ORIGINAL RESEARCH

Staff perceptions of the emergency department working environment: An international cross-sectional survey

Julia CRILLY Ø,¹,² Jaimi H GREENSLADE Ø,³,⁴ Amy JOHNSTON Ø,⁵ Eric CARLSTRÖM,⁶ Ogilvie THOM,⁷ Louisa ABRAHAM,³ Donna MILLS⁷ and Marianne WALLIS²,⁸

¹Department of Emergency Medicine, Gold Coast Hospital and Health Service, Gold Coast, Queensland, Australia, ²Menzies Health Institute Queensland, Griffith University, Gold Coast, Queensland, Australia, ³Emergency and Trauma Centre, Royal Brisbane and Women’s Hospital, Brisbane, Queensland, Australia, ⁴Queensland University of Technology, Brisbane, Queensland, Australia, ⁵The University of Queensland, Brisbane, Queensland, Australia, ⁶Health and Crisis Management and Policy, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ⁷Sunshine Coast Hospital and Health Service, Sunshine Coast, Queensland, Australia, and ⁸School of Nursing and Midwifery, University of the Sunshine Coast, Sunshine Coast, Queensland, Australia

Abstract

Objectives: The aims of this study were to describe clinical staff perceptions of their ED working environment and to explore associations between staff demographics, coping styles and the work environment.

Methods: A cross-sectional study was conducted in one Swedish ED and two Australian EDs in 2015–2016. Descriptive statistics were used to explore stressors, coping styles and aspects of the working environment for the combined cohort and the cohort split by age, sex, professional role, years of employment in the ED and country. Regression analyses examined the impact of coping style and demographic characteristics on staff perceptions of the working environment.

Results: Two hundred and six ED staff completed the survey (response rate: 64%). Factors most stressful for ED staff included death or sexual abuse of a child, heavy workload and poor skill mix. Staff perceptions of the working environment differed based on age, sex, country, tenure and job role. Regression analysis of perceptions of the work environment on demographics and coping strategies revealed that negative coping strategies were associated with low self-realisation, high workload, high conflict and high nervousness. Active coping and positive thinking were associated with increased self-realisation. Positive thinking was associated with lower levels of conflict.

Conclusions: Employees engaging in positive coping strategies had more positive perceptions of the work environment, while those engaging in maladaptive coping strategies reported negative perceptions of the work environment. These data suggest that strategies that promote the use of active coping and positive thinking should be encouraged and warrant further research in the ED.

Key findings

- Factors most stressful for ED staff included death or sexual abuse of a child, followed by heavy workload and poor skill mix.
- ED staff perceptions of the work environment differed based on age, sex, country, tenure and job role.
- Employees engaging in maladaptive coping strategies reported negative perceptions of the work environment.

Key words: coping, emergency department, morale, stress, survey, working environment.

Introduction

Workplace stress in the ED is an internationally recognised issue¹ that has a range of negative impacts for staff and patients.²,³ EDs are high stress environments due to factors such as interpersonal conflict, high workload,⁴ an increasing number of patients, violence directed at staff, inadequate skill mix and inadequate staffing.⁴ Research exploring the stressors that have the greatest impact on ED staff perceptions of the work environment is scarce⁵ and typically focuses on single sites. An exploration of stressors perceived to be important by staff at various EDs is critical for developing effective strategies to support staff wellbeing and improve patient care.

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locations is required to validate the results of single site studies and to enable development of interventions to reduce workplace stressors. An exploration of workplace stress also requires an understanding of the coping strategies used by ED staff to manage stressors. Poor (maladaptive) coping strategies are associated with adverse performance and job satisfaction while positive (adaptive) coping strategies are linked to staff remaining on track and reaching their goals. The types of coping strategies employed depend on both the environment and on personal disposition. Therefore, examination of employee coping would also benefit from multi-site research in different workplace environments.

This study focuses on stress and coping in EDs in Australia and Sweden. The health care industry in Sweden and Australia has some differences but also some similarities. Both countries have a similar life expectancy and experience similar health issues; the most common causes of death in both are ischaemic heart disease, Alzheimer’s disease, chronic obstructive pulmonary disease, lung cancer and stroke. Australia and Sweden also report increasing ED presentations, and pressures to meet a variety of performance measures. Both countries publish reports regarding outcomes pertaining to the ED such as waiting time to see a clinician and ED length of stay. These reports indicate that the medium waiting time to see a physician in the ED is longer in Sweden (58 min) than in Australia (19 min) and the median ED length of stay is longer in Sweden (220 min) than in Australia (168 min). Models of care differ in the two countries, Swedish healthcare is financed by taxes and fewer than 5% of patients are privately insured. The Australian healthcare is a mixed system of governmental and private providers, with 50% of the population having private health insurance. ED staffing models also differ between the countries. While emergency nursing is an established specialty area in both Australia and Sweden, the specialisation of emergency medicine is only relatively new in Sweden, compared to Australia. Undertaking research in varied settings is important to capture the potential diversity of participants and enhance research understanding. The aim of this study was to describe the working environment and various coping strategies reported by medical and nursing staff working in Australian and Swedish EDs. This descriptive study also explored associations between demographics, coping strategies and perceptions of the working environment.

Methods

Study design and sample

This was a cross-sectional research study. All permanent or part-time nursing and medical staff working at participating EDs were eligible for inclusion and were invited to participate. Hospital and university Human Research Ethics Committee approvals to conduct the study were obtained (HREC/14/QGC/173; NRS/15/16/HREC) for the Australian sites and the Regional Ethical Review Board in Linköping (permit number 2018/563–32) approved the protocol for the Swedish site.

Setting

The three study sites from which participants were drawn included a large regional teaching hospital in Australia (Hospital A), a smaller regional teaching hospital in Australia (Hospital B) and a large county hospital in Sweden (Hospital C). A summary of each site with their associated characteristics is provided in Table 1.

Measures

Data were collected via a printed survey that included demographic characteristics, clinical experience and three scales; the 10 item Working Environment Scale (WES-10), the 60 item Jalowiec Coping Scale (JCS) and a published list of 15 ED stressors. The questionnaire was translated from English into Swedish and confirmed by back translation into English. The WES-10 was developed to measure four aspects of the working environment: self-realisation (the extent to which staff feel supported and valued), workload, interpersonal conflict and nervousness (worry about going to work or feel tense at work). Confirmatory factor analysis of the proposed 4-factor structure showed moderate fit to the current data ($\chi^2 = 60.8$, $P < 0.001$, root-mean-square error of approximation [RMSEA] = 0.07, comparative fit index [CFI] = 0.92, Tucker–Lewis Index [TLI] = 0.87). In line with previous research, fits could be improved by allowing item 5 to cross-load onto other factors. However, we retained the published 4-factor structure to enable comparison across studies. Cronbach alpha for the self-realisation scale was 0.65. Spearman-Brown was 0.67 for workload, 0.58 for conflict and 0.66 for nervousness. These show moderate internal consistency and are in line with reliability coefficients reported in previous papers. This suggests that there are moderate correlations between responses to the individual items that are combined to form each subscale.

The JCS was developed to measure eight different coping styles. However, in line with a previous validation study, confirmatory factor analysis of the hypothesised 8-factor model provided a poor fit to the data ($\chi^2_{[60]} = 3001$, $P < 0.001$, $\text{TLI} = 0.44$, $\text{CFI} = 0.47$, $\text{RMSEA} = 0.08$, $\text{SRMR} = 0.11$). As such, two of the study authors (JC and MW) independently reviewed each item in terms of applicability to ED staff, which resulted in the removal of 27 items. Exploratory factor analysis using oblique (oblimin) rotation identified a 4-factor solution. The first included 11 items reflecting ‘negative coping strategies’ such as ignoring the problem. The second included six items reflecting ‘active problem-solving strategies’ such as learning something new. The third factor included eight items indicating that ‘alternative approaches’ were taken to solve the problem. The final factor included four items that focussed on ‘positive thinking’ and trying to see the good side of the situation. See Appendix S1 for the revised JCS-A for ED staff.
TABLE 1. Overview of ED study sites

| Site characteristic† | Hospital A, Queensland, Australia | Hospital B, Queensland, Australia | Hospital C, Trollhättan, Sweden |
|----------------------|----------------------------------|----------------------------------|--------------------------------|
| Population served    | Children and adults              | Children and adults              | Children and adults            |
| Hospital type        | Public, teaching, regional       | Public, teaching, regional       | Public, teaching, regional     |
| Annual number of patient presentations to ED | 52 000                           | 30 000                           | 54 000                         |
| Hospital admission rate from ED | 50%                             | 20%                             | 37%                           |
| ED nursing staff, n  | 78                               | 49                              | 116                           |
| ED medical staff, n  | 41                               | 28                              | 10†                           |

†Site characteristics based on 1 July 2015 to 30 June 2016. ‡Based on medical staff who work solely in the ED (other medical staff work in the ED plus other hospital areas).

**Survey distribution**

Staff were invited to participate via email and during ward based information sessions. Paper surveys were distributed to staff and were returned to locked boxes. For those unable to attend sessions in person, surveys were left in staff rooms with stamped self-addressed envelopes for return. A reminder email was sent out 2 weeks later.

**Data analysis**

Characteristics of responders were reported by hospital and country. Data from the two Australian sites were combined as our previous work has shown these to be similar. Median (and interquartile range [IQR]) were computed for each of the work stress items, WES-10 subscales and JCS subscales by hospital country (Australia or Sweden), age, sex, job title (nurse or doctor) and length of employment within the ED. For descriptive analyses only, age was dichotomised at 35 years as research has shown that perceptions of stress and well-being differs for individuals ≤35 to >35 years. Age was retained as a continuous variable in regression analyses. The 5 year time-frame used to dichotomise length of employment in the ED was based on previous research. Rank-sum tests were used to compare subscales across demographic characteristics. Differences between medians (and 95% confidence intervals of differences) were reported.

Four sets of analyses were performed: each of the WES subscales on the demographic variables and the four coping subscales. All assumptions were met for linear regression; residuals were normally distributed, continuous variables had a linear association with the outcome and predictor variables were not collinear. Interaction terms between country and each coping style were tested to identify whether the relationship between coping and work environment differed across country. These interaction terms were not significant and were excluded from the model.

Missing data were excluded from descriptive analyses. Within regression analyses, there were 32 participants with missing data on one or more variables (15.5%). Such data were replaced using multiple imputation by chained equations. Twenty imputations were utilised based on demographic data, WES and JCS subscales. A sensitivity analysis was also conducted with missing data deleted. The method of dealing with missing data did not change the interpretation of results and only coefficients from multiple imputation are reported here. Data were analysed using Stata version 14 (StataCorp, College Station, TX, USA).

This was a descriptive study utilising a convenience sample. Thus, an a priori power calculation was not conducted. The final sample size of 206 provided >90% power to detect a small effect size ($R^2 = 0.05$) within the regression analyses.

**Results**

**Respondent characteristics**

The response rate from ED staff was 64%. Respondents from Sweden were slightly older, comprised a higher proportion of females and nurses, had more years of experience in ED and had more staff working full-time (Table 2).

Medians (IQR) for each WES-10 subscale by demographic characteristics are shown in Table 3. Compared to the Australian cohort, Swedish respondents reported higher self-realisation (median difference = 0.2, 95% CI 0.1 to 0.4), higher role conflict (difference = 0.5, 95% CI 0.3 to 0.7) and lower levels of nervousness (difference = −0.5, 95% CI −0.5 to −0.5). Females reported higher workload than males (difference = 0.5, 95% CI 0.2 to 0.8) and nurses reported higher workload than doctors (difference = 0.5, 95% CI 0.0 to 1.0). Those employed in the ED for ≥5 years reported higher role-conflict than those with less experience (difference = 0.5, 95% CI 0.1 to 0.9).

Medians (IQR) for each JCS subscale are presented in Table 3. Swedish respondents reported lower use of negative coping (median
difference = −0.2, 95% CI −0.3 to −0.1), lower use of alternative coping strategies (difference = −0.4, 95% CI −0.5 to −0.3) and higher use of positive thinking (difference = 0.3, 95% CI 0.2 to 0.5). Females reported greater use of active coping strategies (difference = 0.3, 95% CI 0.1 to 0.6) and positive thinking (difference = 0.3, 95% CI 0.1 to 0.4) compared to males. Nurses reported higher use of positive thinking (difference = 0.3, 95% CI 0.1 to 0.4) than doctors. Those employed in the ED for ≥5 years reported less use of alternative coping strategies (difference = −0.3, 95% CI −0.4 to −0.2) and more use of positive thinking (difference = 0.3, 95% CI 0.0 to 0.5).

A number of work stressors differed by demographic characteristics (Table 4). Individuals >35 years old and those with ≥5 years of employment in the ED reported higher stress from the death or sexual abuse of a child (median difference = 2.0, 95% CI 1.3 to 2.7 for age and difference = 1.0, 95% CI 0.9 to 2.9 for tenure). Swedish respondents reported lower levels of stress from workplace factors such as poor professional relationships (difference = −3.0, 95% CI −4.5 to −1.4), infectious diseases exposure (difference = −2.0, 95% CI −3.8 to −0.2), professional development (difference = −3.0, 95% CI −4.1 to −1.9) and medico-legal concerns (difference = −6.0, 95% CI −7.1 to −4.9) compared to Australian respondents. Males reported lower stress from high acuity patients (difference = −2, 95% CI −4.0 to −3.6) and nurses reported higher stress from workload (difference = 2.0, 95% CI 1.3 to 2.7).

Factors predictive of a high WES

Table 5 provides data from the regression of work environment on demographic factors and coping strategies. Demographic variables were not reliable predictors of perceptions of work environment. Negative coping strategies were associated with poor perceptions of the work environment, namely lower levels of self-realisation, higher reports of workload, conflict and nervousness. Active coping behaviours and positive thinking were associated with higher perceptions of self-realisation. Positive thinking was associated with lower levels of conflict.

Discussion

The present study sought to describe clinical staff perceptions of their ED working environment in Australia and Sweden. Factors most stressful for ED staff included death or sexual abuse of a child, heavy workload, and poor skill mix. Perceptions of the working environment differed based on staff demographics. Staff used both positive and negative coping strategies, and these aligned with their perceptions of the working environment.

In line with previous research, the most stressful factors reported by staff in this study included death or sexual abuse of a child, heavy workload and workplace violence. Exposure to these stressors in the clinical environment tends to occur with varying degrees of frequency (i.e. infrequent exposure to death or sexual abuse of a child, moderate/weekly exposure to workplace violence (verbal/physical) and frequent/daily exposure to heavy workload/poor skill mix. A recent survey of Australian emergency clinicians noted that 88% had felt threatened by a patient, with 43% being physically assaulted. Given the frequency of exposure to these different stressors, it is imperative that careful consideration be given to strategies to address them. Such strategies must address limitation of exposure as well as enhancing staff coping skills.

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TABLE 3. Demographic characteristics for the WES-10 and JCS subscales†

| Hospital location, median (IQR) | Age, median (IQR) | Sex, median (IQR) | Health professional classification, median (IQR) | Duration of employment in ED, median (IQR) |
|--------------------------------|------------------|------------------|-----------------------------------------------|------------------------------------------|
| All staff (n = 206)             | Australia (n = 129) | Sweden (n = 77) | ≤35 years (n = 78) | >35 years (n = 121) | Male (n = 41) | Female (n = 150) | Doctor (n = 45) | Nurse (n = 150) | <5 years (n = 69) | ≥5 years (n = 127) |
|                                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| WES-10 subscale                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Self-realisation               | 3.0 (2.5–3.3)     | 2.8 (2.3–3.3)    | 3.0 (2.5–3.3)    | 2.8 (2.5–3.3)    | 3.0 (2.5–3.3)    | 3.0 (2.5–3.3)    | 3.0 (2.5–3.3)    | 3.0 (2.5–3.3)    | 2.75 (2.5–3.25)  | 3.0 (2.5–3.25) |
| Workload                       | 3 (2.5–3.5)       | 3.0 (2.5–3.5)    | 3.0 (2.5–3.5)    | 3.0 (2.5–3.5)    | 2.5 (2.5–3.0)    | 3.0 (2.5–3.0)    | 2.5 (2.5–3.0)    | 3.0 (2.5–3.0)    | 2.75 (2.5–3.25)  | 3.0 (2.5–3.25) |
| Conflict                        | 1.0 (1.0–2.0)     | 1.0 (0.5–1.5)    | 1.5 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.0 (1.0–2.0)    | 1.0 (1.0–2.0)    | 1.0 (1.0–2.0)    | 1.0 (1.0–2.0)    | 1.25 (1.0–1.5)   | 1.5 (1.0–2.0) |
| Nervousness                    | 1.5 (1.0–2.0)     | 1.0 (0.5–1.5)    | 1.5 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.0 (1.0–2.0)    | 1.5 (1.0–2.0)    | 1.0 (1.0–2.0) |
| JCS‡ subscale                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Negative coping                | 1.2 (0.8–1.5)     | 1.2 (0.9–1.5)    | 1.2 (0.8–1.5)    | 1.2 (0.9–1.5)    | 1.2 (0.8–1.5)    | 1.2 (0.8–1.5)    | 1.2 (0.8–1.5)    | 1.2 (0.8–1.5)    | 1.2 (0.9–1.5)    | 1.2 (0.9–1.5) |
| Active coping                  | 1.4 (1.2–1.7)     | 1.3 (1.0–1.7)    | 1.5 (1.2–1.8)    | 1.3 (1.0–1.7)    | 1.2 (0.8–1.5)    | 1.5 (1.2–1.8)    | 1.3 (1.0–1.5)    | 1.3 (1.2–1.8)    | 1.5 (1.2–1.7)    | 1.3 (1.0–1.7) |
| Alternative strategies         | 1.9 (1.6–2.1)     | 2.0 (1.7–2.3)    | 1.9 (1.4–2.1)    | 1.9 (1.6–2.1)    | 2.0 (1.6–2.1)    | 2.0 (1.4–2.1)    | 2.0 (1.7–2.3)    | 1.9 (1.6–2.3)    | 2.0 (1.6–2.3)    | 1.7 (1.4–2.0) |
| Positive thinking              | 2.3 (1.8–2.5)     | 2.0 (1.8–2.5)    | 2.3 (1.8–2.5)    | 2.3 (1.8–2.5)    | 2.3 (1.8–2.3)    | 2.0 (2.0–2.5)    | 2.3 (2.0–2.5)    | 2.0 (2.0–2.5)    | 2.3 (1.8–2.5)    | 2.3 (1.8–2.5) |

†Higher scores indicate higher self-realisation (positive working experience), higher workload, higher role conflict, higher nervousness (negative working experiences) and higher use of coping strategies. There were missing data for age (n = 7), sex (n = 15), job title (n = 11) and duration of employment (n = 10). ‡JCS-A25 © Anne Jalowiec. IQR, interquartile range; JCS, Jalowiec Coping Scale; WES, Working Environment Scale.
TABLE 4.  Work stressors by hospital, position and duration of employment†

| ED work stressor                      | Hospital location, median (IQR) | Age, median (IQR) | Sex, median (IQR) | Health professional classification, median (IQR) | Duration of employment in ED, median (IQR) |
|--------------------------------------|---------------------------------|-------------------|-------------------|-----------------------------------------------|------------------------------------------|
|                                      | All staff (n = 206)             |                   |                   |                                               |                                          |
|                                      | Australia (n = 129)             | Sweden (n = 77)   |                   |                                               |                                          |
| 1. Workplace violence                | 12 (9–13)                       | 11.5 (9–13)       | 12 (7.5–13)       | 10 (5–13)                                     | 10 (9–13)                                 |
| 2. Heavy workload and poor skill mix | 13 (11–14)                      | 13 (11–14)        | 13 (10–14)        | 13 (10–14)                                    | 13 (11–14)                                |
| 3. Mass casualty incident            | 11 (8–13)                       | 10 (8–13)         | 11 (7–13)         | 11 (7–13)                                     | 11 (8–13)                                 |
| 4. Death or sexual abuse of a child  | 14 (11–15)                      | 15 (12–15)        | 15 (10–14)        | 15 (10–14)                                    | 15 (12–15)                                |
| 5. High acuity patients              | 9 (6–12)                        | 9 (7–12)          | 10 (5–11)         | 10 (5–10)                                     | 10 (6–12)                                 |
| 6. Inability to provide optimum care | 12 (9–13)                       | 12 (9.5–13.5)     | 12 (8.5–13)       | 12 (7.5–13)                                   | 12 (8.5–13)                               |
| 7. Environmental concerns (e.g.     | 10 (8–12.5)                     | 10 (7–12)         | 11 (8–12)         | 11 (7–12)                                     | 11 (8–12)                                 |
| overcrowding)                        |                                 |                   |                   |                                               |                                          |
| 8. Poor professional relations       | 9 (5–12)                        | 7 (4–10)          | 9 (4–10)          | 9 (4–10)                                      | 9 (4–10)                                  |
| 9. Crisis management and bereavement| 9 (6–12)                        | 9 (6–12)          | 9 (6–12)          | 9 (6–12)                                      | 9 (6–12)                                  |
| 10. Infectious diseases exposure     | 6 (4–10)                        | 5 (3–8)           | 6 (4–10)          | 5 (4–10)                                      | 5 (4–10)                                  |
| 11. Medico-legal concerns            | 8 (4–11)                        | 4 (2–8)           | 8 (4–10)          | 8 (4–10)                                      | 8 (4–10)                                  |
| 12. Concerns about professional      | 7 (4–10)                        | 5 (3–8)           | 8 (4–10)          | 8 (4–10)                                      | 8 (4–10)                                  |
| development                          |                                 |                   |                   |                                               |                                          |
### TABLE 4.  Continued

| ED work stressor | Hospital location, median (IQR) | Age, median (IQR) | Sex, median (IQR) | Health professional classification, median (IQR) | Duration of employment in ED, median (IQR) |
|------------------|---------------------------------|------------------|------------------|-----------------------------------------------|------------------------------------------|
|                  | All staff (n = 206)              |                  |                  | Doctor (n = 45)                               | <5 years (n = 69) ≥5 years (n = 127)     |
|                  | Australia (n = 129)              |                  |                  | Nurse (n = 150)                               |                                          |
|                  | Sweden (n = 77)                  |                  |                  |                                               |                                          |
|                  | ≤35 years                        |                  |                  |                                               |                                          |
|                  | >35 years                        |                  |                  |                                               |                                          |
| 13. Concerns about a critically injured or dying family member and friend | 12 (7–14) | 11.5 (6–14) | 12.5 (8–15) | 10.5 (6–14) | 12 (8–14.5) | 9 (5–13.5) | 12 (8–15) | 9 (5–13) | 12 (8–15) | 10 (5–14) | 13 (9–15) |
| 14. Administrative or budgetary concerns | 6 (2–10) | 5 (2–9) | 7 (3–10) | 5 (2–9) | 6 (2–10) | 5 (2–10) | 3 (10–6) | 6 (2–10) | 5 (2–9) | 6 (2–10) | 5 (2–9) | 6 (3–10) |
| 15. Dealing with the media | 4 (2–7) | 4 (2–7) | 4 (2–8) | 4 (1–6) | 4 (2–8) | 4 (2–8) | 4 (2–8) | 4 (2–8) | 4 (2–8) | 4 (1–5.5) | 4 (2–8) | 4 (2–8) |

†There was missing data for age (n = 7), sex (n = 15), job title (n = 11), duration of employment (n = 10), workplace violence (n = 4), workload (n = 2), mass casualty (n = 1), abuse of a child (n = 6), high acuity patients (n = 3), inability to provide optimal care (n = 2), environmental concerns (n = 2), professional relations (n = 1), crisis management (n = 1), infectious diseases (n = 1), medico-legal concerns (n = 2), professional development (n = 3), critically injured or dying (n = 8), administrative concerns (n = 4), dealing with media (n = 3). IQR, interquartile range.
self-realisation and lower levels of nervousness among the Swedish responders (who were mainly experienced nurses) may reflect their years of experience and sense of situational control. The higher use of positive thinking among the Swedish respondents may reflect underlying professional cultural differences as indicated in studies where cultures of cohesion and trust dominate Swedish healthcare staff. These findings highlight the need for further research into international comparisons of work stress and coping.

**Strengths and limitations**

Our findings present a snapshot based on respondents from two Australian and one Swedish hospital ED. Despite this, there were a number of limitations. We had a good response rate (64%) but the use of a paper survey meant there were some missing data and the sample may not be representative of the entire ED cohort. Further, contextual employment differences resulted in only two doctors responding from the Swedish sample. Such differences can make comparative studies difficult. This was a cross-sectional study and so the direction of relationships between coping strategies and perceptions of the environment are unclear. Further interventional and longitudinal work is required. We did not collect detailed information on staff training or experience. These factors may influence employee perceptions and coping strategies. The stress scale used in this study was developed using a cohort of ED nurses. Further validation of this tool for ED clinicians is required. This study assessed employee perceptions and did not include the collection of other objective environmental measures such as workforce hours, patient hours or absenteeism. Further work utilising these objective measures may provide additional information on the workplace environment and employee outcomes. Despite this, the findings do provide a foundation for expanding the number of ED sites (locally, nationally and internationally) interested in understanding and enhancing their working environment.

For analyses of workplace environment and coping strategies, we did not adjust the significance level for multiple comparisons. Small differences should be interpreted with caution. Although we did use previously published tools for the collection of data, these require further testing with staff in the ED environment, in particular the JCS-A, given our need to refine the factor structure.

**Conclusions**

We found that positive thinking and active coping were associated with increased self-realisation while negative coping strategies were associated with poor perceptions of the working environment. The results of this study may be used by managers and decision makers to explore opportunities to focus on the latter cohort so that more

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**TABLE 5. Regression analysis: work environment on demographic factors and coping strategies†**

| WES Self-realisation | WES Workload | WES Conflict | WES Nervousness |
|----------------------|-------------|-------------|-----------------|
| Regression coefficient (95% CI) | Regression coefficient (95% CI) | Regression coefficient (95% CI) | Regression coefficient (95% CI) |
| Age (per 10 years) | 0.01 | 0.07 | −0.11 | −0.05 |
| (−0.07 to 0.08) | (−0.03 to 0.16) | (−0.22 to −0.01) | (−0.15 to 0.05) |
| Female sex | −0.17 | 0.04 | −0.10 | 0.18 |
| (−0.42 to 0.08) | (−0.25 to 0.31) | (−0.46 to 0.24) | (−0.11 to 0.47) |
| ≥5 years experience | −0.03 | 0.10 | 0.22 | 0.08 |
| (−0.14 to 0.20) | (−0.12 to 0.31) | (−0.02 to 0.47) | (−0.14 to 0.30) |
| Doctor | 0.01 | −0.56 | −0.11 | 0.01 |
| (−0.13 to 0.35) | (−0.84 to −0.27) | (−0.46 to 0.23) | (−0.29 to 0.31) |
| Australia | −0.06 | −0.05 | −0.60 | 0.30 |
| (−0.28 to 0.16) | (−0.32 to 0.21) | (−0.91 to −0.28) | (0.01 to 0.58) |
| Negative coping | −0.40 | 0.22 | 0.33 | 0.71 |
| (−0.56 to −0.23) | (0.03 to 0.41) | (0.11 to 0.56) | (0.50 to 0.91) |
| Active coping | 0.19 | 0.11 | −0.01 | −0.04 |
| (0.03 to 0.35) | (−0.08 to 0.30) | (−0.23 to 0.21) | (−0.25 to 0.16) |
| Use of alternative strategies | −0.03 | 0.17 | 0.32 | 0.00 |
| (−0.25 to 0.19) | (−0.10 to 0.43) | (0.00 to 0.63) | (−0.28 to 0.29) |
| Positive thinking | 0.16 | −0.06 | −0.29 | −0.12 |
| (0.01 to 0.32) | (−0.25 to 0.13) | (−0.51 to −0.06) | (−0.32 to 0.08) |

†Bold values represent coefficients where the confidence interval (CI) does not include 0. Coping strategies measured using the Jalowiec Coping Scale (JCS-A) © Anne Jalowiec.
positive or alternate coping strategies can be used to replace the negative ones. The issue of high workload also suggests there is opportunity for organisations to actively engage in prevention strategies so that the onus does not rest solely with the individual. This survey could be integrated into regular (annual) workforce planning development, to provide staff and management the opportunity to detect changes (both positive and negative) in working environment trends from an individual and a departmental perspective. Further research is required regarding the aspects of the work environment within each country to understand whether our findings are reflective of local situations or whether they are reflective of national systems.

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Competing interests
JHG is a section editor for Emergency Medicine Australasia.

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher’s web site:

Appendix S1. Coping strategies from the JCS-A © Anne Jalowiec.