Analysis of post-traumatic stress disorder in emergency professionals

Análise do transtorno do estresse pós-traumático em profissionais emergencistas

Análisis del trastorno del estrés postraumático en profesionales de emergencias

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Abstract

Objective: To analyze the estimated prevalence of Post-Traumatic Stress Disorder in emergency professionals and its related factors.

Methods: Analytical, cross-sectional, exploratory, quantitative study performed in reference services in urgent and emergency care in health and services of public safety and protection with emergency service drivers, nurses, nursing technicians/assistants, physicians, police officers and firefighters. Data from two instruments were analyzed. The classifications of the Event Impact Scale – Revised were related to sociodemographic and professional variables and to those of aspects related to the potentially traumatic event collected in the sample. The prevalence of potentially traumatic events was estimated.

Results: Participation of 338 professionals, of which 31.07% had compatible scores with a probable diagnosis of the psychopathology, and 39.67% of security professionals and 20.78% of health professionals had scores corresponding to the disorder. Security professionals had a 48% higher prevalence of compatible scores with diagnosis of the disorder. The potentially traumatic events prevalent in the sample were identified as related factors, usually the situations with risk of death and coping strategies, which showed a significant relationship with scores of the disorder, such as distancing from similar situations, psychological support and reassessment of situations.

Conclusion: The risk was relatively high when compared to other Brazilian studies; situations involving risk to life were prevalent and the coping strategies with significant relationships were found in participants who chose distancing, psychological support and reassessment of potentially traumatic situations.

Resumo

Objetivo: Analisar a prevalência estimada do Transtorno do Estresse Pós-Traumático em profissionais emergencistas e seus fatores relacionados.

Métodos: Estudo analítico, transversal, exploratório com abordagem quantitativa, realizado em serviços de referência no atendimento a urgências e emergências em saúde e em serviços de segurança e proteção pública com condutores socorristas, enfermeiros, técnicos/auxiliares de enfermagem, médicos, policiais e bombeiros militares. Foram analisados dados provenientes de dois instrumentos. As classificações da Escala do Impacto do Evento – Revisada foram relacionadas com as variáveis sociodemográficas, profissionais e de aspectos relativos ao evento potencialmente traumático coletadas na amostra, e foi levantada a prevalência dos eventos potencialmente traumáticos.

Resultados: Participaram 338 profissionais, 31,07% apresentaram escores compatíveis com provável diagnóstico da psicopatologia. Apresentaram escores correspondentes ao agravo 39,67% dos profissionais

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de segurança e 20,78% dos de saúde. Os profissionais de segurança tiveram prevalência 48% superior na apresentação de escores compatíveis com o diagnóstico do transtorno. Como fatores relacionados, foram identificados os eventos potencialmente traumáticos prevalentes na amostra, usualmente relativos a situações com risco de morte, e estratégias de enfrentamento, que apontaram relação significativa com os escores do transtorno, como o afastamento de situações semelhantes, o suporte psicológico e reavaliação das situações.

Conclusão: O risco encontrado foi relativamente alto quando comparado a outros estudos brasileiros; situações envolvendo risco à vida foram prevalentes e as estratégias de enfrentamento com relações significativas se encontraram nos participantes que optaram pelo afastamento, suporte psicológico e reavaliação das situações potencialmente traumáticas.

Resumen

Objetivo: Analizar la prevalencia estimada del trastorno del estrés postraumático en profesionales de emergencias y los factores relacionados.

Métodos: Estudio analítico, transversal, exploratorio con enfoque cuantitativo, realizado en servicios de referencia en la atención a urgencias y emergencias de salud y en servicios de seguridad y protección pública con conductores socorristas, enfermeros, técnicos/auxiliares de enfermería, médicos, policías y bomberos militares. Se analizaron los datos provenientes de dos instrumentos. Se relacionaron las clasificaciones de la Escala del Impacto del Evento – Revisada con las variables sociodemográficas, profesionales y de aspectos relativos al evento potencialmente traumático recopiladas en la muestra. Además, se estudió la prevalencia de los eventos potencialmente traumáticos.

Resultados: Participaron 338 profesionales, el 31,07 % presentó puntuación compatible con un probable diagnóstico de la psicopatología. El 39,67 % de los profesionales de seguridad y el 20,78 % de los de salud presentaron puntuación que correspondía al empeoramiento. Los profesionales de seguridad tuvieron una prevalencia 48 % superior en la presentación de puntuación compatible con el diagnóstico del trastorno. Como factores relacionados, se identificaron los eventos potencialmente traumáticos prevalentes en la muestra, normalmente relativos a situaciones con riesgo de muerte, y las estrategias de afrontamiento que indicaron una relación significativa con la puntuación del trastorno, como el evitar situaciones semejantes, el apoyo psicológico y la revaluación de las situaciones.

Conclusión: El riesgo encontrado fue relativamente alto en comparación con otros estudios brasileños. Las situaciones con riesgo de vida fueron prevalentes. Se observaron estrategias de afrontamiento con relaciones significativas en participantes que optaron por el distanciamiento, el apoyo psicológico y la revaluación de las situaciones potencialmente traumáticas.

Introduction

Individuals have been dealing with stressful and potentially traumatic situations from the earliest history of mankind. In health, stress is the adaptation mechanism in reaction to adverse situations of danger or threat, when the alert state increases, leading to physiological and emotional changes. On the other hand, in this study, "trauma" is the psychic "wound" caused when the load of stress resulting from adverse situations exceeds the person's capacity of processing emotions and feelings.[1]

Stressful situations are in evidence in modern life, and considering the increase of more than 18% in mental disorders, the job market and the economy suffer losses with professionals' short length of service caused by mental disorders. Therefore, workers dealing with situations of extreme stress, such as professionals in health, safety and public protection come into evidence, since the events experienced daily can have debilitating effects from a mental and physical point of view; as in the case of those who develop Post-Traumatic Stress Disorder (PTSD).[2]

Post-Traumatic Stress Disorder results from a single or prolonged exposure to one or more traumatic/stressful events, which usually include threats to one's own life or that of others, violence, serious accidents, or the witnessing of such situations. It is present when the affected individual presents clinical characteristics related to the psychopathological triad formed by the following: avoidance symptoms, when the individual avoids stimuli associated with the traumatic event; intrusion or re-experiencing memories related to the event; and autonomic hyperstimulation, in which symptoms such as dysphoria, sweating and tachycardia are present.[3-6]

The diagnosis is made individually by a qualified professional, although it is possible to identify individuals at greater risk of developing this disorder by means of instruments created to screen PTSD symptoms that can be self-administered.[3]

Data show an average prevalence of PTSD of 8.7% in the United States of America (USA), and 0.5-1.0% in European, Asian, African and Latin American countries.[3] Others demonstrated that about 20% of soldiers developed PTSD in the Iraq and Afghanistan wars.[7,8]

Data from the Ministry of Health indicate a prevalence of PTSD of around 3% in the general population, while in professionals frequently exposed to risk/emergency situations, this percentage

increases to 5-75%.[8] In a study developed with firefighters in Belo Horizonte, 6.9% of probable cases of PTSD were reported in this population.[9]

Note that most national studies do not address the presence of factors related to this disease and studies of this nature are lacking in the Northeast region. Studies have also indicated higher levels of crime and homicides in the Brazilian context, which, in turn, increase the exposure of these professionals to situations possibly triggering PTSD.[6-8]

Since PTSD is widely studied internationally and this field of study still has timid representation in the national context, and given the harmful nature of PTSD with impact of worldwide expenditures estimated at 3 billion dollars per year due to leaves of absence of professionals and allocation of health services to them, the following question emerged: What is the estimated prevalence of PTSD in emergency professionals and its related factors (main potentially traumatic events and coping strategies adopted)?[10]

Therefore, the aim of this study is to analyze the estimated prevalence of PTSD in emergency professionals and its related factors.

Methods

Analytical, cross-sectional, exploratory, quantitative study conducted according to the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.[11]

It was developed in a reference hospital for urgent and emergency care, in four Emergency Care Units (Portuguese acronym: UPAs), in the regional and local Mobile Emergency Care Service (Portuguese acronym: SAMU), in the headquarters of the Fire Department (Portuguese acronym: CBM), and in five brigades of the State Police (Portuguese acronym: PM), all located in the State of Rio Grande do Norte (RN), Brazil.

Data collection was performed with six target populations, namely, nurses, nursing assistants/technicians, physicians, emergency service drivers, firefighters and state police of the RN. Six trained employees collected data at times and occasions previously agreed with the service coordinators as follows: from May to August/2019 at SAMU; in September and October/2019 at the CBM; November and December/2019 at the reference hospital; January and February/2020 in the UPAs; in early March and late July in the PM. This period of time was due to the impossibility of collections during the lockdown in the COVID-19 pandemic.

Professionals who reported having gone through at least one event they considered traumatic were included. Professionals on vacation, sick leave or on leave of any kind were excluded because of logistical infeasibility.

The universe of this study was of 2,771 professionals, being 187 nurses, 592 nursing technicians/assistants, 416 physicians, 132 emergency service drivers, 1,100 state police officers and 407 firefighters. Calculation for stratified random sampling was applied with a confidence interval of 95% and margin of error of 5% and the enrollment of participants was for convenience. The final sample consisted of 338 collections with the following distribution in the strata: police officers (134), nursing technicians/assistants (65), physicians (50), firefighters (50), nurses (23) and drivers (16). The professional group of public safety included police officers and firefighters, while the health professional group included drivers, nurses, physicians and nursing technicians/assistants.

Two instruments were used: the Impact of Event Scale – Revised (IES-R) translated and validated into Portuguese with changes; and a Likert-type scale with the aim to collect information related to PTSD symptomatology at any stage of the disease's development. After applying the questionnaire, the total score of the IES-R is obtained, based on the sum of values found in the questions that can range from 0 to 88; with a 24-32 score being low risk or partial PTSD; and 33 or above being the cutoff point for the likely diagnosis or high risk of PTSD.[12]

The second instrument was prepared by the authors to collect sociodemographic information and that related to the main potentially traumatic events experienced by participants.

In the study, characterization variables and variables of the scale used were addressed. Data were

organized in an electronic data sheet with validation by double entry and subsequently, data were exported to the SPSS 20.0 software. Cronbach's alpha was applied to assess the internal consistency of data, which was classified as satisfactory (0.95).

Regarding the IES-R dimensions through the Kolmogorov-Smirnov test for a significance level of 5%, there is evidence that they do not have a normal distribution ($p<0.001$). However, the central limit theorem was used, which indicates that in studies of a sufficiently large sample, the assumption of normality does not interfere in the analysis of results. Therefore, parametric statistical tests are applicable.

When comparing the sociodemographic profile with the dimensions of the IES-R, the Student's t, Analysis of Variance – ANOVA, Chi-Square and prevalence ratio tests were applied. For all statistical tests applied, the significance level was set at 5%.

The study was approved by the Research Ethics Committee (CEP) (CAAE: 88024818.2.0000.5537) (opinion no. 2,628,475). All participants were assured about the secrecy, anonymity and confidentiality of the information provided by signing two copies of the Informed Consent form.

Table 1. Sociodemographic characteristics of the sample according to sex, age group, level of education, position, professional group, length of experience and weekly working hours

Variables	n(%)
Sex	
Male	254(75.15)
Female	84(24.85)
Age group	
Up to 35 years	50(14.79)
36 to 45 years	179(52.96)
Over 45 years	109(32.25)
Educational level	
Primary education	13(3.84)
Secondary education	104(30.77)
Higher education	221(65.39)
Position	
Police Officer	133(39.35)
Nursing technician	65(19.23)
Firefighter	51(15.09)
Physician	50(14.79)
Nurse	23(6.80)
Emergency service driver	16(4.74)
Professional group	
Public safety	184(54.44)
Health	154(45.56)
Years of service	
1-4 years	39(11.54)
5-9 years	44(13.02)
10-14 years	78(23.08)
15-19 years	82(24.26)
More than 19 years	95(28.11)
Workday (in hours)	
20-40	126(37.28)
41-60	145(42.90)
More than 60	67(19.82)
Total	338(100.00)

n – number of individuals; % - percentage

Results

The sample for this study consisted mostly of male emergency professionals (75.15%), in the age group of 36-45 years (52.96%), mean age of 42.99 years. As for the length of experience, professionals who worked in the area for more than 19 years (28.11%) predominated. Of these, 65.39% reported having higher education and 42.90% worked 41-60 hours a week, as shown in table 1.

Using the IES-R overall score classifications, most of the 187 professionals (55.33%) did not have symptoms compatible with criteria for establishing PTSD, 46 (13.61%) had a score corresponding to low risk, and 105 (31.07%) had scores compatible with a probable diagnosis or high risk of PTSD.

Based on statistically significant values, it was observed that police officers and the length of service from 15 years onwards had the highest percentage of scores compatible with a higher risk of developing PTSD, and firefighters and nurses were next, from the relative frequency, with scores equal to or greater than 33, as shown in table 2.

Among professionals working in public safety, 39.67% had scores equal to or above 33; and in those working in health, 20.78%. Security professionals had a 48% higher prevalence of scores compatible with the PTSD diagnosis, according to the application of calculation for prevalence ratios.

As for related factors, when asked about the main potentially traumatic events they faced in their work environments, eight categories were identified among the participants' reports. The most cited situations were death or imminent death with 19.52% and the other frequencies are shown in chart 1.

Table 2. Distribution of IES-R scores according to sociodemographic characteristics of sex, age group, level of education, position, professional group, length of experience and weekly working hours

Variables	IES-R score		p-value*	Prevalence ratio [95% CI]
	< 33 n(%)	≥ 33 n(%)		
Sex				
Female	61(72.62)	23(27.38)	0.400	0.85 [0.57; 1.25]
Male	172(67.72)	82(32.28)		
Age group				
Up to 35 years	38(76.00)	12(24.00)	0.199	-
36-45 years	116(64.80)	63(35.20)		
> 45 years	79(72.48)	30(27.52)		
Educational level				
Primary education	9(69.23)	4(30.77)	0.789	-
Secondary education	69(66.35)	35(33.65)		
Higher education	155(70.14)	66(29.86)		
Position				
Nurse	17(73.91)	6(26.09)	0.002	-
Physician	39(78.00)	11(22.00)		
Nursing technician	51(78.46)	14(21.54)		
Firefighter	36(70.59)	15(29.41)		
Police officer	75(56.39)	58(43.61)		
Emergency service driver	15(93.75)	1(6.25)		
Professional group				
Public safety	111(60.33)	73(39.67)	<0.001	0.52 [0.37; 0.75]
Health	122(79.22)	32(20.78)		
Years of service				
1-4 years	33(84.62)	6(15.38)	0.031	-
5-9 years	33(75.00)	11(25.00)		
10-14 years	57(73.08)	21(26.92)		
15-19 years	48(58.54)	34(41.46)		
> 19 years	62(65.26)	33(34.74)		
Workday (in hours)				
20-40	90(71.43)	36(28.57)	0.585	-
41-60	100(68.97)	45(31.03)		
More than 60	43(64.18)	24(35.82)		

IES-R – Event Impact Scale-Revised; n – number of individuals; % - percentage; *Chi-Square Test; CI - Confidence Interval

Chart 1. Potentially traumatic events experienced in the work of emergency professionals

Potentially traumatic events	n(%)
Death/imminent death	65(19.52)
Pediatric death/emergency	20(5.91)
Psychiatric patients/under the influence of psychoactive substance	7(2.07)
Accidents with machinery/structure	28(8.28)
Risk to one's own life	55(16.27)
Large scale occurrences	5(1.47)
Reports of use of weapons	62(18.34)
Domestic violence/rape	12(3.55)

n – number of individuals; % - percentage

As a way of coping with potentially traumatic situations, participants who practiced sports (43.79%) and those who sought religious support (40.24%) prevailed; 39.05% indicated they reassessed situations, 24.56% confronted the events, 15.68% moved away from situations and people who could remind them of the events, and 10.95% reported seeking psychological support. Of the sample, 8.28% reported other forms of coping, namely family support, support from friends and alcohol consumption. By calculating the prevalence ratio, it was found with statistically significant values, as presented in table 3, that professionals who reported distancing were 1.86 times more likely to have scores above 33 points, compared to professionals who did not report distancing. Participants who reported seeking psychological support had a 1.80 higher prevalence of scores above 33 on the IES-R than those who did not. Professionals who reassessed situations had 35% lower prevalence of scores above 33 points compared to professionals who did not reassess the situations.

Table 3. Distribution of IES-R scores according to coping strategies (distancing, confrontation, psychological support, practice of sports, reassessment of situations, religious support)

Strategy	IES-R		p-value*	Prevalence ratio [95% CI]
	< 33 n(%)	≥ 33 n(%)		
Distancing				
Yes	26(49.06)	27(50.94)	0.001	1.86 [1.35; 2.58]
No	207(72.63)	78(27.37)		
Confrontation				
Yes	52(62.65)	31(37.35)	0.154	1.29 [0.92; 1.81]
No	181(70.98)	74(29.02)		
Psychological support				
Yes	18(48.65)	9(51.35)	0.005	1.80 [1.25; 2.58]
No	215(71.43)	86(28.57)		
Practice of sports				
Yes	108(72.97)	40(27.03)	0.157	0.79 [0.57; 1.10]
No	125(65.79)	65(34.21)		
Reassessment of situations				
Yes	101(76.52)	31(23.48)	0.016	0.65 [0.46; 0.94]
No	132(64.08)	74(35.92)		
Religious support				
Yes	90(66.18)	46(33.82)	0.369	1.16 [0.84; 1.59]
No	143(70.79)	59(29.21)		

IES-R – Event Impact Scale-Revised; n – number of individuals; % - percentage; *Chi-Square Test IC - Confidence Interval

Discussion

Based on the objective proposed in this study, initially, it is necessary to note that until the completion of this work, it was not possible to find studies contemplating the same areas of expertise. However, a study conducted by the psychology department at the University of Kiel, Germany, came closer,

including emergency health professionals and firefighters.[13]

The male sex prevailed among emergency professionals, which can be explained by the higher percentage of professionals in the sample composed of police officers and firefighters, mostly male professions; representing 86% of the workforce in the national state police, and 84.4% among firefighters. These data were similar to those of the German study, which showed 76.1% of male predominance.[13,14]

This male predominance is also indicated in the US statistics with 73.3% of professionals in public safety and in England and Wales, where they represent 73.3%.[15,16] In a German study of paramedical and pre-hospital care professionals, 79.8% were men, while in the USA, they were 81.1% among police officers and in a systematic review with meta-analysis of studies with pre-hospital care professionals, they represented 78.1%.[17-19]

However, it differed from studies conducted only with professionals working in the hospital emergency sector, where the female sex stood out, accounting for 68.4% in an Iranian study, and 63.9% and 69% in Italian studies; emphasizing the predominance of nursing professionals, a predominantly female profession, in these studies.[15,20,21]

The predominant age group found was similar to that of a Brazilian study conducted with firefighters by the Universidade Federal de Minas Gerais, which showed a higher percentage (31.9%) between 30 and 39 years old.[9] Another similar result was found in a systematic review of studies with pre-hospital emergency care workers, where the mean age was 34.9 years.[19]

Since this is a heterogeneous sample of six professional areas of both sexes, these data suggest an alignment with the change in the world age pyramid, where the population percentage of American and European continents already shows a decreasing number of children and young people, with projections to be lower than the number of adults and older adults between 2020 and 2030.[22]

The most frequent level of education among the participants was also identified in a North American study, where 43.6% had completed higher education or postgraduate education,[21] as well as in an Italian study (71.1%), and in an Iranian study conducted with emergency workers from four hospitals, in which 52.8% were graduated or had training above higher education.[20,21]

Since all participants were in public services, this datum has the potential to reflect the results of the National Policy on Continuing Health Education (Portuguese acronym: PNEPS), which aims to qualify the workforce of health professionals in order to ensure better service to the population. It also may be due to internal and governmental incentives of public institutions for the qualification of professionals of public safety, health and services in general, which began in 2003 with the National Qualification Plan.[23,24]

As for IES-R scores, the values found were within national statistics ranging from 5 to 75%.[8] Similar data were found in Taiwan with professionals working in hospital emergency, who presented a 38.5% prevalence of probable PTSD diagnosis, while in Italy it was 21.4%, and in the USA 21.8%. Studies with PTSD predictive scales and analysis of self-reported symptoms were also performed.[9,15,25]

It is noteworthy that the results diverged from previous Brazilian studies in which was found a lower prevalence, indicating 6.9% of symptoms compatible with PTSD in firefighters and 6% in police officers; and from international studies, as one with hospital emergency professionals conducted by the University of Pisa, with 15.9% prevalence.[11,26,27]

Regarding these divergences, they may be justified by differences in sample sizes and target populations defined in each study, conditions of exposure to potentially traumatic events, as well as related stressors, since researchers argue that the prevalence of PTSD is not stable, but depends on the population investigated.[28]

Note that studies comparing the scores between the two constituent groups of emergency professionals (safety and health) could not be found in order to assess which of them had the highest prevalence in presenting compatible scores with probable PTSD diagnoses.

Therefore, the suggestion that the nature of the potentially traumatic events experienced by the professional group responsible for public safety, which

can often pose risks to the professional's own life, was an important influence on the higher chances of presenting PTSD symptoms, as well as the stigma related to the recognition of illness.

The first cause suggested is justified by data presented in the 2020 atlas of Brazilian violence, which highlight the occurrence of 57,956 homicides in 2018, 1,825 of them in RN. More than 77% of these homicides were caused by the use of firearms.[29]

Regarding stigma, a study conducted with police officers from Pará identified that those on leave for health care were exposed to situations of moral condemnation, exclusion, contempt and an unfavorable view within corporations, as they would not fit into the stereotype of military professionals. This strengthens the idea that even when these professionals get sick, given the rigid hierarchy and the possibility of hostility, they either do not seek support or do not have appropriate coping methods to minimize the effects of potentially traumatic situations.[30]

As for related factors, the main potentially traumatic events, findings were similar to those reported in a North American study and in a review of studies conducted with emergency professionals. They indicated that the witnessed and experienced forms of traumatic situations are linked to the symptomatic manifestations of PTSD and may also be influenced by the amount of exposure to these events and the individual adaptive capacity of professionals.[18,19]

Coping strategies or coping methods are widely discussed in a way that effective coping methods are able to prevent and/or delay the onset of PTSD symptoms.[8] In their theory, Lazarus and Folkman clarify that individuals do not react to stressful/potentially traumatic events in the same way in all situations and argue that those who are "good" at handling the situation, change their strategies as needed. Thus, coping is often used to decrease stress reactivity.[31]

In this study, participants reported several coping strategies, three of which (distancing, psychological support and reassessment of situations) presented a statistically significant association. Such a relationship was also found in meta-analysis that evaluated strategies of coping and reduction in stress and tension levels resulting from traumatic events..[32]

These strategies could also be found in a Canadian study that observed the role of the family and social circle as the main coping strategy adopted by police officers and paramedics, and in a review conducted with victims of traumatic situations, all categorized within strategies based on the individual effort and not organizational.[32,33] Recent studies evaluating coping strategies with the studied population were not found.

Note that although this study is not aimed to assess the effectiveness of coping strategies, these findings were similar to those of international studies, in which reassessment and distancing from situations, as well as other aspects related to resilience and individual personality, can positively or negatively affect mental health and the development of PTSD. However, they are not yet well understood as to its positive and/or negative influence, and the present study supports the hypothesis that these strategies can reduce the IES-R scores and therefore, the symptoms related to PTSD.[34,35]

As limitations of this study, it was not possible to go deeper into the factors associated with the traumatic event, such as evaluating the direct relationship of the events cited by professionals with PTSD scores, since the IES-R does not have causal specificity, that is, it does not indicate which specific event or sets of specific events caused the scores obtained.

The memory bias can be highlighted too, as the instruments were composed of questions that required to remember past events.

As advances, the information provided by this study can help to raise national awareness about the importance of PTSD and offer a situational diagnosis of this problem in emergency professionals in order to problematize this psychopathology and encourage further studies with this population group aimed at improving their health.

Conclusion

This study pointed out that the sociodemographic profile of emergency professionals at the local level consisted mostly of men, aged 36-45 years, with

more than 10 years of service, higher education, who work on of 41-60 hour shifts a week. It was found that 31.07% of the sample had a compatible score with a high risk of PTSD, which is a relatively high number when compared to similar studies at the national level. Among professionals working in public safety, 39.67% had scores corresponding to a probable diagnosis of PTSD, and among those working in health, 20.78%. Security professionals have a 48% higher prevalence in presenting compatible scores with the diagnosis of PTSD. The main potentially traumatic events that emergency professionals undergo in their routine are consistent with those indicated by similar studies (events with death or imminent death, pediatric emergencies, individuals with psychiatric disorders, accidents with machinery, risk to one's own life, large-scale incidents, use of weapons, domestic violence and rape). Among the main coping strategies adopted by professionals in the face of potentially traumatic situations in the workplace, the practice of sports, religious support, reassessment of situations, confrontation of situations/events, distancing and psychological support prevailed.

Collaborations

Nascimento JCP, Costa TMS, Sarmento SDG, Santos KVG, Dantas JKS, Queiroz CG, Dantas DV and Dantas RAN collaborated with the study design, analysis and interpretation of data, article writing, relevant critical review of the intellectual content and final approval of the version to be published.

References

1. Seligmann-Silva M. Literatura e trauma. Pro-Posições. 2016;13(3):135-53.
2. Correia AR, Dunningham WA. Estimativa da ocorrência de transtorno do estresse pós-traumático em policiais militares da Bahia. Rev Bras Neurol Psiquiatr. 2016;20(3):187-216.
3. Manual diagnóstico e estatístico de transtornos mentais: DSM-5. 5a ed. Porto Alegre: Artmed; 2014.
4. Yoo YS, Cho O, Cha K, Boo Y. Factors influencing post-traumatic stress in korean forensic science investigators. Asian Nurs Res. 2013;7:136-41.
5. World Health Organization (WHO). ICD-11: International Classification of Diseases 11th Revision. Geneva: WHO; 2020 [cited 2020 Sep 14]. Available from: https://icd.who.int/en
6. Souza CM, Vizzotto MM, Gomes MB. Relationship between family violence and post-traumatic stress disorder. Psicol Saúde Doenças. 2018;19(2):222-33.
7. Seligman ME. Florescer: uma nova compreensão sobre a natureza da felicidade e do bem-estar. Rio de Janeiro: Objetiva; 2011.
8. Brasil. Ministério da Justiça e Segurança Pública. Secretaria Nacional de Segurança Pública. Caderno técnico de tratamento do transtorno de estresse pós-traumático. Brasília (DF): Ministério da Justiça e Segurança Pública; 2019 [citado 2020 Jul 30]. Disponível em: https://legado.justica.gov.br/news/collective-nitf-content-1570038268.58/caderno-tecnico-de-tratamento-do-transtorno-de-estresse-pos-traumatico-tept.pdf
9. Lima EP, Assunção AA, Barreto SM. Transtorno de Estresse Pós-Traumático (TEPT) em Bombeiros de Belo Horizonte, Brasil: Prevalência e Fatores Ocupacionais Associados. Psicol Teor Pesq. 2015;31(2):279-88.
10. Atwoli L, Stein DJ, Koenen KC, McLaughlin KA. Epidemiology of posttraumatic stress disorder: prevalence, correlates and consequences. Curr Opin Psychiatry. 2015;28(4):307-31. Review.
11. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. J Clin Epidemiol. 2008;61(4):344-9.
12. Cauiby AV, Lacerda SS, Quintana MI, Torii TS, Andreoli SB. Adaptação transcultural da versão brasileira da Escala do Impacto do Evento – Revisada (IES-R). Cad Saude Publica. 2012;28(3):597-603
13. Köhler M, Goebel S, Pedersen A. PTSD severity among emergency personnel: an investigation based on the Ehlers and Clark cognitive model. Psychol Trauma. 2019;11(6):677-84.
14. Ribeiro L. Polícia Militar é lugar de mulher? Rev Estud Fem. 2018;26(1):e43413.
15. Carmassi C, Gesi C, Corsi M, Cremone IM, Bertelloni CA, Massimetti E, et al. Exploring PTSD in emergency operators of a major University Hospital in Italy: a preliminary report on the role of gender, age, and education. Ann Gen Psychiatry. 2018;17:17.
16. Statista. Gender distribution of police officers in England and Wales as of 2019, by rank. United States: Statista; 2020 [cited 2020 Sep 03]. Available from: https://www.statista.com/statistics/382525/share-of-police-officers-in-england-and-wales-gender-rank/
17. Eiche C, Birkholz T, Jobst E, Gall C, Prottengeier J. Well-being and PTSD in German emergency medical services - a nationwide cross-sectional survey. PLoS One. 2019; 14(7):e0220154.
18. Soomro S, Yanos PT. Predictors of mental health stigma among police officers: the role of trauma and PTSD. J Police Crim Psychol. 2019;34:175-83.
19. Petrie K, Milligan-Saville J, Gayed A, Deady M, Phelps A, Dell L, et al. Prevalence of PTSD and common mental disorders amongst ambulance personnel: a systematic review and meta-analysis. Soc Psychiatry Psychiatr Epidemiol. 2018;53(9):897-909. Review.
20. Sheikhbardsiri H, Sarhadi M, Abdollahyar A, Dastres M, Rabari AS, Aminizadeh M. The relationship between personality traits and post-traumatic stress disorder among EMS personnel and hospital emergency staffs. Iran J Crit Care Nurs. 2015;8(1):35-42.

21. Carmassi C, Bertelloni CA, Avella MT, Cremone I, Massimetti E, Corsi M, et al. PTSD and Burnout are related to lifetime mood spectrum in emergency healthcare operator. Clin Pract Epidemiol Ment Health. 2020;16:165-73.

22. An Aging World: 2015. International Population Reports. By Wan He, Daniel Goodkind, and Paul Kowa. Washington (DC): Government Publishing Office; 2016 [cited 2020 Sep 10]. Available from: https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf

23. Brasil. Ministério da Saúde. Portaria GM/MS nº 198 de 13 de fevereiro de 2004. Institui a Política Nacional de Educação Permanente em Saúde como estratégia do Sistema Único de Saúde para a formação e o desenvolvimento de trabalhadores para o setor e dá outras providências. Brasília (DF): Ministério da Saúde; 2004 [citado 2020 Ago 2]. Disponível em: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2017/MatrizesConsolidacao/comum/13150.html

24. Brasil. Ministério do Trabalho e Emprego. Resolução nº 333 de 10 de julho de 2003. Institui o Plano Nacional de Qualificação – PNQ. Brasília (DF): Ministério do Trabalho e Emprego; 2003 [citado 2020 Set 11]. Disponível em: http://portalfat.mte.gov.br/wp-content/uploads/2016/02/Resolu%C3%A7%C3%A3o-n%C2%BA-333-de-10-de-julho-de-2003.pdf

25. Bowler RM, Kornblith ES, Li J, Adams SW, Gocheva VV, Schwarzer R, Cone JE. Police officers who responded to 9/11: Comorbidity of PTSD, depression, and anxiety 10-11 years later. Am J Ind Med. 2016;59(6):425-36.

26. Cunha PA, Dick NR, Pires CG, Pinto JN. Post-traumatic stress disorder in military police. Rev Saúde Desenvol Hum. 2019;7(2):7-18.

27. Carmassi C, Porta I, Bertelloni CA, Impagnatiello P, Capone C, Doria A, et al. PTSD and post-traumatic stress spectrum in the Italian navy operational divers group and corps of coast guard divers employed in search and rescue activities in the mediterranean refugees emergences and Costa Concordia shipwreck. J Psychiatr Res. 2020;129:141-6.

28. Sadock BJ, Sadock VA. Synopsis of Psychiatry. 9th ed. Philadelphia (PA): Lippincott Williams & Wilkins; 1995.

29. Instituto de Pesquisa Econômica Aplicada (IPEA). Atlas da violência 2020. Brasília (DF): Ministério da Economia; 2020 [citado 2020 Set 15]. Disponível em: https://forumseguranca.org.br/wp-content/uploads/2020/08/atlas-da-violencia-2020.pdf

30. Nummer F, Cardoso I. Estigma do adoecimento na polícia militar do Pará. Rev Política Trab. 2019;1(49):227-45.

31. Biggs A, Brough P, Drummond S. Lazarus and Folkman's Psychological Stress and Coping Theory. In: Cooper CL, Quick JC, editors. The Handbook of Stress and Health: a Guide to Research and Practice. Hoboken: John Wiley & Sons Ltd; 2017. p. 349-64.

32. Littleton H, Horsley S, John S, Nelson DV. Trauma coping strategies and psychological distress: a meta-analysis. J Trauma Stress. 2007;20(6):977-88.

33. Ewles GB. Enhancing Organizational Support for Emergency First Responders and their Families: examining the role of personal support networks after the experience of work-related trauma [dissertation]. Guelph: University of Guelph; 2019 [cited 2020 Sep 5]. Available from: https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/17497/Ewles_Grace_201910_PhD.pdf?sequence=3&isAllowed=y

34. Alamdari SM. Resilience-Related Outcomes Among War-Affected Arab Refugees in the U.S [tese]. Bloomington: School of Social Work, Indiana University; 2020 [cited 2020 Sep 5]. Available from: https://scholarworks.iupui.edu/bitstream/handle/1805/23670/MakkiAlamdari_iupui_0104D_10452.pdf?sequence=1&isAllowed=y

35. Mathes BM, Kennedy GA, Morabito DM, Martin A, Bedford CE, Schmidt NB. A longitudinal investigation of the association between rumination, hostility, and PTSD symptoms among trauma-exposed individuals. J Affect Disord. 2020;277:322-8.