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1 **The presence of psychological trauma symptoms in resuscitation**
2 **providers and an exploration of debriefing practices**

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19

20 Abstract

21

22 Introduction

23 Witnessing traumatic experiences can cause post-traumatic stress disorder (PTSD). The true
24 impact on healthcare staff of attending in-hospital cardiac arrests (IHCAs) has not been
25 studied. This cross-sectional study examined cardiac arrest debriefing practices and the
26 burden of attending IHCAs on nursing and medical staff.

27 Methods

28 A 33-item questionnaire-survey was sent to 517 doctors (of all grades), nurses and health-
29 care assistants (HCAs) working in the emergency department, the acute medical unit and the
30 intensive care unit of a district general hospital between April and August 2018. There were
31 three sections: demographics; cardiac arrest and debriefing practices; trauma-screening
32 questionnaire (TSQ).

33 Results

34 The response rate was 414/517 (80.1%); 312/414 (75.4%) were involved with IHCAs. Out of
35 1,463 arrests, 258 (17.6%) were debriefed. Twenty-nine of 302 (9.6%) staff **screened**
36 **positively for PTSD**. Healthcare assistants and Foundation Year 1 doctors had higher TSQ
37 scores than nurses or more senior doctors ($p = 0.02$, $p = 0.02$, respectively). Debriefing was
38 not associated with PTSD risk ($p = 0.98$). Only 8/67 (11.9%) of resuscitation leaders had
39 prior debriefing training.

40 Conclusions

41 Nearly 10% of acute care staff **screened positively for PTSD** as a result of attending an
42 IHCA, with junior staff being most at risk of developing trauma symptoms. Very few
43 debriefs occurred, possibly because of a lack of debrief training amongst cardiac arrest team
44 leaders. More support is required for acute care nursing and medical staff following an
45 IHCA.

46

47 Introduction

48

49 Healthcare staff wellbeing and burnout is a significant concern with implications for staff
50 attrition rates and, in turn, patient care, satisfaction and safety.¹⁻³ The United Kingdom
51 National Health Service (NHS) Health and Well-being Review has published
52 recommendations for NHS hospitals to research the causes of burnout, well-being and
53 absenteeism and to provide support for staff.⁴

54 One such cause for burnout and poor psychological well-being may be exposure to
55 stressful experiences, such as in hospital cardiac arrest (IHCA). Healthcare staff working in
56 intensive care units (ICUs), acute medical units (AMUs) and emergency departments
57 (EDs) may have a greater exposure to IHCA (estimated at 1.5 per 1000 hospital admissions
58 in the UK)⁵ as a routine part of their work, but the psychological impact of such experiences
59 on staff is not known. **Exposure to potentially traumatic events can result in acute stress
60 responses causing anxiety, hyper-arousal, avoidance and flashbacks.⁶ Accumulation of
61 symptoms may lead to post-traumatic stress disorder (PTSD) and in turn, depression and
62 anxiety, which can have economic effects secondary to absenteeism.**

63 Studies reporting the psychological effect of witnessing cardiopulmonary
64 resuscitation (CPR) have focused primarily on bystanders and have reported rates of PTSD of
65 up to 27%.^{7,8} Data on the effect on healthcare staff of attending a CPR attempt are limited to
66 two small studies and are inconclusive. The first, completed by 41 junior doctors, showed
67 that 73% found cardiac arrests to be a stressful experience,⁹ and the second captured only
68 0.5% of incentivised nurses via social media.¹⁰ The true impact of IHCA on nurses and
69 doctors in terms of PTSD therefore remains unknown.

70 Debriefing after IHCA is advocated by the American Heart Association, the
71 International Liaison Committee on Resuscitation (ILCOR) and the Resuscitation Council
72 UK (RC (UK)) to facilitate open discussions for learning and improvement,¹¹ and to improve
73 clinical performance.¹²⁻¹⁵ A recent survey completed by 73 NHS hospitals reported a
74 consensus that psychological support should be considered a key focus of the debrief.¹⁶
75 Despite this there is no formal training within advanced life support (ALS) or advanced
76 cardiac life support (ACLS) courses on how to debrief following cardiac arrests, nor is there
77 training in 'psychological first aid' for such events as suggested by the UK Psychological
78 Trauma Society (UKPTS).¹⁷ Rates of debriefing after IHCA are unknown as are their impact
79 on the risk of developing PTSD in healthcare providers.

80 This study therefore sought to examine cardiac arrest debriefing practices and the
81 psychological burden of attending IHCA on both nursing and medical staff who work in
82 acute areas of the hospital.

83 Methods

84
85 This was a single centre study set in an acute, 732-bed district general hospital in the UK,
86 between April and August 2018. An anonymous 33-item questionnaire hosted by
87 SurveyMonkey™ was emailed to staff (see supplementary file); paper copies were delivered
88 to ward areas to further increase uptake. Email reminders for survey completion were sent to
89 maximise the study cohort. The survey was sent to 517 staff: to 358 doctors (of all grades),
90 nurses and healthcare assistants (HCAs) who worked in the ED, AMU or ICU; it was also
91 sent to all foundation doctors (FY), core trainee doctors (CT) and medical registrars (159
92 staff), who would have rotated through these departments or would have formed a part of the
93 resuscitation team in the previous 12 months. The survey had three sections: demographics;
94 cardiac arrest and debriefing practices experienced over the preceding 12 months; and the
95 trauma-screening questionnaire (TSQ). The TSQ is a validated screening tool for PTSD with
96 a sensitivity and specificity of 0.85 and 0.89 respectively.¹⁸ A cumulative score of six or
97 more is a positive predictor of PTSD. The TSQ asked specifically to link trauma symptoms
98 with and following IHCA experiences only. If answering the questionnaire brought about
99 any unsettling thoughts or feelings, staff were directed to seek additional and confidential
100 support from the Employee Assistance Programme.

101 Answers taken from the questionnaire were the only source of data in this study.
102 Statistical analyses were performed using StataCorp 2017 (Stata Statistical Software: Release
103 15. College Station, TX: StataCorp LLC). Categorical data are presented as percentages.
104 Exact Fisher's test and χ^2 were used to compare associations between categorical frequency
105 data; the Mann-Whitney U test was used to compare medians; general linear model and
106 Spearman's rank correlations were used to compare associations between numerical data.

107 The details of this project were entered in the NHS Health Research Authority online
108 decision tool and NHS REC approval was not required.¹⁹ Consent was assumed through
109 completion of the questionnaire.

110 The study was unfunded.

111 Results

112

113 Four hundred and fourteen staff responded to the questionnaire (80.1% response rate), of
114 whom 312/414 (75.4%) had been involved with an IHCA in the preceding 12 months (Figure
115 1). The remaining staff were excluded from the survey. Participants in the study reported a
116 total of 1,463 attendances at cardiac arrests. Because each arrest had multiple attendees, it is
117 inevitable that many of these reported attendances were for overlapping arrests, meaning
118 events were counted more than once. However, as the subject of this study is the individual
119 experience of the attendee, this multiple counting is unlikely to adversely bias the results.
120 The median number of arrests attended was three. The questionnaire was completed by 75-
121 97% of all staff in each professional category and captured 71-96% of all staff in ED, ICU
122 and AMU (Table 1).

123

124 Cardiac arrest and Debriefing results

125

126 Out of 1,463 cardiac arrest attendances, 258 were followed by a debrief (17.6%). There were
127 116/312 (37.2%) people who had attended at least one resuscitation attempt followed by a
128 debrief, which reflects the multiple reporting described above. Of the cardiac arrest
129 attendances 59 (4.0%) were followed by formal debriefs (Table 2). Formal debriefs were
130 organised and non-fortuitous.

131 There were 1079/1463 (73.8%) attendances to fatal IHCAs; 202/1079 (18.7%) were
132 followed by a debrief. Out of 384 attendances to non-fatal IHCAs, 56 (14.6%) were followed
133 by a debrief. There was no statistical difference between the chances of a debrief attendance
134 occurring after a fatal (18.7%) compared with a non-fatal (14.6%) resuscitation attempt ($p =$
135 0.07 , $\chi^2 = 3.34$, $OR = 1.35$, $95\% CI: 0.97 - 1.90$).

136 The majority of staff found a debrief to be a positive experience; the most frequently
137 stated reasons were feeling more supported (72.4%), having time to ask or answer questions
138 to the team (69.0%) and feeling generally better as a result of the debrief (66.4%; Table 2).
139 In contrast, negative impacts of a debrief were uncommon. The most frequent reason for
140 finding the debrief a negative experience was the debrief being poorly organised (12.9%).
141 Following IHCAs, 54% of staff never took a rest.

142

143 Trauma screening questionnaire (TSQ)

144

145 The TSQ was answered by 302/312 (96.7%) staff who had been involved with a
146 cardiac arrest and 29/302 (9.60%) screened positively for PTSD (TSQ score ≥ 6 ; Figure
147 1). There were 132 (43.7%) people who had no symptoms of psychological trauma and 141

148 (46.6%) reported between 1-5 symptoms of **psychological** trauma (Figure 2). **Patient**
149 **outcome following the arrest was not associated with TSQ score ($p = 0.92$, Spearman's $\rho =$**
150 **-0.01) or risk of PTSD ($p = 0.28$, Spearman's $\rho = 0.06$).** We found no association between
151 PTSD **risk** and debriefing ($p = 0.98$), or between PTSD **risk** and debriefing following either
152 non-fatal or fatal IHCA ($p = 0.77$, $p = 0.98$, respectively). Whilst there was no correlation
153 between TSQ score and debriefing following all IHCA ($p = 0.92$, Spearman's $\rho = 0.01$),
154 there was a significant negative correlation between debriefing and TSQ score following non-
155 fatal IHCA ($p = 0.02$, Spearman's $\rho = -0.15$; **Table 3**).

156
157 **Effect of role on TSQ and PTSD risk**

158
159 **We found that FY1 doctors and HCAs were at higher risk of PTSD than nurses ($p = 0.01$ $\chi^2 =$**
160 **6.01 , $p = 0.01$ $\chi^2 = 6.28$, respectively; **Table 3**).** There were no differences in the prevalence
161 **of those at risk of PTSD between doctor roles ($p = 0.50$).** In addition, FY1 doctors had
162 higher TSQ scores than **more experienced doctors** ($p = 0.02$) and HCAs had higher TSQ
163 scores than nurses ($p = 0.02$).

164
165 **Effect of post-IHCA rests on TSQ and PTSD**

166
167 A total of 259/312 (83%) staff answered both the TSQ and questions relating to break
168 behaviour post-IHCA. Staff who never took a break after an IHCA had a higher frequency of
169 PTSD than staff who did take a break after an IHCA ($p = 0.04$; **Table 3**). Staff who rested
170 after IHCA also had lower TSQ scores than those who did not ($p = 0.05$).

171
172 **Resuscitation leaders**

173
174 A total of 67 resuscitation team leaders participated in the study. Of this cohort, 8/67
175 (11.9%) were trained in debriefing techniques, and 53/62 (85.5%) said training would
176 increase the frequency with which they would instigate a debrief (55/63 (87.3%)). An
177 individual's role (in the order of HCA, nurse, FY1, FY2, **CT1-2**, **ST3+**, consultant) correlated
178 with the number of debriefs attended ($p = 0.008$, Spearman's $\rho = 0.17$).

179 Not having time to run a debrief was the most common reason for not instigating a
180 debrief (**Table 4**). No training, perceived discomfort dealing with responses/emotions and
181 being unsure how to lead a debrief, all of which link to a lack of
182 training/experience/knowledge, together accounted for 35/67 (52.2%) of the reasons given
183 for not instigating a debrief.

184

185 Work related impacts

186

187 Of the staff who participated in the survey, 60/312 (19.2%) said they resented having to
188 return to work immediately after an IHCA. Fifty-one of 312 (16.3%) staff stated they had
189 considered leaving NHS work altogether because of the traumatic effect of the IHCA, and
190 81/312 (26.0%) stated they experienced significant loss in their confidence in their
191 professional abilities following the IHCA.

192 Discussion

193

194 This is the first study to assess the impact of attending a cardiac arrest on the mental well-
195 being of acute healthcare staff, and the use of debriefing practice in this setting. With a
196 response rate of over 80%, this survey reliably captures a representative sample of healthcare
197 staff working in acute care departments.

198 Nearly 10% of staff suffered, **or were at risk of suffering** PTSD as a result of
199 attending an IHCA. This is higher than the 1-6% prevalence of PTSD in the general
200 population, but is in keeping with previous studies amongst emergency medical staff.^{20,21} A
201 survey of 63 ED residents carried out in 2001 found seven (11.1%) had PTSD.²² A more
202 recent longitudinal study of 386 London Ambulance Paramedics found an 8.6% prevalence
203 of PTSD episodes over two years and a meta-analysis estimated a rate of 11% in
204 paramedics.^{23,24} The prevalence of **those at risk of** PTSD varied significantly between staff
205 groups in our study, with junior members of the team being the most affected. FY1 doctors
206 experienced more symptoms of trauma than more experienced doctors, and both FY1 doctors
207 and HCAs had over four times the odds of **being at risk of** PTSD than nurses. This highlights
208 FY1 doctors and HCAs as vulnerable groups of staff requiring more attention and support.
209 **Possible** explanations may **be experience, understanding, education or sense of**
210 **control/preparedness over the event.**^{25,26} **In support of this hypothesis,** De Stefano and
211 colleagues found that those with BLS training had higher TSQ scores than those with ILS or
212 ALS training.²⁷ We identified that taking a break after an IHCA seemed to be protective;
213 staff who never took a break after an IHCA had 2.4 times the odds of developing PTSD than
214 staff who did **rest** after a cardiac arrest. One explanation may be that avoidant styles of
215 coping with stress is a recognised predictor of PTSD.²⁴

216 We chose the TSQ to assess PTSD as it is well validated, easy to answer and has a
217 sensitivity and specificity of 0.85 and 0.89 respectively.^{18,28} Our questionnaire asked

218 specifically to link the TSQ symptoms with the IHCA experience. However, individuals
219 already suffering from PTSD, possibly as a consequence of their day-to-day work, may find
220 it impossible to identify those symptoms which derive purely from the IHCA. PTSD has
221 been estimated to affect 13% of ICU staff; the same study also found that just over a third of
222 ICU staff reported having no symptoms in their TSQ, which approximates to the 44% of staff
223 who experienced no symptoms of trauma in our study.²⁹ Although respondents were asked to
224 link their TSQ responses to IHCA, the TSQ responses cannot guarantee causation, given the
225 stressful work that many in the acute healthcare sector experience, and this is one limitation
226 of this study. **A TSQ performed too soon after an event has reduced specificity, and after six
227 months has reduced sensitivity.^{18,28} Participants in our study were asked to recall symptoms
228 retrospectively within the three months following an IHCA to minimise the variability in the
229 scores.**

230 A debrief occurred in only 17.6% of arrests. We found that more senior clinicians
231 were more likely to initiate or attend a debrief. The reasons given by cardiac arrest team
232 leaders for not implementing a debrief was broadly a lack of time (43.3%) or a lack of
233 training/experience/knowledge (52.2%), in line with the literature.^{30,31} Lack of training may
234 have been with associated with poorly organised debriefs and might explain the negative
235 experience reported by many respondents.

236 A recent survey that analysed debriefing practice across 70 NHS hospitals found that
237 40 (54.7%) of the hospitals offered debriefing after cardiac arrests, although 36 out of the 40
238 hospitals said they offered debriefs only for 'some of the arrests'; it is possible that these
239 figures are an over-estimate because the data capture systems lack reliability and are prone to
240 recall and information bias.³² In another study, only 7.7% of arrests were formally debriefed,
241 slightly higher than the 4% of IHCA which were followed by formal, **non-fortuitous** debriefs
242 in our study.³³

243 **Although a Cochrane review did not recommend the single session, one-to-one
244 critical incident stress debriefing model because of potential risk of harm,³⁴ debriefing in
245 groups has since been shown to improve quality of life scores without risk.²¹
246 Psychoeducational debriefing is another model proven to be of benefit in a military setting,
247 and involves a discussion around psychological trauma, recovery strategies and how to access
248 support if required.^{35,36} It remains unknown whether one debriefing model is superior to
249 another or whether debrief timing has a role.**

250 **In addition to supporting emotional welfare, debriefing can be a valuable tool for
251 helping people to learn and develop in difficult circumstances which can be cognitively**

252 disruptive. Data-driven debriefs focused on technical aspects of resuscitation performance
253 are associated with reduced time to first compression, shorter hands off compression periods
254 and better patient outcomes.^{11,12,37} This is reflected in the ILCOR guidelines, yet guidance
255 and training on debriefing or supporting the psychological aspects of resuscitation is
256 currently lacking. The UK Psychological Trauma Society (UKPTS), which issues guidance
257 for organisations with employees exposed to potentially traumatic events, advises that team
258 leaders exposed to trauma should be trained to identify and support staff exposed to traumatic
259 incidents. Organisations should also use evidence-based peer support programs to prevent
260 the development of PTSD. Trauma Risk Management (TRiM), is a peer support program,
261 which aims to ensure that personnel exposed to trauma seek help if they develop
262 psychological symptoms which fail to resolve spontaneously. TRiM has been shown to
263 reduce rates of absenteeism, positively influence organisational functioning, and does not
264 exacerbate symptoms.³⁸ In our study, less than 1% of staff had TRiM support and 10% had
265 probable PTSD. This mismatch suggests that health care staff in this study lack exposure to
266 TRiM-trained personnel. Psychological first aid (PFA) is an alternative early intervention
267 model designed to support basic psychological functioning immediately post incident.^{34,39}
268 The UKPTS suggests that front-line staff should be trained in PFA in order to actively
269 support staff exposed to traumatic situations and staff should remain up to date with these
270 skills as they do with their life support/physical first aid skills. None of the advanced life
271 support courses (ALS/ACLS) currently provide debriefing or PFA training; this is something
272 which should be evaluated, particularly in light of the findings in our study.

273 This study was not designed to identify a causal relationship between debriefing and
274 protection from PTSD, but no such association was noted, in line with the literature on this
275 topic.^{21,34} The heterogeneity in incidents and debriefing practices currently makes the
276 assessment of such a link difficult. Importantly, debriefing was not associated with trauma
277 symptom accumulation in our study.

278 There were several limitations of our study. Firstly, our study was not exhaustive
279 amongst the target cohort and there may be some bias in respondents, which may skew the
280 results. This was also a single-centre study, which may limit the generalisability of the
281 results. Secondly, there were a few people who screened positively for PTSD, making our
282 results relatively fragile. Thirdly, all results were obtained from subjective questionnaire
283 responses and the data are therefore subject to information or recall bias. Fourthly, this study
284 was carried out over four months, until a minimum of an 80% response rate was achieved.
285 This may have altered cardiac arrest leader behaviour with regards to debriefing practices

286 later in the study period. Fifthly, the TSQ score, whilst being a widely used screening test for
287 PTSD, has a sensitivity and specificity of 0.85 and 0.89 respectively and so may have
288 misdiagnosed some staff. **Sixthly, the scope of the questionnaire was limited in order to keep**
289 **the questionnaire completion time to under five minutes to maximise the response rate.**
290 Finally, we are not able to prove causation between IHCA and PTSD in this study.

291

292 Conclusions

293

294 Trauma-stress reactions are a normal but intense and potentially disabling reaction to an
295 abnormal threat and one of many occupational hazards in an acute care
296 environment. Approximately 10% of acute care **staff screened positively for** PTSD following
297 an IHCA and a further 47% of staff declared symptoms of trauma. Systems should be
298 implemented to identify staff at risk of PTSD and to provide appropriate support. Guidance
299 and training in effective debriefing and **supporting the psychological aspects of resuscitation**
300 **may be the first step.** Further study is warranted to determine the best **support model** and to
301 establish how to prevent the development of PTSD following potentially traumatic events in
302 a clinical setting.

303

304 Conflicts of Interest:

305

306 JPN is the Editor-in-Chief of Resuscitation.

307

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415 Legends to figures and tables

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417 **Figure 1:** Overview of results.

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419 **Table 1:** Response rates and prevalence of probable PTSD (TSQ score ≥ 6). Significant p values ($p < 0.05$) are
420 shown in bold.

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422 **Table 2:** Debriefing format and perceptions

423
424 **Figure 2:** Number of resuscitation providers with each TSQ score.

425
426 **Table 3:** P values of the association between debriefing and both TSQ score (Spearman's correlation) and being
427 screened positively for PTSD (TSQ ≥ 6 ; Fisher's exact test), when stratified by patient outcome. Significant p
428 values ($p < 0.05$) are shown in bold.

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430 **Table 4:** Cardiac arrest team leader data.

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Table 1: Response rates and prevalence of probable PTSD (TSQ score ≥ 6). Significant p values ($p < 0.05$) are shown in bold.

Variable	Number of participants (and response rate, %)		TSQ score ≥ 6		Analysis		Likelihood of TSQ score ≥ 6	
	n	%	n*	%	χ^2	p	Odds ratio	95% CI
Role					9.56	0.14	.	.
Nurse	149 / 198	75.3	6 / 113	5.3	ref	ref	.	.
HCA	55 / 66	83.3	6 / 31	19.4	6.28	0.01	4.28	1.03 - 17.29
FY1	33 / 36	91.7	5 / 25	20.0	6.02	0.01	4.46	0.96 - 19.21
FY2	34 / 35	97.1	2 / 29	9.0	0.11	0.74	1.32	0.12 – 7.91
CT grade	83 / 108	76.9	6 / 46	13.0	2.05	0.15	2.33	0.58 – 9.16
ST grade	36 / 43	83.7	2 / 29	6.90	0.11	0.74	1.32	0.12 – 7.91
Consultant	24 / 31	77.4	2 / 21	9.52	0.56	0.45	1.88	0.17 – 11.52
Department**					1.10	0.58	.	.
ICU	125 / 176	71.0	4 / 58	6.9	ref	ref	.	.
ED	89 / 93	95.7	7 / 89	7.9	0.05	0.83	1.15	0.28 – 5.63
AMU	75 / 89	84.3	8 / 70	11.4	0.77	0.38	1.74	0.44 – 8.32
Post-IHCA rest behaviour***								
Rested post-IHCA	.	.	8 / 125	6.4	ref	ref	.	.
Never rested post-IHCA	.	.	19 / 134	14.2	4.19	0.04	2.42	0.96 - 6.62

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HCA = health-care assistant; FY1 = foundation year 1 doctor; FY2 = foundation year 2 doctors; CT = core trainee; ST = specialist trainee (registrar)

* There were 302/312 people who went to an IHCA answered the TSQ. The denominator in this column is the number of people who completed the TSQ in each staff group

**The survey was sent to 517 staff: 358 were working in ED, AMU or ICU; 159 were FY, CT or medical ST grade doctors who by the time of the questionnaire were working in other departments/would have formed part of the resuscitation team

***A total of 259/312 staff answered both the TSQ and questions relating to rest behaviour post-IHCA

444 **Table 2:** Debriefing format and perceptions

Debriefing format	n / 1463	%
Group	211	14.4
Informal	199	13.6
Formal*	59	4.0
One-to-one	27	1.9
TRiM**	11	0.8
<hr/>		
Responses to debriefing***	n / 116	%
<i>Positive responses</i>		
Feel more supported/cared for	84	72.4
Allowed me to ask or answer questions to others in the team	80	69.0
Made me generally better	77	66.4
Made me understand the clinical reasons that led to the arrest/outcome	74	63.8
Developing learning	72	62.1
Made me realise that others felt the same way	66	56.9
Gave me options to discuss the matter at a later time	58	50.0
Made me feel like I hadn't done anything wrong	53	45.7
If I had made an error, it supported me to learn from it	17	14.7
<i>Negative responses</i>		
Poorly organised	15	12.9
Performed too soon after the event	6	5.2
Did not allow me to express the things I wanted to say	3	2.6
Intimidated by debriefing in front of others (needed 1:1 session)	3	2.6
Did not help me process my thoughts	3	2.6
Made me feel worse about the event	2	1.7
Didn't provide avenues to discuss the matter at a later time should I wish	2	1.7
Couldn't process the situation	1	0.9

445 Debrief formats displayed are not mutually exclusive from one another.

446 *Formal debriefs were organised and non-fortuitous.

447 **TRiM = Trauma Risk Management. TRiM professionals are those trained in psychological support.

448 ***Data taken from 'Yes/No' questions (see supplementary file)

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Table 3: P values of the association between debriefing and both TSQ score (Spearman's correlation) and being screened positively for PTSD (TSQ \geq 6; Fisher's exact test), when stratified by patient outcome. Significant p values ($p < 0.05$) are shown in bold.

	TSQ		Screened positively for PTSD
	Spearman's rho	p	p
<i>Patient outcome</i>			
Debriefing following IHCA	0.01	0.92	0.98
Debriefing following fatal IHCA	0.06	0.34	0.77
Debriefing following non-fatal IHCA	-0.15	0.02	0.98

452 **Table 4:** Cardiac arrest team leader data.

	n / 67	%
<i>Reasons for not instigating a debrief*</i>		
Lack of time	29	43.3
No experience/training in how to lead a debrief	17	25.4
Don't know how to approach a debrief	12	17.9
Not felt it necessary	11	16.4
Never occurred to me	8	11.9
Would find it uncomfortable dealing with the responses/ emotions of other professionals	6	9.0
Do not believe that they help	0	0.0
Negative experience of debriefs in the past	0	0.0
<i>Debrief training data</i>		
No. leaders who had previous debrief training	8 / 67	11.9
No. leaders who would find it beneficial to receive debrief training	53 / 62	85.5
No. leaders in whom training would increase the frequency of debriefing	55 / 63	87.3

*Data taken from direct 'Yes/No' questions (see supplementary file)

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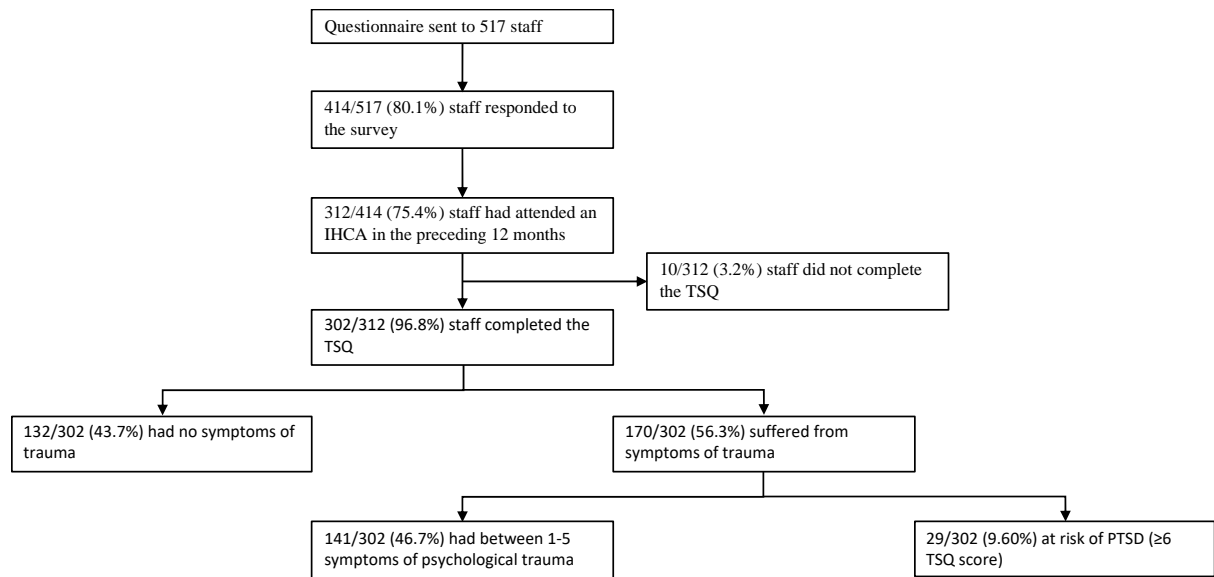
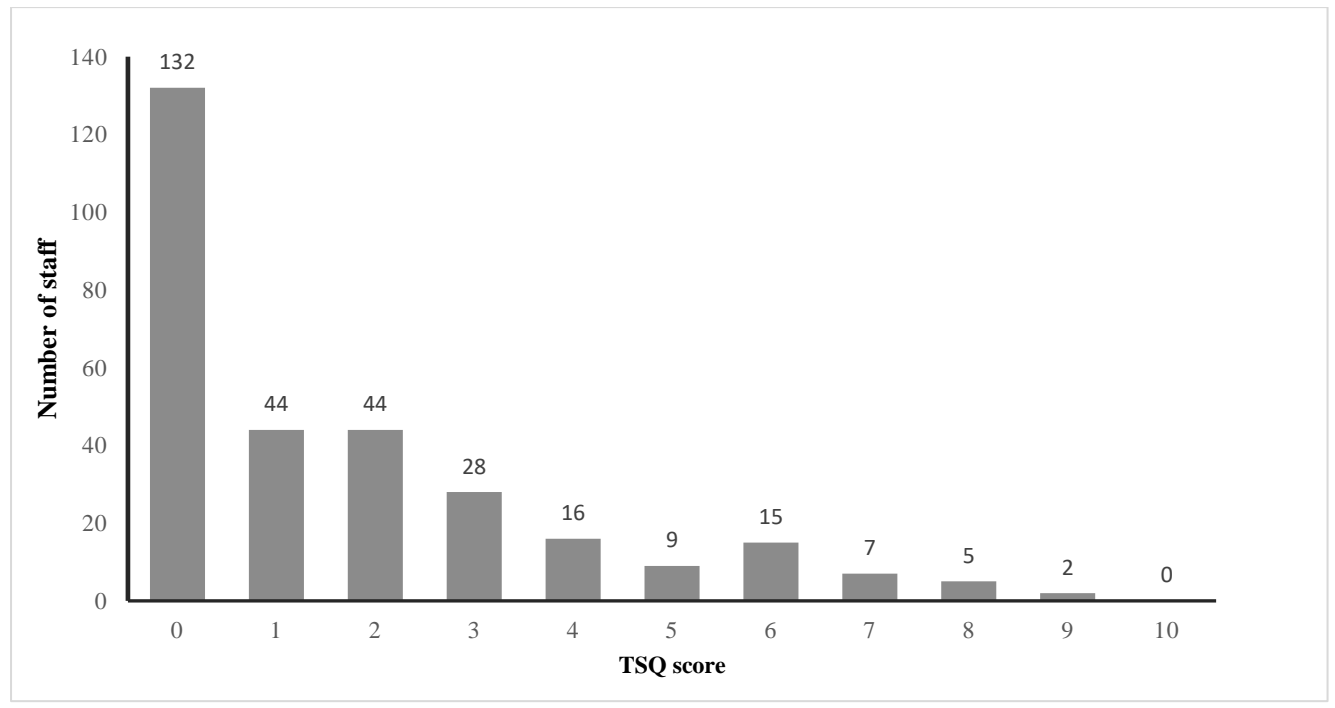


Figure 1: Overview of results

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Figure 2: Number of resuscitation providers with each TSQ score