

The Culture in Safety Culture:
Exploration of Patient Safety
Culture in Saudi Arabian Operating
Theatres

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To my parents; Dhafer and Moneera

You made me who I am

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Abstract

Surgical patients are highly susceptible to preventable harm in health systems that tolerate inadequate patient safety: the World Health Organization recognises that half of preventable adverse events happen in surgical care. Each year, seven million surgical patients are estimated to suffer serious complications from adverse events and up to one million die. Improving safety culture and non-technical skills can reduce adverse events and improve patient safety. This study explores safety culture in operating theatres in Saudi Arabia, where many employees work in an environment that is radically different from their own, in a language that they know imperfectly. It targets cultural differences and their relevance to safety culture dimensions, including teamwork, communication, job satisfaction, stress recognition, working conditions, and perceptions of management.

The concept of safety culture is complex, and to achieve sufficient breadth and depth this study employs a sequential explanatory mixed methods design. All health care professionals working in operating theatres in the Saudi Arabian Ministry of Health hospitals in Riyadh City were surveyed using the internationally validated Safety Attitudes Questionnaire, administered in both English and Arabic. Items pertaining to local culture were added to assist in measuring cultural factors related to patient safety. Furthermore, twenty semi-structured interviews with non-Arabic-speaking female nurses were also conducted.

Returned surveys (n = 649; 60.8 % response rate) were subjected to reliability and validity tests. Cronbach's alpha values for each dimension ranged between 0.71 and 0.82, except for the perception of management dimension (0.44). Confirmatory factor analysis showed that all dimensions except perception of management had good psychometric properties, indicating the tool's applicability to Saudi Arabian context. Respondents' mean

perceptions ranged between 3.5 and 4 out of 5 for each dimension, which is comparable to similar studies in different international settings. Along with revealing significant differences between sites, analysis indicates that nurses, younger professionals, females and non-Arabic speaking professionals have significantly lower favourable perceptions of the dimensions under investigation, and that nurses rate their quality of communication with other professionals significantly lower than the ratings they received from them. Cultural background, including language, influences perceptions of the safety culture.

Communication, cultural background, and gender are found to comprise a new patient safety dimension, *multicultural workplace*. This dimension ($\alpha = 0.79$; $\bar{X} = 3.6$; $SD = 0.96$) has strong, positive correlations with other valid dimensions except stress recognition. Site, profession, and gender are significant predictors of this new dimension.

Both the open-ended questions and the semi-structured interviews reveal culture as an important factor, influencing several aspects of safety culture. Many issues were related to the concept of a multicultural workplace, and the strong correlation of this with other dimensions of safety climate indicates its relevance and importance to the safety culture. Nurses, of whom the majority were female and non-Arabic speaking, had significantly lower perceptions of safety culture than other respondents. The influence of context, gender, cultural background and language on safety culture is evident.

Cultural integration, initiated in classes about local culture and language, is recommended to bridge gaps between local and multinational workforces. Recommendations of enhancement to teamwork, communication, equity of team members and conflict resolution should provide a better, safer environment for hospital staff and patients if implemented.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Glossary

ACSNI	Advisory Committee on Safety of Nuclear Installations
ACSQHC	Australian Commission on Safety and Quality in Health Care
AHRQ	Agency for Healthcare Research and Quality (US)
ANOVA	Analysis of variance
CFI	Comparative fit index
CDSI	Central Department of Statistics and Information (Saudi Arabia)
DON	Director of nursing
FMAQ	Flight Management Attitudes Questionnaire
HSC	Hospital Safety Climate (survey)
HSD	Honest significant difference (Tukey's HSD test)
HSOPSC	Hospital Survey on Patient Safety Culture
IAEA	International Atomic Energy Agency
ICPS	International Classification of Patient Safety
ICU	Intensive care unit
IOM	Institute of Medicine (US)
KMO	Kaiser–Meyer–Olkin (measure)
Makkah	also known as Mecca
MOH	Ministry of Health (Saudi Arabia)
MSI	Modified Stanford Patient Safety Culture Survey Instrument
OPEC	Organization of Petroleum Exporting Countries
OR	Operating room
PCA	Principal Component Analysis
PIS	participant information sheet
PSCHO	Patient Safety Culture in Health Organisations (survey)
RMSEA	root mean square error of approximation
SAQ	Safety Attitude Questionnaire
SCS	Safety Climate Survey
SD	standard deviation
SRMR	standardised root mean square residual
TLI	Tucker–Lewis index
UK	United Kingdom
USA/US	United States of America
WHO	World Health Organization