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Alshahrani, K, Johnson, J and O'Connor, DB (2022) Coping strategies and social support are associated with post-traumatic stress disorder symptoms in Saudi paramedics. International Journal of Emergency Services. ISSN: 2047-0894

<https://doi.org/10.1108/IJES-08-2021-0056>

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26 Introduction

27 Ambulance personnel include paramedics, emergency medical technicians (EMTs)
28 and other workers who deliver on-site emergency medical care and transport prior to
29 hospital admissions during accident and emergency medical situations (Petrie *et al.*,
30 2018). These professionals are exposed to high levels of occupational trauma
31 (Sterud, Ekeberg and Hem, 2006; Berger *et al.*, 2012; Skogstad *et al.*, 2013) and
32 report more psychological problems than other health workers (Sterud, Ekeberg and
33 Hem, 2006). Post-Traumatic Stress Disorder (PTSD) is common among ambulance
34 personnel and its prevalence is higher than that found in the general population
35 (American Psychiatric Association, 2013; Berger *et al.*, 2012; Petrie *et al.*, 2018).

36 The general prevalence of PTSD in ambulance personnel has been calculated to be
37 11% internationally (Petrie *et al.*, 2018) but the estimates vary significantly between
38 countries. Reports range from 5.6% in Brazil to as high as 94% in Iran (Berger *et al.*,
39 2007; Iranmanesh, Targari and Bardsiri, 2013). These differences between countries
40 might be affected by various factors including differences in organizational
41 structures, trauma status, scale types, sample size and methods (Iranmanesh *et al.*,
42 2013; Petrie *et al.*, 2018). However, it is also possible that the reported prevalence
43 rates could be affected by the coping strategies ambulance personnel use and the
44 social support available to them.

45 Lazarus and Folkman (1984), defined coping as a key part in their transactional
46 theory of stress as constantly changing cognitive and behavioural efforts to manage
47 specific external and/or internal demands that are appraised as taxing or exceeding
48 the resources of the person. They classified two types of appraisals that precede the
49 coping process; primary appraisal which the individual usually identify the potential
50 harm, loss, threat, or challenge posed by the stressor, and then a secondary
51 appraisal which is conducted in which the individual is able to evaluate coping
52 options and available resources. These appraisals provide the basis for coping that
53 leads to two categories of coping a problem-focused strategies that aim to treat a
54 stressful problem, and emotion focused strategies that focus on reducing the
55 emotional consequences of the problem (Abraham *et al.*, 2016; Herman and Tetrick,
56 2009). Another category was add by Carver, Scheier and Weintraub (1989), that
57 concentrated on avoidance strategies by ignoring problems and emotional
58 reactions.. However, some studies (e.g., Aldwin and Revenson, 1987; Bonanno,
59 2004; Yagil, Ben-Zur and Tamir, 2011) suggested that using coping focused on
60 emotion and avoidance may increase the risk of developing PTSD, while the
61 problem focused strategies can reduced the risk of PTSD (Gil and Weinberg, 2015).
62 There are some factors that may affect the choice of coping strategies such as
63 personality individual differences, stability of coping disposition, and nature of
64 situational coping (Abraham *et al.*, 2016). Studies into coping strategies have
65 identified that ambulance personnel use a variety of coping strategies to help them
66 deal with the daily traumatic events they face. These coping strategies can be used
67 before, during, and after emergency cases (Mildenhall, 2012; Duschek *et al.*, 2020).
68 For example, research suggests that they use emotional suppression during
69 stressful events to be more focused on their duties, and after events they might
70 employ storytelling or avoidance as coping strategies (Mildenhall, 2012). Strategies

71 can be divided into those which are *active*, such as seeking emotional support from
72 others or doing some sports activities, and those which are *passive*, such as self-
73 blaming or using drugs. Overall, research evidence suggests that active coping
74 strategies are effective in reducing PTSD symptoms and stress in ambulance
75 personnel (Avraham, Goldblatt and Yafe, 2014), but passive coping methods
76 increase the risk of PTSD (Kerai *et al.*, 2017; Brooks and Brooks, 2021).

77 On the social level, Cohen (2004), defined social support as ‘ the social resources
78 that persons perceive to be available or that are actually provided to them by non-
79 professionals in the context of both formal support groups and informal helping
80 relationship’ (p.4). Several classifications of social supports in previous literature,
81 according to Uchino, Cacioppo and Kiecolt-Glaser(1996), have compared between
82 structural and functional types of supports. Structural support refers to a person’s
83 organization of relationships or the number of rules that he participates in social
84 situations, whereas functional approaches focus on the purpose of such social
85 connections, and this measure of support have include perceived support which
86 refers to the belief that support will be available if needed, and received support that
87 reflects the actual receipt of support within the specified time frame (Thoits, 1995;
88 Wills and Shinar, 2000; Uchino, 2008; Uchino *et al.*, 2018). There are four levels of
89 social supports are linked with coping: social support as a coping strategy, as a
90 coping resource, as a result of coping, and as a entirely integrated part of a coping
91 process in a social system (Schreurs and de Ridder, 1997). Various studies have
92 indicated that the social support from family, friends and their organisations both
93 during and after working hours can impact ambulance personnel’s’ levels of stress,
94 resilience and PTSD symptoms (Oliveira, Teixeira, Neto, & Maia, 2020; Skogstad et
95 al., 2013; Stevelink et al., 2020; Van der Ploeg & Kleber, 2003; Donnelly, Bradford,
96 Davis, Hedges, & Klingel, 2016; Regehr, Hemsworth, & Hill, 2001; Shakespeare-
97 Finch, Rees, & Armstrong, 2015). Moreover, social support can be useful to
98 implement interventions that help paramedics recover from traumatic events and
99 other stress (Donnelly *et al.*, 2016).

100 In Saudi Arabia, ambulance services are provided by paramedics who work for the
101 Saudi Red Crescent Authority (SRCA), which is an independent government
102 authority responsible for providing Emergency Medical Services (EMS) in the
103 Kingdom of Saudi Arabia (Alanazi, 2012; AlEnazi and AlEnzie, 2018). As first
104 responders, Saudi paramedics face many administrative, psychological, and cultural
105 problems that affect their psychological health such as the lack of organisational
106 support, conflict with patients’ relatives, and the level of awareness of EMS by the
107 community (AlShammari, Jennings and Williams, 2017; Khan *et al.*, 2020), and there
108 is a need to know how they could be better supported in their work. Several factors
109 that may make Saudi paramedics more stressed than their peers in other countries:
110 1) Saudi Arabia has the highest road death and injury rates of all high-income
111 countries (*WHO | Programme Budget Web Portal*, 2018), and all these accidents are
112 dealt by ambulance. 2) During the Hajj season (Pilgrimage in Islam), Saudi
113 ambulance works to provide health services to more than two million pilgrims from all
114 countries in two cities Mecca and Medina (Al Mutairi *et al.*, 2016). 3) Saudi
115 paramedics work longer hours (48 hours per week) compared to their peers in other

116 countries such as Australia (Khan *et al.*, 2020). According to Alaqeel *et al.* (2019),
117 the prevalence rate of PTSD in Saudi ambulance personnel is 26.9%. However, this
118 is the only study that has examined the prevalence of PTSD symptoms in Saudi
119 paramedics and it has three notable limitations. First, the sample size was small (74
120 participants) and second, all of the participants were recruited from one Red
121 Crescent authority (King Abdulaziz Medical City) that is located in only one region of
122 Saudi Arabia (Riyadh region). As such, it is hard to generalize the results to the
123 paramedics in other regions of Saudi Arabia. Third, the study used the PTSD
124 Checklist-Civilian version (PCL-C) which measures reactions to only one specific
125 traumatic event. Paramedics face multiple and various potentially traumatic events in
126 their work and it is important to investigate their possible reactions to this work more
127 broadly (Brewin, 2005; Haugen, Evces and Weiss, 2012). Furthermore, there has
128 been no research that has investigated, within the same study, which sources of
129 social support and coping strategies are associated with lower levels of PTSD in
130 Saudi paramedics. Knowing this could be useful to understand which support and
131 coping strategies may help to mitigate PTSD in paramedics and help inform future
132 psychological interventions (Kirby, Shakespeare-Finch and Palk, 2011; Ogińska-
133 Bulik and Kobylarczyk, 2015).

134 **Aims**

135 In order to address these gaps in knowledge, the current study aimed to investigate
136 the levels of PTSD symptoms in Saudi paramedics and whether social support and
137 coping strategies were associated with lower levels of PTSD. There were three main
138 objectives of this study:

- 139 1. To estimate the prevalence rate of PTSD symptoms among Saudi paramedics
- 140 2. To investigate which types of coping strategies were associated with PTSD
141 symptoms among Saudi paramedics.
- 142 3. To explore which sources of social support were associated with PTSD symptoms
143 among Saudi paramedics.

144 **Methods**

145 **Participants**

146 Qualified paramedics working for Saudi Red Crescent Authority (SRCA) in Saudi
147 Arabia were recruited to the study between 01/09/2019 and 01/12/2019. Recruitment
148 literature was sent out to paramedics working in the five main regions of Saudi
149 Arabia (Middle, Eastern, Western, Northern, and Southern regions), which included
150 13 different administrative areas of Saudi Arabia (Al-madenah, Albaha, Aljouf, Aseer,
151 Eastern area, Hail, Jazan, Makkah, Najran, Northern boards, Qaseem, Riyadh, and
152 Tabouk). Participants were able to complete the questionnaire online or to use a
153 paper version. Two ways of recruiting participants were used: 1. Twitter and
154 snowball sampling. 2. Web link via email and text message to paramedics distributed
155 via their organisation. The paper copies were sent by post (50 copies) to paramedics
156 working in rural cities, where Wi-Fi availability is poor. 15 out of 50 paper copies
157 were returned. 202 participants responded online. This study was approved by the

158 Research Ethics Committee of University's School of Psychology (PSC-731,
159 29/07/2019).

160 **Measures**

161 Three scales were used: the Screen of Post-traumatic Stress Disorders (SPTSS),
162 the Brief COPE Scale (BC), and the Social Support scale. All scales were translated
163 (and back translated) from English to Arabic by Jaber (2012) and shown to be
164 reliable and valid.

165 **Screen of Post-traumatic Stress Disorders (SPTSS)**

166 The Screen of Post-traumatic Stress Disorders Scale (SPTSS) (Carlson, 2001) has
167 17 items measuring three subscales: 1) 'Re-experience' measures memories of the
168 traumatic events or recurrent dreams related to it, 2) 'Hyper-arousal' measures
169 aggressive irritability, or sleep and concentration disturbances, and 3) 'Avoidance'
170 measures the avoidance of painful thoughts, feelings, or external reminders of
171 traumatic events (Segal, 2010). These subscales are based on the PTSD
172 symptomatology provided by the Diagnostic and Statistical Manual of Mental
173 Disorders (4th edition) and item responses are scored on a 5-point scale for last 2
174 weeks [(0 = Not all), (1 = 1 or 2 times), (2 = Almost every day), (3 = About once
175 every day), and (4 = More than once every day)]. To classify as having probable full
176 or partial PTSD, participants must report: 1) 1 or more of the 5 re-experiencing items,
177 2) 3 or more of the 7 avoidance items, and 3) 2 or more of the 5 arousal items. This
178 scale was because, 1) it was validated with first responders in 2 Arabic countries
179 (Snell *et al.*, 2016; Alghamdi, Hunt and Thomas, 2017), 2) it is a valid measure for
180 capturing multiple traumas such as those experienced by paramedics in their work
181 (Brewin, 2005; Hamblen, 2004).

182 **Brief Coping Scale**

183 Coping was measured using the Arabic version of the Brief Coping Scale (Carver,
184 1997) which was translated by Jaber (2012). It contains 20 items evaluating 2
185 factors. The first is 'active coping' (13 items) which includes items on religion,
186 planning, and positive reframing, such as "I have been taking action to try to make
187 the situation better". The second is 'passive coping' (6 items) and measures
188 behavioural disengagement, substance abuse, and self-blame. Example items
189 include "I have been giving up the attempt to cope". Cronbach's alphas for the active
190 and passive coping scales were 0.86 and 0.75, respectively. The Brief Coping Scale
191 has four response options for each item; 1= "I haven't been doing this at all", 2= "I
192 have been doing this a little bit", 3= "I have been doing this a medium amount", and
193 4= "I have been doing this a lot". Possible scores on each subscale range from 13 -
194 53 for the active, and 6 - 24 for the passive subscale.

195 **Social Support Scale**

196 Social support was measured using Jaber's Social Support Scale (Jaber, 2012). The
197 scale consists of 13 items that cover three sources of social support (13 items in
198 each): family, friends, and government or non-government organization support (in
199 the current study, the government or non-government organization was changed to

200 Saudi Red Crescent Authority). The Cronbach's alphas for family and friends, and
 201 SRCA subscales were 0.96, and 0.95, respectively. An example item is "I feel that
 202 the support that I have received was helpful". The Social Support Scale has 4
 203 response options for each item (0 = not at all, 1= little, 2= moderate, 3= very much).
 204

205 **Statistical analyses**

206 The data were analysed using the IBM SPSS (version 26). Descriptive statistics
 207 were calculated for each of the study variables (see Table 2). Pearson's Product
 208 Moment correlations were used to explore the associations between PTSD
 209 symptoms and the social support and coping subscales. Hierarchical linear
 210 regression was used to investigate the predictors of PTSD with three different steps
 211 of variables. Step 1 included age and years of service, step 2 included family,
 212 friends, and organisational supports, and step 3 included active and passive coping.
 213 Finally, binary logistic regression was used to examine the association between
 214 PTSD as a dichotomous outcome (full and partial PTSD = 1 and non-PTSD = 0) and
 215 coping (active and passive) and social support (family, friends and organisation
 216 support).

217

218 **Results**

219 The study sample included 217 paramedics from 5 regions of Saudi Arabia. Ages
 220 ranged between 21 and 55 years (mean = 33.58; SD = 5.91). Years of service were
 221 between 1 and 36 years (mean = 8.58; SD = 6.40) and most participants were
 222 married (N =174). (See Table 1).

223

224 **Table 1:** Demographic characteristics of participants (N=217)

Demographical variables	Number	Percentage
Areas		
Middle	39	18%
Western	63	29%
Eastern	29	13.4%
Northern	30	13.8%
Southern	56	25.8%
Total	217	100%
Marital status		
Married	174	80.2%
Unmarried	43	19.8%
	Mean	SD
Age	33.58	5.91
Years of service	8.58	6.40

225

226 **Descriptive statistics**

227 100 participants (46%) reported experiencing at least one PTSD symptom; 38
 228 (17.5%) met criteria for full PTSD, and 62 (28.57%) met criteria for partial PTSD
 229 criteria. 117 (53.9%) participants did not meet the criteria of PTSD. Mean scores and
 230 standard deviations for PTSD symptoms, coping strategies and social support are
 231 presented in Table 2.

232 **Table 2.** The means and standard deviations for PTSD, coping strategies and social
 233 support subscales

Measures	Subscales	Mean	SD
PTSD	Avoidance	9.47	6.06
	Arousal	6.74	4.65
	Re-experience	5.52	4.49
	Total	21.7	13.41
Brief Coping	Active	34.30	8.15
	Passive	12.02	3.83
Social support	Family and Friends	67.25	20.17
	Red crescent	19.43	8.96

234

235

236 **Preliminary correlational analyses**

237 Associations between all variables were analysed using Pearson Product Moment
 238 correlations. There was a significant positive relationship between PTSD and
 239 passive coping ($r = 0.55, p = .001$), while family and friends support had significant
 240 negative correlations with PTSD ($r = -0.17, p = .010$). Age, marital status and years
 241 of service were unrelated to any of the psychological variables (Table 3).

242

243 **Table 3** Zero order correlations between PTSD and other variables

	1	2	3	4	5	6	7	8
1- All PTSD	--	.09	.55**	-.17*	-.07	-.08	.11	-.01
2- Active coping		--	.23**	.45**	.41**	-.05	-.02	-.04
3- Passive coping			--	-.02	.06	-.08	.03	-.09
4- Family and friends support				--	.42**	-.01	-.00	-.04
5- SRCA support					--	.03	-.04	-.08
6- Age						--	.29**	.01
7- Marital Status							--	-.03
8- Years of service								--

244 *Note: *p < 0.05; **p < 0.01*

245 **Factors associated with PTSD symptoms using hierarchical regression**
246 **analysis**

247 The hierarchical regression analysis was conducted in three steps. At step 1, age
248 and years of service were not significantly associated with PTSD symptoms.
249 Similarly, at step 2, none of the social support variables were significantly associated
250 with PTSD symptoms. However, at step 3, passive coping was found to significantly
251 explain 32% of the variance in the total PTSD symptom score ($\Delta R^2 = 0.31$, $p < 0.001$;
252 see Table 4).

253 **Table 4** The hierarchical regression analysis examining variables associated with
 254 PTSD.

		β step 1	β step 2	β step 3	ΔR^2 for step	Sig
Step 1	Age	-0.12	-0.12	-0.06	0.01	0.12
	Marital status	-0.14	-0.14	0.11		
	Years of service	-0.00	-0.01	0.03		
Step 2	Family and Friends support		-0.18	-0.17*	0.03	0.03
	Red crescent support		-0.00	-0.06		
Step 3	Active coping			0.08	0.33	<0.001
	Passive coping			0.52**		

255 *Note: *p < 0.05; **p < 0.01*

256 **Predictors of PTSD caseness versus non-PTSD caseness using logistic**
 257 **regression**

258 To estimate the relationship between PTSD and other variables, we coded PTSD
 259 into two categories (full and partial PTSD =1, and non-PTSD = 0) and conducted
 260 binary logistic regression. As shown in Table 5, only passive coping was significantly
 261 associated with PTSD, indicating that the odds of being in the PTSD caseness group
 262 increase 1.23 times for each unit increase in passive coping.

263 **Table 5.** The binary logistic regression to examine predictors of PTSD caseness
 264 versus non-PTSD caseness

Independent Variables	B	SE	Wald	df	Sig.	Exp(B)
Active Coping	.02	.02	1.44	1	.23	1.02
Passive Coping	.20	.04	22.26	1	<.001	1.23
Family and friends S	-.01	.00	2.81	1	.09	.98
Red crescent Support	-.02	.02	1.16	1	.28	.97

265 *Note: B= Beta; SE= Standard Error; Wald= Wald chi-square test; EXP(B)= Exponentiation of*
 266 *Beta*

267

268 **Discussion**

269

270 Nearly half of paramedics sampled reported PTSD symptoms, nearly one in five fully
 271 met the PTSD criteria and one of three were classed as having partial PTSD. Higher
 272 levels of passive coping and lower levels of family and friends support were
 273 associated with higher levels of PTSD symptoms. Furthermore, a greater tendency
 274 to endorse passive coping items was still associated with higher levels of PTSD
 275 symptoms when other relevant variables were controlled for and was associated with
 276 a significantly greater risk of PTSD caseness.

277 As this is only the second study to investigate PTSD symptoms in Saudi paramedics,
278 these findings add important new knowledge to the literature. The rate of PTSD
279 symptom prevalence was larger than that found in previous international systematic
280 reviews. These reviews estimated prevalence at 12.4% (Perrin *et al.*, 2007), 10%
281 (Berger *et al.*, 2012) and 11% (Petrie *et al.*, 2018). This high rate of PTSD in Saudi
282 paramedics may be due to their working conditions which include long hours of
283 driving and lengthy work shifts. Furthermore, the shift pattern of Saudi paramedics
284 involves the completion of two days of day shifts (12 hours), immediately followed by
285 two days of night shifts (12 hours) which is followed by four days off before the
286 pattern is repeated again (Khan *et al.*, 2020). This shift pattern involves a high
287 number of work hours combined with a high degree of sleep disruption, which is
288 known to be a significant cause of work stress (Khan *et al.*, 2020). Another reason
289 may relate to the increasing number of fatal car accidents on Saudi roads (Al Mutairi
290 *et al.*, 2016; Alshamrani *et al.*, 2020). It is estimated that 19 people are killed and 96
291 are injured each day in road traffic accidents, which is a relatively high rate given that
292 the country's population size is 34 million (Mansuri, Al-Zalabani, Zalat, & Qabshawi,
293 2015 (The General Authority for Statistics, 2019). Road traffic accidents are a
294 significant source of stress for first responders and may contribute to the high rates
295 of PTSD in this group (Karlsson, Niemelä and Jonsson, 2020).

296 It is also notable that the rates of PTSD in the current study are higher than those
297 found in a previous cross-sectional study in Saudi Arabia (Alaqeel *et al.*, 2019). This
298 difference may be due to three main factors. First, our study was larger (217 versus
299 74 participants) and may have managed to capture a greater range of participants
300 who have been exposed to these high levels of stress. Second, we measured PTSD
301 using the SPTSS measure, which differs to the measure used by Alaqeel *et al.*
302 (2019). The SPTSS measure allows participants to report on their experiences of
303 facing several traumatic events every day in their work. The Post Traumatic Stress
304 Disorders Checklist- Civilian version (PCL-C), used by Alaqeel *et al.* (2019), only
305 focuses on one specific trauma. Third, the nature of the organisation studied by our
306 research differed to that included in Alaqeel *et al.* (2019) study. All participants in the
307 latter study were recruited from King Abdulaziz Medical City (KAMC) which only
308 serves and is located in Riyadh city (the capital of Saudi Arabia) while the current
309 study recruited paramedics from SRCA and serves all areas and cities in Saudi
310 Arabia. Nevertheless, it is interesting to note that when compared with other middle
311 east countries, the current study found lower prevalence rates. For example, PTSD
312 prevalence has been found to be 89% in Palestinian ambulance personnel (Abu-El-
313 Noor *et al.*, 2016), and 94% in Iranian ambulance personnel (Iranmanesh, Tirgari
314 and Bardsiri, 2013). These high rates may be associated with other factors such as,
315 relatively low-income status, natural disaster earthquakes in Iran, and insecure areas
316 war zones in Palestine. In addition, these high rates of PTSD and stress more
317 generally are likely to have negative implications for future physical health outcomes
318 (O'Connor, Thayer & Vedhara, 2021) and may also impact on patient care (Hall *et*
319 *al.*, 2016).

320 In term of coping, this is the first study that has investigated the coping strategies
321 linked with PTSD symptoms in Saudi paramedics, and it found that greater use of

322 passive coping strategies was associated with higher levels of PTSD symptoms.
323 This finding is consistent with studies in other countries including Poland and
324 Pakistan (Rybojad *et al.*, 2016; Kerai *et al.*, 2017). It is possible that paramedics
325 choose to use passive coping strategies because they believe these will help them to
326 be more comfortable and relax (Mildenhall, 2012). As use of these strategies is
327 linked with higher rates of PTSD, it is likely that such coping strategies may
328 ultimately be unhelpful and may need to be addressed through awareness-raising
329 interventions and mental health support training (cf., Alanazi, 2012; Johnson *et al.*,
330 2020; Khan *et al.*, 2020; Prudenzi *et al.*, 2021). Taken together, these findings are
331 consistent with the broader coping literature that has shown that passive coping
332 styles (e.g., Boland, Mink, Kamrud, Jeruzal, & Stevens, 2019) are maladaptive and
333 should be discouraged in paramedic populations (Carver and Vargas, 2011)

334 Moreover, we found a significant, but modest association between higher rates of
335 PTSD symptoms and lower levels of family and friends social support. This finding is
336 in line with previous studies and may indicate that the ability to talk stressful events
337 over with trusted significant others is beneficial (Regehr, Hemsworth and Hill, 2001;
338 Avraham, Goldblatt and Yafe, 2014; Donnelly *et al.*, 2016). However, our regression
339 results found that none of the social support subscales significantly predicted PTSD
340 (when considered alongside coping, age and years of service). This means that
341 sources of social support are insufficient and effective to help traumatised
342 paramedics recover, and this is probably due to people may be unaware of the
343 nature and conditions of paramedic works and their frequent trauma exposure, and
344 therefore, they are unable to help them. Other previous studies found no correlating
345 between social support and PTSD (Andrews, Brewin and Rose, 2003; Al-Hadethe *et*
346 *al.*, 2014; Alghamdi, Hunt and Thomas, 2017). This study extends existing
347 knowledge by exploring and measuring the multiple trauma rate in Saudi ambulance
348 personnel. Also, this study tries to highlight the coping methods used and their
349 association to PTSD.

350 The current study has a number of strengths and weaknesses. For example, it
351 included paramedics from all regions of Saudi Arabia and used validated scales that
352 had only previously been used in Saudi culture with different type of first responders
353 (firefighters). However, despite including paramedics in all Saudi regions, the
354 numbers of participants were still relatively small, potentially limiting generalisability.
355 The study also used self-selecting participants which may have led to some
356 sampling bias. It also used self-report measures, which are prone to producing
357 inflated estimates of mental health disorder prevalence (Dang, King and Inzlicht,
358 2020). We therefore recommend that future research recruits a larger sample size of
359 Saudi paramedics and uses stratified sampling to ensure representativeness.

360 This research has important implications for knowing the prevalence level of PTSD
361 among Saudi paramedics to provide appropriate psychological care before, during,
362 and after potentially traumatic work events by SRCA. Also, the results of current
363 study confirm the need to develop mental health services in SRCA in all Saudi
364 regions instead of being in one region (Riyadh). Future research is needed to
365 compare the PTSD symptoms, coping strategies used, and types of supports
366 preferred among paramedics between two cultures, especially in developed and

367 developing countries. Also, to estimate the relationship between the daily stress and
368 coping strategies among paramedics based on the changing of their work shifts.

369 In conclusion, the current study found that nearly half of Saudi ambulance personnel
370 were suffering from PTSD symptoms, and that there was an association between
371 greater use of passive coping strategies and higher levels of PTSD symptoms and
372 PTSD caseness. The current findings suggest that interventions to help reduce
373 PTSD in Saudi paramedics should include strategies to reduce passive coping.
374 Future research is urgently required to help understand the psychological, social,
375 and work-related factors that contribute to these high levels of PTSD.

376

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