

Assessing the usefulness of a safety climate questionnaire in UK healthcare

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Objective:

The aim of the study was to explore the factor structure, internal reliability and potential usefulness of a patient safety climate questionnaire in UK healthcare.

Methods:

The questionnaire used in this study was the 27-item Teamwork and Safety Climate Survey, developed at the University of Texas as part of the set of Safety Attitudes Questionnaires. Following discussions with 33 healthcare professionals, minor modifications were made to the language to improve applicability to a UK setting. The questionnaire was then sent to 3650 staff in thirteen UK healthcare organisations (four acute hospital trusts and nine primary care trusts) with the aim of obtaining at least 600 responses for factor analysis.

Factor analysis was carried out on the responses to explore whether the items consistently grouped to underlying factors relating to safety climate and teamwork. Exploratory factor analysis was carried out on 50% of the dataset followed by confirmatory factor analysis on the remaining 50%.

The fit of the factor model to each of the hospital and primary care datasets was also assessed.

Results:

1307 questionnaires were returned. Response rates to individual items indicated that the questionnaire was most applicable to staff involved in direct patient care. Factor analysis was therefore carried out on the 897 responses from this group, which included 470 hospital staff and 427 from primary care staff.

It was possible to interpret the underlying factor structure of the questionnaire. However, the factor solution was not clear-cut, with some items loading onto multiple factors and some not loading strongly onto any factor. The clarity of the factor structure was improved by omitting 5 items. (Four of these items were negatively worded and consistently formed a separate factor which was thought to be an artefact caused by respondents misreading the negative wording. The other omitted item was felt to relate to opinion rather than what actually happens, and omitting this item improved the reliability.)

An optimal factor structure was derived, consisting of three Safety Climate factors (comprising 11 safety items) and two Teamwork factors (comprising 11 teamwork items). Internal consistency reliabilities were satisfactory to good, Cronbach's alpha being 0.69 or above for all five factors.

The hospital and primary care datasets were also assessed separately. The factor model fitted both groups reasonably well but exhibited a slightly poorer fit to the primary care data.

Conclusions:

This is one of the few studies to undertake a detailed evaluation of a patient safety climate questionnaire in UK healthcare and possibly the first to do so in primary care as well as hospital care. The results indicate that the refined 22 item safety climate questionnaire is useable as a research instrument in both settings, but also demonstrates the more general need for thorough validation of safety climate questionnaires before widespread usage in health service settings.