Abstract

Aim: To examine Australian and New Zealand Emergency Department staff's training, knowledge and confidence regarding trauma-informed care for children after trauma, and barriers to implementation.

Methods: Emergency Department staff's perspectives on trauma-informed care were assessed with a web-based self-report questionnaire. Participants included 468 Emergency Department staff (375 nursing and 111 medical staff) from hospitals in Australia and New Zealand. Data analyses included descriptive statistics, chi-square tests and multiple regressions.

Results: Over 90% of respondents had not received training in trauma-informed care and almost all respondents (94%) wanted training in this area. While knowledge was associated with respondent's previous training and profession, confidence was associated with respondent's previous training, experience level, and workplace. Dominant barriers to implementation of trauma-informed care were lack of time and lack of training.

Conclusions: There is a need and desire for training and education of Australian and New Zealand Emergency Department staff in trauma-informed care. This study demonstrates that experience alone is not sufficient for the development of knowledge of paediatric traumatic stress reactions and trauma-informed care practices. Existing education materials can be adapted for use in the Emergency Department and to accommodate the training preferences of Australian and New Zealand Emergency Department staff.

Key words: Emergency Service, Hospital; Child; Mental Health; Pediatrics; Stress Disorders, Post-Traumatic.

Introduction

In Australia and New Zealand injury is one of the leading causes of hospitalised morbidity[1] with over one hundred thousand children presenting to Emergency Departments (ED) with injuries each year.[2,3] Childhood injuries can have profound and lifelong effects, including permanent physical disabilities and long-term cognitive or psychological difficulties.[4] Posttraumatic Stress (PTS) is a common psychological response after a childhood injury and can include symptoms such as intrusive thoughts, sleep problems, and concentration difficulties.[5-7] PTS symptoms are distressing to the child and family and can result in impairment of functioning and delay the development of cognitive, social and emotional abilities.[6-9] The initial period following the injury is a critical window for the prevention or intervention of later PTS.[10] As such, paediatric ED staff have been recognised as having an important role in the prevention and management of PTS.[11,12]

Despite recognition of the impact of PTS, Australian paediatric emergency care clinicians report a lack of adequate psychosocial support provided to injured children and their families in EDs.[1]

To address this researchers and clinicians have described the importance of providing 'trauma-informed care' in paediatric ED settings as a preventive approach to minimising the impact of emotional trauma.[12] Throughout this paper, 'trauma' refers to emotional trauma that may result from the accident, injury, illness or medical treatment, not physical injury. Trauma-informed care, as defined by the Substance Abuse and Mental Health Services Administration (SAMHSA), refers to the way in which organisations, and in this case ED staff and paediatric health care systems, can prevent or minimise emotional trauma. [13] Specifically, a trauma-informed care approach in an organisation involves: understanding the widespread impact of trauma; being aware of the signs and symptoms of trauma in clients, families, and staff; incorporating a knowledge of trauma into policies and procedures; and aiming to prevent further trauma.[13]

The provision of trauma-informed care in paediatric EDs minimises the risk of PTS, assists in managing the distress of injured children and their families, provides emotional support, and promotes children's mental and physical recovery. [12,14,15] Training in trauma-informed ED care may help improve outcomes for children.[12,14] Prior to implementing training programs it is important to establish ED staff's current level of knowledge of trauma-informed care, their attitudes towards trauma-informed care and preferences for training in

order to target the specific gaps in knowledge and meet the needs of the population. Previous research has examined ED staff practices and perspectives on trauma-informed care in hospitals in the United States of America[16-18] and in an international population[19] indicating there is a lack of knowledge of psychological difficulties experienced by children following injuries, and a lack of skills in promoting psychological recovery. However, the descriptions of international data provide little specific insight regarding levels of training or knowledge in trauma-informed care in Australia and New Zealand. The healthcare systems in Australia and New Zealand differ from many of their international counterparts in the structure of training[20] and emergency care services,[21] the provision of publicly funded medical care, profile of paediatric injuries[1,21,22] and the geographical challenges of a dispersed population.[21] These characteristics of the EDs in Australia and New Zealand suggest that levels of training and training needs of staff in this region may differ from countries such as the USA.

The aim of the current study was to examine the perspectives of Australian and New Zealand ED staff on trauma-informed care. In particular, we aimed to understand; 1) what proportion of ED staff have received training in trauma-informed care and their training preferences 2) ED staff's knowledge of PTS in children; 3) ED staff's confidence in providing trauma-informed care; and 4) what barriers to implementing trauma-informed care are experienced by ED staff.

Materials and Methods

Design

The data used in this study were extracted from a larger international data set for which data collection and study design procedures have been previously described.[19] The Human Research Ethics Committee of the Royal Children's Hospital Melbourne approved the study (HREC 33085).

Survey development and administration

ED staff's perspectives on trauma-informed care were assessed with a web-based self-report questionnaire, available from the authors or via the Trauma Recovery website[22]. This self-report questionnaire[19] examined knowledge of PTS, confidence in providing trauma-informed care, whether the participant has had specific training in trauma-informed care, and training preferences.

Study population

Respondents were recruited via the Paediatric Emergency Departments International Collaborative[23] (PREDICT) and Pediatric Emergency Research Networks[24] (PERN), the College of Emergency Nursing Australasia and the College of Emergency Nursing New Zealand. A snowball approach to recruitment was utilised to obtain as many responses as possible from staff in areas with less participation in professional organisations, as such we are unable to determine a response rate.

Data analyses

Data were exported from SurveyMonkey and analysed using SPSS version 21 (IBM, Armonk, NY, USA). Values of $p < .05$ were considered to be statistically significant. We calculated total scores for knowledge of PTS and confidence in providing trauma-informed care (full details have been previously described[19]). An a priori independent t-test was conducted, to confirm that separate analysis of and New Zealand ED staff was warranted from the international sample (see supporting information).[19] We then conducted an a priori analysis of equivalence, which determined that it was appropriate to combine responses from Australia and New Zealand (see supporting information).

We used descriptive statistics to describe respondent characteristics, knowledge, training status and preferences, and barriers to implementing trauma-informed care. Multiple regression analyses were conducted to predict knowledge and confidence scores using profession (nursing, medical staff), years of experience, training in trauma-informed care and department (paediatric ED, combined ED, adult ED) as the predictors. Finally, we conducted chi-square analyses to compare specific elements of medical and nursing staff‘s knowledge of PTS and confidence in providing trauma-informed care.

Results

The sample consisted of 468 ED staff (375 nursing staff and 111 medical staff) who were recruited from hospitals in Australia and New Zealand. Characteristics of the survey respondents are presented in Table 1.

Training status and preferences

Over 90% of Australian and New Zealand ED staff had no training in trauma-informed care. Almost all respondents (94%) indicated a desire for training in trauma-informed care. Of the respondents interested in training, 46% indicated they would be able to commit 1-4 hours to training in the next 6 months, 31% would commit 5-8 hours, and 23%

could commit more than 8 hours. Most preferred in person group training, in a single block, followed by an interactive website (see Table 2).

Knowledge of trauma-informed care

ED staff demonstrated varying levels of knowledge across the areas examined (see Table 3). For example the majority of ED staff (86.6%) could correctly identify that an injured child, their siblings and parents are all at risk of PTS. However, only 2.8% of ED staff could correctly identify the prevalence of children who develop one or more symptoms of PTS in the first month following the injury of PTS. Compared to nursing staff, significantly more medical staff were aware that a child's pain severity and their perception of life threat both increase the risk for PTS.

The regression analyses showed that the combination of all variables significantly predicted knowledge of trauma-informed care and explained 5% of the variance in the model. The variables 'profession' and 'training' uniquely predicted knowledge scores (see Table 4) indicating that higher levels of knowledge were associated with being a physician and being trained in trauma-informed care. Years of experience did not predict knowledge of trauma-informed care.

Confidence in providing trauma-informed care

Table 5 shows the mean confidence score for each element of trauma-informed care with highest scores 3.76 and lowest scores 2.45. Respondents were most confident about explaining procedures to children and parents and mobilising professional and social support for the child. Respondents were least confident in identifying those at risk, and educating children and families about PTS reactions and accessing help. A chi-square test was conducted to examine differences in confidence in trauma-informed care between professions (see Table 5). Compared to medical staff, nurses reported significantly higher degrees of confidence in helping children or parents to calm down by teaching relaxation, arranging for a support person to be available to the child, encouraging parents to mobilise their own support network, and tailoring their approach to the families' culture or background. In contrast, medical staff reported significantly higher degrees of confidence in informing children about an injured or deceased family member and responding to children's or parent's questions about whether the child will die.

The regression analyses showed that the combination of all variables significantly predicted confidence in providing trauma-informed care and explained 8% of the variance in the model. The variables 'experience', 'department' and 'training' uniquely predicted confidence scores, demonstrating that higher confidence was associated with working in a paediatric ED, being trained in trauma-informed care and having more years of experience, albeit with small effects (see Table 4).

Barriers to implementing trauma-informed care

The barriers to implementing trauma-informed care experience by ED staff are displayed in Figure 1. Over 90% of respondents indicated that the issue of time constraint was a barrier to implementing trauma-informed care. This was closely followed by a lack of training; 90% of respondents identified a lack of training as a barrier to implementing trauma-informed care.

Discussion

This study suggests that very few ED staff in Australia and New Zealand have received training in trauma-informed care. With the growing understanding of the impact of PTS and the benefits of trauma-informed care[7,12,25-27] this represents an area for improvement in the education of future ED staff and for the professional development of the current workforce. The vast majority of respondents expressed a desire for training in trauma-informed care and reported they could dedicate time to such training. The common element of the preferred training modalities is an interactive and applied approach to learning. Therefore training programs for trauma-informed care should be developed to meet the preferences of ED staff in this region.

In this analysis ED staff from Australia and New Zealand demonstrated varied knowledge of paediatric PTS reactions. While insight in the risk for family members was strong, weaknesses were identified in recognising behaviours that can indicate risk and distress and the relationship between the child's pain rating and their risk of PTS. Additionally the results suggest that ED staff may lack awareness of the prevalence of psychological difficulties experienced by children exposed to an injury[16,18] which may provide some explanation for a lack of awareness of tools for assessing PTS[27,16] and PTS symptoms. It is possible that this lack of awareness contributes to the comparatively lower levels of confidence found in these skills. Greater knowledge was associated with having had

specific training in trauma-informed or psychosocial care. Of note, there was no relationship between years of experience or experience in a paediatric ED and knowledge of children's PTS reactions. This suggests that knowledge of children's PTS reactions does not develop with experience alone, further strengthening the argument for the need of widely distributed training in this region.

The majority of ED staff feel moderately confident in implementing aspects of trauma-informed care. Training in trauma-informed care, working in a paediatric ED and more years of experience were associated with more confidence in these skills. The common theme underpinning the skills associated with less confidence (educating children and families about trauma reactions, and how to identify those at risk and access help) is that they are directly related to applying specific knowledge and understanding of PTS and trauma-informed approaches to care. Whereas the skills associated with greater confidence (explaining procedures to children and parents and mobilizing professional and social support for the child) can be adapted from other models of care practiced in EDs in Australia and New Zealand such as procedural pain management, family-centred care and practitioner self care. This suggests that training could focus on the areas of low confidence and support and reinforce the relevant areas of perceived competence. Differences across aspects of confidence in trauma-informed care varied between medical and nursing staff and reflected the differing roles between the professions in this region. For example nurses may lead in engaging the child or family in relaxation techniques, whereas physicians role would involve discussing prognosis. Profession specific roles should be taken into account when developing training in this area.

The current study demonstrated some associations between demographic variables and knowledge and confidence scores; however, the small effect sizes suggest that there is no justification to target a particular group of ED staff in Australia and New Zealand. Rather the lack of difference in knowledge and confidence levels across groups indicates that training and education in trauma-informed care is needed across the workforce. Existing education programs that might address the confidence and competence needs of ED staff include Psychological First Aid (PFA) training,[28,29] resources from the HealthCare Toolbox website[30] and the Trauma Toolbox for Primary Care.[31] Both the PFA training program and Health Care Toolbox include interactive elements providing opportunities for ED staff to apply the

knowledge and skills developed and receive feedback. This format meets the preference for brief interactive e-learning identified by ED staff in this region. In the evaluation and development of training in this area, preferences for brief training must be balanced with ensuring ED staff are able to retain and incorporate knowledge and skills learnt into their practice.[32] Further research is required to examine the efficacy and feasibility of available training programs to support calls for widespread training in trauma-informed care[12].

In addition to addressing the confidence and competence needs of Australian and New Zealand ED staff, education programs and policy must consider the barriers that ED staff experience in implementing trauma-informed care. Almost all ED staff felt that time constraints and a lack of training were barriers to the implementation of trauma-informed care. Perceived time pressures have been previously identified as a source of stress for ED staff in this region.[33,34] Training programs developed for Australian and New Zealand ED staff should aim to increase knowledge and skills in providing care in a trauma-informed way without increasing pressure on time and provide clarity on the evidence for best practice.[12,33]

Limitations

Several limitations of the study need to be taken into account. This study examined staff's knowledge and confidence regarding trauma-informed care, however, it did not provide information on the ability of respondents or the quality of trauma-informed care delivered by the respondents (respondents did have the option to indicate if they felt trauma-informed care was or was not part of their role). Further, the use of self-report measures may have resulted in self-report biases, such as respondents portraying themselves positively, confounding the data. Due to the recruitment approach response rates could not be calculated. Additionally as participation was necessarily voluntary, respondents may have been more likely to express an interest in trauma-informed care and although explicitly invited, it is possible that staff with negative views or limited knowledge in this area were not well represented.

Conclusion

This study demonstrates that Australian and New Zealand ED staff have limited knowledge and confidence in the care of PTS in injured children. Very few clinical ED staff have received any training on PTS or trauma-informed care. Training in trauma-informed care should be seen as an essential component of education programs in emergency nursing

or medical training. Importantly, this study demonstrates that experience alone is not sufficient in the development of knowledge of PTS and trauma-informed care practices, suggesting the need for widespread training in the current workforce. Additionally, there is very little variation in knowledge of PTS reactions and confidence in trauma-informed care across demographic and organizational characteristics indicating that a universal approach to training can be used for ED staff interested in developing their knowledge and skills in this area.

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Table 1. *Characteristics of survey respondents*

	By profession		Total sample
	Nursing (*n* =375)	Medical (*n* =111)	(*n* = 486)
Age			
M (SD)	43.06 (11.13)	37.58 (7.50)	41.81 (10.66)
Gender, n (%)			
Female	333 (88.80)	56 (50.45)	389 (80.00)
Country, *n* (%)			
Australia	152 (40.53)	100 (90.09)	252 (51.53)
New Zealand	223 (59.47)	11 (9.91)	234 (48.47)
Location, *n* (%)			
Rural area	78 (20.8)	5 (4.50)	83 (17.08)
Suburban area	80 (21.33)	22 (19.82)	102 (20.99)
Urban area	217 (57.87)	84 (75.68)	301 (61.93)
Department *n* (%)			
Paediatric ED	93 (24.80)	63 (56.76)	156 (32.10)
Combined Paediatric and Adult ED	243 (64.80)	41 (36.94)	284 (58.43)
Adult ED	39 (10.40)	7 (6.31)	46 (9.47)
Years of experience in patient care			
Mean (SD) (years)	19.92 (12.09)	13.60 (8.00)	18.48 (11.59)
Previous training in trauma-informed care, *n* (%)			
No training	343 (91.47)	101 (90.99)	444 (91.36)
Have had training	32 (8.53)	10 (9.01)	42 (8.64)
Further training in trauma-informed care, *n* (%)			
Want training	359 (95.22)	98 (88.28)	457 (94.00)
Do not want training	7 (4.78)	13 (11.17)	29 (7.00)

Note. ED, emergency department, PTS, Post Traumatic Stress.

Table 2. *Australian and New Zealand ED Staff's training preferences*

	1st preference (%)	2nd preference (%)
Group training in-person in one block of hours	30	23
Online: interactive website (e.g. webinar, video examples, quizzes)	24	21
Online: website and written information	17	17
Group training in-person spread over a number of weeks	12	14
Individual mentor sessions with an experienced clinician of my own profession	8	8
A book on the topic	6	10
Individual mentor sessions with a mental health clinician	3	7

Note: $N = 457$, all ED staff who indicated they want training in trauma-informed care. ED, emergency department.

Table 3. *Australian and New Zealand* ED staff's knowledge of paediatric PTS, correct answers *n* (%)

Statement	Total sample (*n* = 486)	By profession			
		Nurses (*n*= 375)	Medical (*n*=111)	*p* - value	*V*
All levels of injury severities are at risk for traumatic stress	327(67.2)	252(67.2)	75(67.5)	0.94	
All age groups are at risk for traumatic stress	249(51.2)	195(52.0)	54 (48.6)	0.54	
Child / parents / siblings are at risk	421(86.6)	321(85.6)	100 (90)	0.22	
Various behaviours (e.g. calm, frantic) can indicate risk	194(39.9)	141(37.6)	53 (47.7)	0.06	
Subjective life threat is risk factor	306(62.9)	209(55.7)	97(87.3)	<0.00*	.275
Pain is a risk factor	172(35.3)	114(30.4)	58(52.2)	<0.00*	.192
> 50% of children report stress symptoms in 1st month post-injury	14(2.8)	10(2.6)	4(3.6)	0.60	

Note. *V* = Cramer's V. *DF* =2; .07 =small effect, .21 =moderate effect and .35 =large effect. Responses were coded as correct/ incorrect. ED, emergency department; PTS, Post Traumatic Stress. *p* values and Cramer's V statistics are relate to a chi-square analysis of the difference in knowledge of PTS between medical and nursing staff.

Table 4. a) *Multiple Regression Analysis of ED staff's knowledge of PTS b) Multiple Regression Analysis of ED staff's confidence in providing trauma-informed care*

a) *Multiple Regression Analysis of ED staff knowledge of PTS*

Variable	*B*	SEB	β
Profession (Nurse, Physician)	.66	.16	.19*
Department (Adult ED ,Paediatric ED)	.17	.15	.09
Years of experience in patient care	.01	.01	.06
Training in trauma-informed care (No training, Had training)	.48	.24	.09*

b) *Multiple Regression Analysis of ED staff's confidence in providing trauma-informed care*

Variable	*B*	SEB	β
Profession (Nurse, Physician)	-.70	.85	-.04
Department (Adult ED ,Paediatric ED)	3.00	.79	.18*
Years of experience in patient care	.12	.03	.18*
Training in trauma-informed care (No training, Had training)	4.30	1.22	.17*

Note. a) N = 486. * $p < .05$; $F(4,481) = 6.46$, $p < .00$, $R^2 = .05$; *B* = unstandardized regression coefficient; SEB = Standard error of the coefficient; β - standardized coefficient; ED, emergency department. 'Nurse', Adult ED' and 'No training' were codded '0'. 'Physician', 'Paediatric ED' and 'Have had training' were codded '1'..

Note. b) N = 486. * $p < .005$; $F(4,481) = 10.78$, $p < .00$, $R^2 = .08$; *B* = unstandardized regression coefficient; SEB = Standard error of the coefficient; β - standardized coefficient; ED, emergency department.

Table 5. *Australian and New Zealand ED staff's confidence in providing trauma-informed care, mean (standard deviation) (four-point Likert-type scale)*

Statement	By profession				
	Total sample (n = 486)	Nurses (n= 375)	Medical (n=111)	p - value	V
Respond calmly and without judgment to a child's or family's strong emotional distress	3.57 (0.54)	3.58 (0.29)	3.51 (0.05)	0.16	
Talk with children in age appropriate language	3.68 (0.53)	3.69 (0.02)	3.66 (0.05)	0.45	
Tailor your approach according to a family's cultural background	3.29 (0.63)	3.30 (0.03)	3.25 (0.05	0.02*	.13
Assess and manage pain in children	3.57 (0.56)	3.56 (0.03)	3.66 (0.5)	0.21	
Explain procedures to children and parents	3.76 (0.45)	3.73 (0.02)	3.73 (0.4)	0.34	
Inform a child about an injured / deceased family member	2.65 (0.84)	2.59 (0.04)	2.84 (0.7)	0.05*	.13
Help a child / parent who is anxious to calm down by teaching relaxation	3.09 (0.75)	3.18 (0.38)	2.78 (0.07)	<0.00*	.22
Assess a child's or family's distress, emotional needs, and support systems	3.19 (0.70)	3.21 (0.03)	3.15 (0.06)	0.26	
Elicit trauma details from a child or family without them being exposed to more distress	2.83 (0.74)	2.81 (0.03)	2.87 (0.07)	0.34	
Respond to a child's or parent's question about whether the child will die	2.83 (0.81)	2.79 (0.04)	2.96 (0.08)	<0.00*	0.16
Liaise with staff who can provide practical assistance to a family (e.g. Social Work)	3.70 (0.52)	3.71 (0.02)	3.65 (0.05)	.56	
Take action to get someone close (a parent, family member or friend) available to the child in the ED	3.72 (0.50)	3.76 (0.02)	3.57 (0.05)	<0.00*	0.20
Encourage parents to make use of their own social support system (family, friends, spiritual community, etc.)	3.48 (0.60)	3.52 (0.03)	3.33 (0.06)	.02*	0.13
Educate children and families about common traumatic stress reactions	2.47 (0.82)	2.47 (0.04)	2.52 (0.07)	.27	
Teach parents or children specific ways to cope with procedures in the ED	3.11 (0.72)	3.13 (0.03)	3.06 (0.06)	.899	
Provide information to parents about emotional or behavioural reactions that indicate that the child may need help (when back at home)	2.45 (0.88)	2.46 (0.04)	2.45 (0.07)	.365	

Educate parents or children about how to access mental health services if needed	2.79 (0.83)	2.78 (0.04)	2.88 (0.07)	.209
Manage your own emotional responses to children's pain and trauma	3.37 (0.62)	3.40 (0.03)	3.33 (0.06)	.52

Note: *V* = Cramer's V. *DF* =2; .07 =small effect, .21 =moderate effect and .35 =large effect. Items were measured on a Likert-type scale (1 = Not at all confident, 2 = a little confident, 3 = moderately confident, 4 = very confident). ED, emergency department. *p* values and Cramer's V statistics relate to a chi-square analysis of the difference in confidence in providing trauma-informed care between medical and nursing staff.