;6:218–29.