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Risk factors for occupational violence and aggression in the emergency department

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ABSTRACT

Objective: To examine shift characteristics that increase the risk of occupational violence and aggression.

Methods: This study was a secondary analysis of survey results obtained from 'Violence and abuse against staff in the emergency department, a descriptive analysis of a two-centre staff survey'. The purpose was to identify shift characteristics that were predictive of submitting a survey response describing a violent event. Univariable and multivariable binomial logistic regressions were used to identify significant predictors. Aggregated data from phase I findings was used to calculate odds ratios (OR) for each day of the week.

Results: The adjusted OR of experiencing violence if the respondent was a nurse was OR 2.92 [95% confidence interval (CI) 1.50, 6.00], $p < 0.01$. There was a higher risk of violence on post meridiem (PM) (OR 2.63 [95% CI 1.45, 4.83, $p < 0.01$) and night shifts (OR 2.65 [95% CI 1.51,4.71], $p < 0.001$). Saturday was the only day of the week identified as a significant risk factor (OR 4.92 [95% CI 1.60,18.13], $p = 0.002$).

Conclusions: Based on this cohort of emergency workers, the shift characteristics that were most predictive of submitting a survey describing a violent encounter were PM or night shifts, whether the health provider is a nurse, or whether the shift was performed on a Saturday.

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INTRODUCTION

Occupational violence and aggression is a significant public health concern because it is a recognized contributor to burnout, staffing difficulties/early retirement, poorer patient care and increased health care costs [1-5]. Up to 85% of those experiencing this reported negative health consequences including hypervigilance, sleep disturbance, social isolation and increased alcohol and tobacco use [5]. Violence can often be predicted, and the greatest known predictor of future violence is previous violent behavior [6;7]. It is not clear however if shift characteristics are predictive of experiencing occupational violence. The aim of this study is to examine the shift characteristics that increase the risk of occupational violence and aggression.

METHODS

Study design

This study was a secondary analysis of survey results obtained from 'Violence and abuse against staff in the emergency department, a descriptive analysis of a two-centre staff survey' [8;9]. The purpose was to identify shift characteristics that were predictive of submitting a survey response describing a violent event. The study was approved by the Monash Health Human Research Ethics Committee (project number 16248Q).

Setting

Monash Health is a hospital network in Victoria, Australia, with annual emergency presentations in excess of 220 000. The survey was performed within Dandenong and Casey Hospitals, two centers within this network.

Variables

The primary outcome was the submission of a survey response describing the presence or absence of a violent event. Variables investigated included the hospital site (Dandenong or Casey), the timing of the shift (ante meridiem or AM, post meridiem or PM, night), the health professional (nurse, medical doctor, other), define other health professionals and the location in the emergency department (ED): triage, main, short stay unit, fast track.

Statistical methods

Univariable logistic regression was first used to evaluate the effect of each predictor on the primary outcome. Variables with $p < 0.20$ were included in multivariable binomial logistic regression to generate an adjusted OR of experiencing violence on a shift for each predictor, 95% CI were calculated for each OR. Aggregated data by day of the week was available for the phase I findings. These proportions were examined by chi-square testing. Each day of the week was then compared to the rest of the week in 2x2 contingency tables, and OR with 95% CI were calculated by Fisher's exact test. Statistical analysis was performed in R Studio® v1.2.5033, with base R v.3.6.0. The R programming code is available on GitHub® at https://github.com/asel0211/OccupationalViolenceandAggression.

RESULTS

A total of 362 survey results were retrieved, and the characteristics of these responses are described in **Table 1**. Of these, 132 (36.5%) survey reported an incident of violence during the shift in question. Using a threshold of $p < 0.20$ in univariable logistic regression, role of respondent, timing of the shift, and location of the shift were considered for adjustment in multivariable logistic regression. The adjusted OR of experiencing violence if the respondent was a nurse was OR 2.92 [95% CI 1.50,6.00], $p < 0.01$. There was a higher risk of violence on PM (OR 2.63 [95% CI 1.45,4.83], $p < 0.01$ and night shifts (OR 2.65 [95% CI 1.51,4.71], $p < 0.001$.

A total of 235 of 362 results (64.9%) had day of the week data recorded. Distribution of percentage of positive reports by day is shown in **Figure 1**. Saturday had the highest percentage of respondents reporting violence (14 out of 19 = 73.7%). Pearson's Chi-squared testing when dividing phase I results by day of the week was insignificant ($X^2 = 28$, df = 24, $p = 0.26$). Each day of the week was compared to the rest of the week, and the result of each Fisher's exact test is described in **Table 2**. Only Saturday was identified as a significant risk factor (4.92 [95% CI 1.60, 18.13], $p = 0.002$).

DISCUSSION

This pragmatic, retrospective study investigated shift-related explanatory variables to predict the likelihood of submitting a survey response that recorded the experience of violence. The key findings were: (1) Nurses are more likely to submit a positive survey response. Our data confirms previous observations that recurrent exposure to violence and abuse is most commonly experienced by nurses [14;15]. This has been flagged as an issue for improvement since at least 1999 [16]. (2) PM and night shifts generated a higher proportion of positive responses, and (3) Saturday workers were more likely to submit a positive response for their shift describing a violent experience. This can potentially be related to increase in alcohol consumption and drug use on Friday and Saturday which can potentially support the observations of previous research that highlight that intoxication with drugs and alcohol is very common in patients perpetrating incidents of violence and abuse [10;13;15].

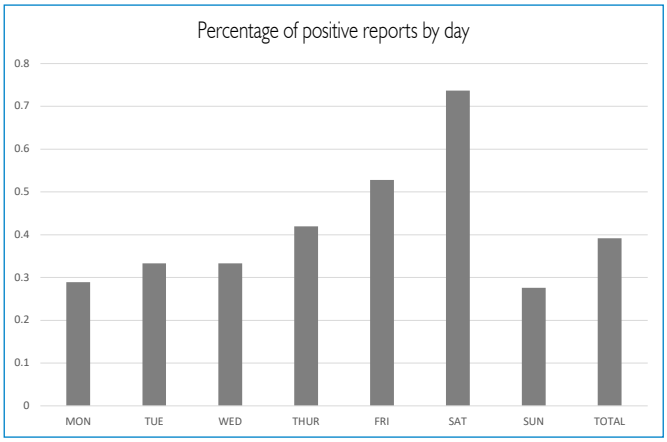

Figure 1 : Percentage of positive reports by day of the week.

The ED' directors are often unhappy with the security of the department and are often only partially compliant with Australian College of Emergency Medicine guidelines [17]. Previous studies have trialled education programs in nursing staff such as the Management of Clinical Aggression Rapid ED Intervention (MOCA-REDI) [18], showing that nursing staff feel they have more understanding and are better able to manage patient violence after the program, though none were associated with a statistically significant reduction in violence, and nursing staff have been shown to believe that violence cannot be prevented [19]. The lack of incident reporting some studies [8;9] studied suggests that the "zero tolerance to violence policy" expressed by many organisations and employers is clearly not enforced. Over half the violent and abusive incidents during each shift went unreported in this study. This suggests that staff are tolerating such behaviour, perhaps due to the widely held belief that it is "just part of the job" [11;20]. Importantly, it indicates that any attempt to formulate management strategies towards violence and abuse in the ED based solely on formal reporting underestimates the true enormity of this issue. Encouraging staff to formally report more (ideally all) incidents of violence and abuse and ensuring that reporting leads to a positive resolution may be an important step in developing appropriate strategies to mitigate this recurring problem. Zero tolerance policy, reporting to police, as well as legal actions and pressing charges could be some of the actions that can be taken facing these incidents.

LIMITATIONS

First, bias in respondents may exist as this was a voluntary survey offered to staff at the end of their shift. There may be a higher tendency to submit a survey response when violence was experienced. Higher accuracy data could be generated by performing a mandatory survey on all staff working each shift. This may capture additional negative results. Second, this analysis only measured associations between shift characteristics and the recording of a positive response. This association does not imply causation. Third, a significant portion of the original data did not have day of the week recorded (35.1%). This loss of data may bias the per day analysis.

Table 1: Characteristics of the survey responses.

Surveys, n (%)	362
Hospital	
Dandenong hospital	225 (62.2)
Casey hospital	137 (37.8)
Timing of shift	
Ante meridiem	143 (39.5)
Post meridiem	97 (26.8)
Night	115 (31.8)
Unknown	7 (1.9)
Role of respondent	
Nurse	231 (63.8)
Doctor	65 (18.0)
Other	66 (18.2)
Location of shift	
Triage	51 (14.1)
Main	170 (47.0)
Fast track	22 (6.1)
Short stay unit	35 (9.7)
Unknown	84 (23.2)

CONCLUSION

Based on this cohort of emergency workers, the shift characteristics that were most predictive of submitting a survey describing a violent encounter were PM or night shifts, whether the health provider is a nurse, or whether the shift was performed on a Saturday. Further studies into the effectiveness of predictive tools, prevention training interventions, and coping strategies, are required prior to making widely enforced recommendations.

Table 2: Odds ratios for experiencing violence on each day of the week.

Day of the week	Positive surveys	Negative surveys	OR [95% CI]	p value
Monday	13	32	0.57 [0.26,1.21]	0.129
Tuesday	17	34	0.73 [0.35,1.45]	0.418
Wednesday	8	16	0.76 [0.27,1.98]	0.661
Thursday	13	18	1.14 [0.49,2.62]	0.844
Friday	19	17	1.92 [0.88,4.21]	0.094
Saturday	14	5	4.92 [1.60,18.13]	0.002
Sunday	8	21	0.55 [0.20,1.38]	0.2463

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