Safety Attitudes among Doctors and Nurses in an Emergency Department of an Australian Hospital

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ABSTRACT

Introduction: Safety attitudes have been investigated in a number of countries across different hospital departments, however there are few studies including Emergency Departments.

Aim: To investigate doctors' and nurses' attitudes towards patient safety in Emergency Department in an Australian hospital.

Materials and Methods: A cross-sectional research design was used. The participants included 51 doctors and nurses who completed a Safety Attitudes Questionnaire (SAQ) and reported the number of errors they had witnessed over the last year. Multivariate and univariate analysis was used to compare mean subscale scores of safety attitudes between doctors vs. nurses.

Results: The findings showed doctors held comparatively positive safety attitudes compared to nurses, who rated teamwork climate, safety climate, unit management and work conditions particularly low. Both doctors and nurses had low opinions of hospital management and working conditions. Doctors and nurses with longer tenures and those who reported a higher number of medical errors had good safety attitudes.

Conclusion: This study provides an insight into the safety attitudes of doctors and nurses employed in an Emergency Department in an Australian hospital. Further investigation into the relationship between safety attitudes, error rates and reporting should be performed in future studies.

INTRODUCTION

Public and private hospitals are an important part of Australia's health landscape, particularly in the range of services they provide for non-admitted patients through Emergency Department services and outpatient clinics [1]. The majority of Emergency Department services are provided by public hospitals. Approximately, 7.8 million Emergency Department presentations occurred during 2016-17 and between the periods 2012-13 and 2016-17 presentations increased by 3.7% on average each year [2].

Data is available on the safety and quality of admitted patient care in hospital Emergency Departments; however, little information is available on some aspects of quality, such as continuity or responsiveness of hospital services [1]. There are a significant number of adverse patient events in hospitals worldwide which result in death, prolonged hospitalisation, irreversible disability and significant financial cost [3-10]. The Australian Institute of Health Welfare reports performance indicators with regards to adverse events in patient care. Adverse events are defined as incidents in which harm resulted to the person receiving health care, including infections, falls resulting in injuries, and problems with medication and medical devices [1]. In 2015-16, 6.6% of the total public hospital separations, and 9.7% of Emergency Department separations were associated with an adverse event.

Adverse patient events are largely associated with human error [11] and the literature has many reports investigating the impact of patient safety attitudes among hospital staff [12-17]. Safety attitudes are generally defined as staff perceptions regarding how safety is managed in their organisation in terms of measurable components, such as management behaviour, safety systems and employee's safety attitudes [18]. Safety attitudes have been investigated in a number of countries across different hospital departments [19], however, there are few Australian studies [7,20,21] and none have investigated the patient safety attitudes of medical staff employed in hospital Emergency Departments. Moreover, only five studies on the safety attitudes of hospital Emergency Department staff outside Australia have been published, to the best of the authors' knowledge

[22-26]. To address this gap in the literature, this study investigated the patient safety attitudes of nurses and doctors in an Emergency Department at an Australian hospital.

MATERIALS AND METHODS

Study Design, Setting and Participants

The study employed a quantitative cross-sectional research design to survey the safety attitudes of doctors and nurses employed in the Emergency Department of a major hospital in Canberra, Australia, between April 2017 and April 2018. This study was approved by Australian Capital Territory Health Research Ethics Committee (ETHLR.16.247), Australian National University Human Ethics Committee (Protocol 2017/514) and the General Directorate for Researches and Studies, Ministry of Health, Kingdom of Saudi Arabia as part of a PhD Thesis including multiple studies on safety attitudes among doctors and nurses in both Australia and Kingdom of Saudi Arabia [27]. The inclusion criteria for participants in this study were that they be employed as a doctor or nurse in the emergency department of the hospital. All other hospital staff was excluded from the study. A purposeful sample of 51 doctors and nurses (out of total of 320 employees) who agreed to participate in the study received and completed a copy of the study survey via hard copy or electronically via Survey Monkey.

Study Survey

Doctors and nurses were asked to complete a range of demographic questions, including gender, profession, and years in their speciality, and to report any clinical errors they had witnessed over the last year as either "No Errors", "1-5 Errors", "6-10 Errors", or "More than 10 Errors". The participants were instructed that errors could include any accident or injury to a patient, omitted treatment, medication error, errors in relaying doctor's orders, errors in documentation, patient falls, failure to change a dressing, missed treatment and omission of required intervention.

Safety attitudes were operationalised using the SAQ developed by Sexton JB et al., [28]. The safety attitude questionnaire comprised

of 36 items which measured six safety dimensions that reflected a previously reported conceptual framework of Vincent [29]. The dimensions and sample items included Teamwork Climate ("The physicians and nurses here work as a well-coordinated team"), Safety Climate ("I would feel perfectly safe being treated here as a patient"), Job Satisfaction ("This is a good place to work"), Working Conditions ("Our levels of staffing are sufficient to handle the number of patients"), Stress Recognition ("When my workload becomes excessive, my performance is impaired"), and Perceptions of Management ("Management supports my daily efforts"), with the items for perceptions of management rated twice with respect to the unit management and hospital management. Each item was answered on a 5-point Likert's scale, where 1="Strongly Disagree" and 5="Strongly Agree". The SAQ has strong psychometric properties with excellent reliability and validity, in terms of construct and discriminant validity [28].

STATISTICAL ANALYSIS

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS, Version 24). Mean scores were calculated for each sub-scale of the SAQ. Consistent with the test instructions [21], each mean was converted to a percentage score, such that (Mean subscale score-1)×25=the mean score expressed as a percentage, where scores of 75 and above reflected a positive attitude towards the sub-scale domain [28]. Multivariate and univariate analysis was used to compare mean subscale scores of safety attitudes between professional groups (doctors vs. nurses). Independent t-tests were performed to determine whether the mean score on each sub-scale of the SAQ differed as a function of reporting errors and/or years in speciality. G-Power analysis (version 3.1.9.4) indicated that a sample of 51 provided a medium effect size of d=.5 for inferential statistics.

RESULTS

The responses to background and demographic questions are presented in [Table/Fig-1]. There were similar distributions of gender and profession amongst participants, with the majority (66.7%) having 4 years or less experience in their profession. Most participants reported between 1 to 5 errors.

		Number (n=51)	%
Gender	Male	27	52.9
	Female	22	43.1
	Unrecorded	2	3.9
Profession	Nurse	27	52.9
	Doctor	24	47.1
Years in speciality	<6 months	5	9.8
	6-11 months	7	13.7
	1-2 years	11	21.6
	3-4 years	11	21.6
	5-10 years	12	23.5
	11-20 years	1	2.0
	>21 years	4	7.8
Errors reported	None	13	25.5
	1 to 5	33	64.7
	6 to 10	2	3.9
	10 or more	3	5.9

[Table/Fig-1]: Sociodemographic data of the participants.
Note: Data are presented as a number and %

A comparison of the SAQ sub-scale score between doctors and nurses are shown in [Table/Fig-2]. The findings showed a multivariate main effect of profession wherein doctors reported more positive safety climate attitudes than nurses overall, F(8, 39)=4.21, p=.001, η^2=.46. This was particularly apparent for teamwork climate, safety climate, unit management and work conditions, where the scores from the nurses were significantly lower compared to the doctors. Both doctors and nurses reported equally low evaluations of hospital management. One-sample t-tests were consistent with the nurses SAQ total scores, being significantly lower than 75, indicating they had poor safety attitudes, t(24)=2.71, p=0.01, whereas, the safety attitudes of doctors were comparatively positive.

Variables	Doctors (n=24)	Nurses (n=27)	t	p-value
	Mean±SD	Mean±SD		
Teamwork climate	89.41±7.77	75.62±20.73	3.07	0.01
Safety climate	82.89±11.91	70.60±18.52	2.76	0.01
Job satisfaction	82.08±11.41	74.07±21.80	1.61	0.57
Stress recognition	84.90±11.20	79.86±24.72	0.92	0.36
Unit management	79.38±14.47	57.78±26.79	3.52	0.01
Hospital management	46.52±19.85	51.54±23.78	0.80	0.43
Work conditions	62.24±14.09	50.69±25.32	1.98	0.05
Total SAQ	75.08±5.80	65.24±18.04	2.50	0.02

[Table/Fig-2]: Comparison of SAQ sub-scale score by profession.
Note: Data are presented as mean (standard deviation)

Due to the small sample size, a median split was performed on the ordinal data generated from error reporting and years in speciality (tenure) responses and compared against the SAQ sub-scales. Error reporting was recoded as 1-"No errors" and 2-"1 or more errors", and tenure was recoded as 1-"2 years or less" and 2-"3 or more years". Independent t-tests were performed on the mean sub-scale SAQ scores as a function of error reporting, with the group means shown in [Table/Fig-3]. The findings indicated that the mean score on the majority of the SAQ sub-scales was higher for participants who had reported at least one error compared to those who reported no errors. However, the differences were not statistically significant; only safety climate scores approached significance where participants reporting at least one error showed higher safety climate scores compared to participants reporting no errors (t=1.87, p=.07). The [Table/Fig-3] also shows the mean SAQ sub-scale scores as a function of tenure. Participants who had 3 or more years tenure generally reported higher SAQ scores compared to participants with shorter tenures. However, the difference in the mean of each SAQ sub-scale was not statistically significant as a function of the participants' length of tenure.

Variables	Errors		Tenure	
	0 errors	≥1 errors	≤2 years	≥3 years
Teamwork climate	75.96 (22.51)	84.21 (14.91)	81.88 (13.80)	82.29 (19.99)
Safety climate	69.23 (19.43)	79.05 (15.16)	72.83 (18.61)	79.63 (14.59)
Job satisfaction	73.08 (23.59)	79.47 (15.67)	75.00 (20.17)	80.18 (15.96)
Stress recognition	84.13 (29.95)	81.58 (16.69)	79.08 (25.60)	84.82 (12.55)
Unit management	60.00 (17.91)	70.66 (25.71)	64.57 (26.67)	70.71 (22.18)
Hospital management	57.72 (22.51)	46.71 (21.44)	50.65 (24.18)	47.88 (20.16)
Work conditions	55.28 (17.28)	56.41 (22.86)	57.34 (21.12)	55.13 (21.99)

[Table/Fig-3]: Comparison of SAQ scores by errors reported and length of tenure.
Note: Data are presented as mean (standard deviation).

DISCUSSION

This study investigated the safety attitudes of doctors and nurses employed in an Emergency Department in an Australian hospital. Participants completed the SAQ to determine their safety attitudes and number of medical errors they observed over the last year. The findings indicated nurses reported low safety attitudes overall and significantly lower safety attitudes compared to doctors, particularly in regard to perceptions of teamwork climate, safety climate, unit management and work conditions. Doctors generally had positive safety attitudes, with the exception of perceptions of hospital management and work conditions. Both nurses and doctors rated hospital management and working conditions as poor.

The poor safety attitudes of nurses compared to doctors has been reported in some studies [Table/Fig-4] [3,4,6-9,12-16,20-26,30]. This could be due to the difference in status/authority between nurses and doctors, as well as different responsibilities and training, gender issues, and nursing and doctor cultures [30]. Nevertheless, the findings indicated that gender related differences appeared to have less influence on attitudes compared to other factors, as there was a relatively equal distribution of male and female nurses and doctors in the study.

Study Author/s	Region	Main findings
Abdou A and Saber KM, [3]	Egypt	Positive responses of safety culture dimensions had the highest ratings among nurses whereas they were generally satisfied with their job followed by team work climate while they reported lowest ratings includes perceptions of management.
Alayed AS et al., [4]	Saudi Arabia	Findings indicate that ICU safety culture is an important issue that hospital managers should prioritise.
Almutairi AF et al., [6]	Saudi Arabia	Nurses' perceptions of the clinical safety climate in this multicultural environment was unsafe.
Chaboyer W et al., [7]	Australia	Ratings of safety culture were highest for teamwork climate and lowest for perceptions of hospital management and working conditions.
Duthie EA [8]	USA	Nurses' attitudes towards safety were not associated with medication error reporting.
Profit J et al., [9]	USA	Neonatal intensive care unit safety culture varies widely
Hamdam M [12]	Palestine	Large variations in safety culture within and between a comprehensive sample of Palestinian NICUs.
Al-Saleh KS and Ramadan MZ, [13]	Saudi Arabia	Hospitals that offered and encouraged their medical staff to have training programs and up-to date workshops related to their specialties decreased their errors significantly.
Bondevik GT et al., [14]	Norway	Nurses scored higher than doctors on several patient safety attitudes.
Ausserhofer D et al., [15]	Switzerland	Patient safety climate and patient safety outcomes were unrelated.
Luiz RB et al., [16]	Brazil	Relatively low ratings of safety attitudes with respect to work conditions and perceptions of management.
Allen S [20]	Australia	Safety culture was lacking across the 6 SAQ domains.
So SE et al., [21]	Australia	On average, 53.5% of nurses held positive attitudes towards job satisfaction followed by teamwork climate (50.5%).
Rigobello MCG et al., [22]	Brazil	Participants' perceptions about the patient safety climate were found to be negative.
Shaw KN et al., [23]	USA	Large variability existed among EDs in structures and processes thought to be associated with patient safety and in staff perception of the safety climate.
Burstom L et al., [24]	Sweden	Improvements in the self-estimated patient safety culture after a work flow intervention.
Lisbon D et al., [25]	USA	Improved safety knowledge and communication attitudes after a training intervention.
Verbeek-Van Nord I et al., [26]	Netherlands	Physicians and nurses identified distinct dimensions of safety culture as associated with reported level of patient safety.
Thomas EJ et al., [30]	USA	Critical care physicians and nurses have discrepant attitudes about the teamwork they experience with each other.
Present study	USA	Safety attitudes of doctors and nurses employed in an Emergency Department were discrepant. Doctors held relatively positive safety attitudes when compared to nurses, who rated teamwork climate, safety climate, unit management and work conditions particularly poor.

[Table/Fig-4]: List of studies on patient safety attitudes.

Consistent with the literature, nurses and doctors reported poor ratings of hospital management and work conditions [5,7,9,16,21,31]. As reported in some studies [3,4], perceptions of management could be low due to a perceived lack of management visibility and commitment, as well as a lack of management appreciation and feedback. The literature suggests that regular executive walk arounds, which include the review of safety hazards and to ensure that the staff had the resources and political support to implement interventions reducing safety risks were associated with a more positive safety attitude of medical staff [32,33].

The findings also showed some indication that doctors and nurses with a longer tenure and those who reported higher number of errors, had more positive safety attitudes. Even though the expected relationship between safety attitudes and hospital error rates has not been clearly and unequivocally demonstrated in the research literature [15,34], hospital error rates are considered by staff to reflect long working hours, high patient numbers, a lack of communication and poor management support [12]. On the contrary, the findings presented in this study suggest that higher error reporting was associated with more positive attitudes. Whereas this finding may reflect an acquiescence bias [35], those participants who rated more positively for safety attitudes may be more vigilant and sensitive in reporting errors. In a similar way, the findings that longer tenured doctors and nurses with positive safety attitudes may reflect their greater sensitivity to safety issues, compared to shorter tenured staff. Follow-up analysis showed longer tenured employees reported more errors compared to shorter tenured employees (82.1% vs. 65.2%). It would be worthwhile for future research to clarify the relationship between length of tenure, safety attitudes and error reporting.

LIMITATION

The findings in this study are limited by the small sample size and the fact that most participants had less than 10-years' experience which limits the generalizability of the findings. The study is further limited by the use of self-report questionnaires and restrictions of convenience sampling. The error reporting data could also be limited by its lack of specificity, respondent recall, and a tendency to under-report errors to present a positive image or due to fears of recrimination. Other studies have demonstrated the under-reporting of errors by medical staff who did not feel supported by hospital management [13]. Future research could include the processes and mechanisms by which staff feels confident about reporting medical errors, as the accurate reporting of safety issues is important to ensure the safety and well-being of patients.

CONCLUSION

The findings in this study provide an insight into the safety attitudes of doctors and nurses employed in an Emergency Department of an Australian Hospital. Despite the limitations of the data, the findings indicated that doctors held relatively positive safety attitudes when compared to nurses, who rated teamwork climate, safety climate, unit management and work conditions particularly poor. However, both doctors and nurses indicated poor ratings of hospital management and working conditions. The findings of this study are consistent with that reported in the literature, and also suggests a relationship between length of tenure, safety attitudes and error rate reporting, which should be further investigated in future studies.

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