

Patient Safety Culture in Norwegian-Hospitals

Subjects: **Others**

Contributor: Espen Olsen

Patient safety culture consists of the attitudes and routines among healthcare personnel and management that impact patient treatment. A positive patient safety culture includes a focus on establishing systems, routines, resources, and infrastructure to reduce risks and errors. Studies indicate an association between a positive patient safety culture and safe patient treatment.

patient safety

patient safety culture

measurement quality

health services

review

1. Introduction

Patient safety culture consists of the attitudes and routines among healthcare personnel and management that impact patient treatment ^{[1][2]}. In 2004, the Agency for Healthcare Research and Quality (AHRQ) launched the Hospital Survey on Patient Safety Culture (HSOPSC) version 1.0 to assess patient safety culture in hospitals ^{[1][2]}. , three dimensions target the hospital level, and two composites are outcome measures (overall perception of patient safety and frequency of events reported). HSOPSC also includes two questions that ask respondents to provide an overall grade on patient safety for their work area/unit and to indicate the number of events they reported over the past 12 months.

As of September 2020, HSOPSC 1.0 has been administered in 95 countries and translated into 43 languages ^[3]. In Norway, the first two studies assessing patient safety culture using the HSOPSC were conducted in 2006 and 2008 at Stavanger University Hospital ^{[4][5]}. Hence, Norway applied HSOPSC relatively early after the instrument was developed. However, in other sectors and industries, such as the aviation and petroleum sectors and the nuclear industry, assessment of safety culture was already a tradition ^{[6][7][8]}, so it was certainly not too early to assess safety culture in healthcare settings.

One literature review examined the psychometric properties of several questionnaires designed to measure the safety climate in healthcare ^[9]. The authors concluded that the HSOPSC covers the most central dimensions of safety culture, and it meets psychometric criteria such as content- and criterion-related validity and internal reliability ^[9]. Moreover, it was presented as the most comprehensive validated instrument in healthcare, an evaluation which has been supported by several studies ^{[9][10][11][12]}. Therefore, HSOPSC is a potentially important tool for improving patient safety ^[2].

The aims of this study were (1) to review empirical studies using HSOPSC in Norway and (2) to develop recommendations for further research on patient safety culture based on our findings.

2. Development and Findings

A total of 20 articles were included. These were divided into three categories: seven perception studies, six intervention studies, and seven reliability and validation studies.

“Organizational management support for safety” had the largest improvement potential, with a mean score ($M \pm SD = 2.90 \pm 0.75$) marginally lower than the level of Neither Agree nor Disagree. The findings indicated that this Norwegian hospital needed to improve patient safety culture and that more or different investments were necessary to achieve this. Moreover, the study also revealed that safety culture dimensions had lower scores compared with those in US hospitals ^[4], as well as lower scores than in the petroleum industry ^[13]. Another finding was that safety culture scores are challenging to improve and relatively stable over time ^[14].

Another study correlated HSOPSC dimensions with burnout and sense of coherence ^[15]. Findings from this study indicated that a positive safety culture was associated with the absence of burnout and a high ability to cope with stressful situations. As such, the study indicates that safety culture in hospitals is related to employees' health and stress at work.

One of these intervention studies reported greater improvement than the others ^[16]. The researchers conducted a stepped wedge cluster randomized controlled trial implementation of the World Health Organization (WHO) Surgical Safety Checklists, combined with the implementation of a broader patient safety program. “Unit managers' support to patient safety”, “Continuous improvement”, “Teamwork in unit”, “Error feedback”, “Nonpunitive”, “Hospital managers support to patient safety”,

Other intervention studies also reported improvements, but these were generally weaker and reported a shorter intervention period. “Teamwork within unit”, “Manager expectations and actions promoting patient safety”, and “Communication openness”. In the hospital part of the study, small improvements were reported for “Overall perceptions of patient safety culture” and “Organizational learning—continuous improvement” ^[17]. Moreover, one intervention study ^[18] compared changes in registered nurses' perception of HSOPSC dimensions in restructured and nonrestructured intensive care units ^[18] during a four-year period.

Haugen et al. ^[19] found significant positive changes in the checklist intervention group for the culture factors “Frequency of events reported” and “Adequate staffing”. Thus, the effects of the intervention were weak since only two dimensions improved.

Seven studies were categorized as reliability or validation studies ^{[12][20][21][22][23][24][25]}. The CFA indicated that HSOPSC was a valid and reliable tool for measuring patient safety culture in Norwegian hospitals. A Short Safety Climate Survey (SSCS) was also developed in Norway, based on HSOPSC, for use in nonhealthcare settings. With this adjustment, SSCS can function as a generic instrument to assess safety culture across sectors ^[20].

One study at Haukeland University Hospital ^[24] explored the factorial model of HSOPSC dimensions with exploratory factor analysis (EFA) using principal component analysis with Varimax rotation. Since EFA is a

dimension reduction method, it was not surprising that the factorial model ended in fewer factors than the original model, namely 10 dimensions instead of 12. However, the study used the original 12-dimensional structure when investigating reliability and conducting benchmarks [\[24\]](#), without confirming the original version of the instrument with CFA. Another study used EFA before using CFA, but this was to develop and validate the abovementioned SSCS and HSOPSC-short [\[20\]](#).

Three of the studies developed and assessed theoretical models with the use of structural equation modeling (SEM), in combination with CFA, or both CFA and EFA [\[20\]\[22\]\[25\]](#). The first study explored the possibility of a common structural model measuring associations between safety dimensions and safety behavior in the healthcare and petroleum sectors, which was supported [\[20\]](#). Another SEM study [\[25\]](#) developed and investigated how five selected HSOPSC dimensions influenced safety behavior and overall perceptions of patient safety. Another study [\[22\]](#) investigated a model adapted for the prehospital environment, measuring associations between safety concepts and the outcome dimension “Transitions and handoffs”.

One study aimed at testing the criterion-related validity of HSOPSC [\[23\]](#). Only two medical departments took part in the study, and several HSOPSC dimensions were correlated with adverse events. The Global Trigger Tool (GTT) was used to collect data on adverse events. The study found an inverse association between patient safety culture and adverse events, but this study had many limitations and cannot be generalized.

3. Conclusions

The aims of this study were to review empirical studies using HSOPSC in Norway and to develop recommendations for further research on patient safety culture based on our findings. Several studies using the HSOPSC have been conducted in Norway, but not at a national level.

Moreover, experiences from Norway indicate that wider strategic safety initiatives at different levels are needed to improve safety culture more substantially. As a basis for the development of future intervention studies, researchers designing interventions could use the results from the SEM studies to develop more holistic and theoretically sound interventions, including the horizontal and vertical involvement of units and staff. The combination of such scales is highly relevant since safety culture relates to other work factors. PreHSOPSC has been developed to better fit prehospital settings and is probably the best alternative for measuring safety culture in these settings.

References

1. Sorra, J.; Nieva, V. Hospital Survey on Patient Safety Culture. (Prepared by Westat, Under Contract No. 290-96-0004); AHRQ Publication no. 04-0041; Agency for Healthcare Research and Quality: Rockville, MD, USA, 2004.

2. Nieva, V.F.; Sorra, J. Safety culture assessment: A tool for improving patient safety in healthcare organizations. *Qual. Saf. Health Care* 2003, 12, II17–II23.
3. International Use of SOPS. Content Last reviewed September 2020. Agency for Healthcare Research and Quality: Rockville, MD, USA. Available online: (accessed on 28 February 2021).
4. Olsen, E. Workers' perceptions of safety culture at a hospital. *Tids. Nor. L.* 2007, 127, 2656–2660.
5. Olsen, E. Safety Climate and Safety Culture in Health Care and the Petroleum Industry: Psychometric Quality, Longitudinal Change, and Structural Models. Ph.D. Thesis, University of Stavanger, Stavanger, Norway, 2009.
6. Carroll, J.S. Safety culture as an ongoing process: Culture surveys as opportunities for enquiry and change. *Work Stress* 1998, 12, 272–284.
7. Guldenmund, F.W. The nature of safety culture: A review of theory and research. *Saf. Sci.* 2000, 34, 215–257.
8. Zohar, D. Safety climate in industrial organizations: Theoretical and applied implications. *J. Appl. Psychol.* 1980, 65, 96–102.
9. Flin, R.; Burns, C.; Mearns, K.; Yule, S.; Robertson, E. Measuring safety climate in health care. *Qual. Saf. Health Care* 2006, 15, 109–115.
10. Hedsköld, M.; Pukk-Härenstam, K.; Berg, E.; Lindh, M.; Soop, M.; Øvretveit, J.; Sachs, M.A. Psychometric properties of the hospital survey on patient safety culture, HSOPSC, applied on a large Swedish health care sample. *BMC Health Serv. Res.* 2013, 13, 332.
11. Sorra, J.; Nieva, V.F. Pilot study: Reliability and validity of the hospital survey on patient safety. In Technical Report Prepared by Westat under Contract No. 290-96-004; Agency for Healthcare Research and Quality: Rockville, MD, USA, 2004.
12. Olsen, E. Reliability and validity of the Hospital Survey on Patient Safety Culture at a Norwegian hospital. In *Quality and Safety Improvement Research: Methods and Research Practice from the International Quality Improvement Research Network (QIRN)*; Escola Nacional de Saúde Pública: Lisbon, Portugal, 2008; pp. 173–186.
13. Olsen, E.; Aase, K. A comparative study of safety climate differences in healthcare and the petroleum industry. *Qual. Saf. Health Care* 2010, 19, i75–i79.
14. Olsen, E.; Aase, K. The challenge of improving safety culture in hospitals: A longitudinal study using hospital survey on patient safety culture. In *Proceedings of the 11th International Probabilistic Safety Assessment and Management Conference and the Annual European Safety and Reliability Conference 2012*, Helsinki, Finland, 25–29 June 2012; Curran Associates, Inc.: Helsinki, Finland, 2012; pp. 5929–5936.

15. Vifladt, A.; Simonsen, B.O.; Lydersen, S.; Farup, P.G. The association between patient safety culture and burnout and sense of coherence: A cross-sectional study in restructured and not restructured intensive care units. *Intensive Crit. Care Nurs.* 2016, 36, 26–34.
16. Haugen, A.S.; Søfteland, E.; Sevdalis, N.; Eide, G.E.; Nortvedt, M.W.; Vincent, C.; Harthug, S. Impact of the Norwegian National Patient Safety Program on implementation of the WHO Surgical Safety Checklist and on perioperative safety culture. *BMJ Open Qual.* 2020, 9, e000966.
17. Storm, M.; Schulz, J.; Aase, K. Patient safety in transitional care of the elderly: Effects of a quasi-experimental interorganisational educational intervention. *BMJ Open* 2018, 8, e017852.
18. Vifladt, A.; Simonsen, B.O.; Lydersen, S.; Farup, P.G. Changes in patient safety culture after restructuring of intensive care units: Two cross-sectional studies. *Intensive Crit. Care Nurs.* 2016, 32, 58–65.
19. Haugen, A.S.; Søfteland, E.; Eide, G.E.; Sevdalis, N.; Vincent, C.A.; Nortvedt, M.W.; Harthug, S. Impact of the World Health Organization's Surgical Safety Checklist on safety culture in the operating theatre: A controlled intervention study. *Br. J. Anaesth.* 2013, 110, 807–815.
20. Olsen, E. Exploring the possibility of a common structural model measuring associations between safety climate factors and safety behaviour in health care and the petroleum sectors. *Accid. Anal. Prev.* 2010, 42, 1507–1516.
21. Sørskår, L.I.K.; Abrahamsen, E.B.; Olsen, E.; Sollid, S.J.; Abrahamsen, H.B. Psychometric properties of the Norwegian version of the hospital survey on patient safety culture in a prehospital environment. *BMC Health Serv. Res.* 2018, 18, 784.
22. Sørskår, L.I.K.; Olsen, E.; Abrahamsen, E.B.; Bondevik, G.T.; Abrahamsen, H.B. Assessing safety climate in prehospital settings: Testing psychometric properties of a common structural model in a cross-sectional and prospective study. *BMC Health Serv. Res.* 2019, 19, 674.
23. Farup, P.G. Are measurements of patient safety culture and adverse events valid and reliable? Results from a cross sectional study. *BMC Health Serv. Res.* 2015, 15, 186.
24. Haugen, A.S.; Søfteland, E.; Eide, G.E.; Nortvedt, M.W.; Aase, K.; Harthug, S. Patient safety in surgical environments: Cross-countries comparison of psychometric properties and results of the Norwegian version of the Hospital Survey on Patient Safety. *BMC Health Serv. Res.* 2010, 10, 279.
25. Olsen, E. Influence from organisational factors on patient safety and safety behaviour among nurses and hospital staff. *Int. J. Organ. Anal.* 2018, 26, 382–395.

Retrieved from <https://encyclopedia.pub/entry/history/show/26264>