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ARTIGO ORIGINAL

Impact of the COVID-19 Pandemic on Mental Health of Anaesthesiologists from the National Health Service

Impacto da Pandemia COVID-19 na Saúde Mental dos Anestesiologistas do Sistema Nacional de Saúde

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Palavras-chave
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ABSTRACT

Introduction: The coronavirus disease (COVID-19) pandemic has posed strain on the entire healthcare system. Portuguese anaesthesiologists played a major role, being relocated to newly created intensive care units and performing risky procedures such as endotracheal intubation. We aimed to evaluate how the COVID-19 pandemic affected the mental health of Portuguese Anaesthesiologists working for the National Health Service.

Material and Methods: Transversal observational descriptive and analytical study directed to residents and specialists in Anaesthesiology working in public hospitals in Portugal during the COVID-19 pandemic. We used the 12-item General Health Questionnaire (GHQ-12). Mann-Whitney and ANOVA or Kruskal-Wallis tests were used to compare the GHQ-12 score between groups and paired sample t-test to compare the GHQ-12 score before and during the pandemic. The statistical significance was considered for *p*-value < 0.05.

Results: One-hundred eighty-four physicians answered the questionnaire. The majority of the respondents were women (75%) and most participants were aged between 31 and 40 years old (31%). Participants were mainly from the Northern Region (55.4%). Female participants presented a statistically significant higher GHQ-12 score (*p*-value 0.024). Nearly 80% of the participants exhibited psychological distress during the pandemic. The main adversities faced were fear of infecting the family and lack of hospital organization.

Discussion and Conclusion: Participants reported experiencing a higher psychological burden during the COVID-19 pandemic, especially women. Therefore, it is important to recognize this problem and take measures to improve the mental health of anaesthesiologists and other healthcare workers to avoid potential short and long-term consequences.

RESUMO

Introdução: A pandemia COVID-19 sobrecarregou todo o sistema de saúde. Os anestesiologistas portugueses desempenharam um papel crucial, tendo sido realocados para unidades de cuidados intensivos recém-criadas e realizado procedimentos de risco como a intubação endotraqueal. Nós pretendemos avaliar como a pandemia afectou a saúde mental dos anestesiologistas portugueses do Serviço Nacional de Saúde.

Material e Métodos: Estudo observacional transversal descritivo e analítico dirigido a internos e especialistas em Anestesiologia a trabalhar em hospitais públicos de Portugal durante a pandemia COVID-19. Foi utilizado o *12-item General Health Questionnaire* (GHQ-12). Os testes Mann-Whitney e ANOVA ou Kruskal-Wallis foram usados para comparar a pontuação do GHQ-12 entre os grupos e o teste T de amostras emparelhadas para comparar a pontuação antes e durante a pandemia. A significância estatística foi considerada para valor de $p<0,05$.

Resultados: Cento e oitenta e quatro médicos responderam ao questionário. A maioria dos participantes era do sexo feminino (75%), tinha entre 31 e 40 anos (31%) e pertencia á Administração Regional de Saúde do Norte. Os participantes do sexo feminino apresentaram uma pontuação no GHQ-12 estatisticamente superior (valor de *p* 0,024). Quase 80% dos participantes experienciaram stress psicológico durante a pandemia. As principais adversidades enfrentadas foram o medo de infectar a família e a falta de organização hospitalar.

Discussão e Conclusão: Os participantes experienciaram maior *stress* psicológico durante a pandemia COVID-19, principalmente as mulheres. Assim, é importante reconhecer este problema e tomar medidas para melhorar a saúde mental dos anestesiologistas e de outros profissionais de saúde para evitar consequências a curto e longo prazo.

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INTRODUCTION

The novel coronavirus disease, COVID-19, is a highly contagious infectious disease which has been declared to be a pandemic and a worldwide public health emergency by the World Health Organization.[1]

The impact of the 2003 severe acute respiratory syndrome (SARS) outbreak on the mental health of healthcare workers has been previously documented.[2-5] Studies reported that healthcare professionals feared contagion of their family and friends,[2] felt uncertainty and stigmatization,[3,4] were reluctant to work or contemplating resignation,[3] and reported experiencing high levels of stress, anxiety, and depression symptoms.[4] Similarly, recently conducted studies report that healthcare workers on the front line of COVID-19 have high rates of symptoms of depression, anxiety, insomnia, and distress.[6,7]

This pandemic has posed strain on the Portuguese healthcare system and presented unprecedented difficulties. The inadequacy and unavailability of essential medical supplies, the changes in workplace dynamics, and the general sense of fear and anxiety amongst the public have generated enormous pressure for medical personnel.[8] In addition, healthcare workers restructured their personal lives and mobilized all their resources to support emergency services and intensive care units, which will have expectedly contributed to increased stress levels. Throughout the COVID-19 pandemic, Portuguese anaesthesiologists played a major role in the care of COVID-19 patients, being relocated to newly created intensive care units and performing risky procedures such as endotracheal intubation. Anaesthesiology is a highly demanding medical specialty due to the inherent responsibilities and stressful situations, such as the management of life-threatening scenarios; hence, the relatively high prevalence of burnout syndrome among anaesthesiologists is not surprising.[9,10] Therefore, this outbreak might have further contributed to the anxiety and psychologic distress of Portuguese anaesthesiologists working in the National Health Service.

Up until now, the literature has mainly focused on the prevention and treatment of COVID-19. In our understanding, not enough attention has been directed towards the psychological well-being of healthcare workers.[8] The aim of our study is to evaluate how the COVID-19 pandemic affected the mental health and psychological adjustment of Portuguese anaesthesiologists working for the National Health Service and to determine whether there were any contributing factors for increased psychological distress.

MATERIAL AND METHODS

Study design

Transversal observational descriptive and analytical study directed at residents and specialists in Anaesthesiology working in public hospitals in Portugal during the COVID-19 pandemic. This study was approved by Centro Hospitalar de Vila Nova de Gaia/Espinho Ethics Committee. Completion and submission of the questionnaire required the participants' consent.

Data collection

The questionnaire was implemented using a free Google Forms© software. This questionnaire was sent out by the investigators to the department directors and/or the secretariat of the Anaesthesiology Service; each department subsequently forwarded the questionnaire to its anaesthesiologists by e-mail. The questionnaire link was available for 8 weeks, from May to June 2020. It was anonymous and was used for research purposes only.

Participant inclusion and exclusion criteria

Residents and specialists in Anaesthesiology working in public hospitals in Portugal during the COVID-19 pandemic were included in this study. Anaesthesiologists on a medical/ parental leave and those who did not complete the questionnaire from May to June 2020 were excluded.

Primary and secondary outcomes

Our end point was to evaluate the impact of the COVID-19 pandemic on the psychological well-being of Portuguese anaesthesiologists. Additionally, we intended to identify which sociodemographic factors were associated with increased psychological distress and the main adversities faced during the pandemic.

Measurements

The questionnaire comprised 3 sections. The first section included a set of sociodemographic questions such as, age, gender, marital status, children, cohabitants older than 65 years old, alternative residence, Regional Health Administration, professional category and workplace. In the second section we presented the 12-item General Health Questionnaire (GHQ-12), comprising 12 questions about psychological well-being, that was validated for the Portuguese population by Carlos Laranjeira in 2008.[11] Participants were asked to answer the GHQ-12 twice: one referring to the present situation and one referring to before the beginning of COVID-19 pandemic. The answers were scored using Likert scoring and we used a threshold of 12 points to identify positive cases of psychological distress. We used the GHQ because it focuses on the appearance of new and distressing phenomena and therefore it is sensitive to short-term psychological disorders.[12] Furthermore, we used the 12 item version because it only takes about 2 minutes to complete which could increase the adherence rate. In the

last section, we asked the participants what were the main adversities faced during the COVID-19 pandemic.

Sample size calculation

We aimed to collect at least 165 responses which represent approximately 10% of the Portuguese residents and specialists in Anaesthesiology based on the 2017 Census.[13]

Statistical analyses

The answers were collected and organized in the Statistical Package for the Social Sciences (SPSS 25.0®) software for subsequent analysis. Categorical variables are presented as frequencies and percentages, and continuous variables as mean and standard deviations or medians and interquartile ranges for variables with skewed distributions. Normal distribution was checked using skewness and kurtosis. Mann-Whitney and ANOVA or Kruskal-Wallis tests were used to compare the general health questionnaire score among age groups, gender, marital status, children, elderly cohabitants, alternative residence, regional health administration, professional category, and workplace. Paired sample t-test was used to compare the general health questionnaire scores before and during the COVID-19 pandemic. The statistical significance was considered for p-value < 0.05.

RESULTS

One-hundred eighty-four physicians answered the questionnaire. The participants' sociodemographic data and general health questionnaire score during the COVID-19 pandemic are presented in Table 1. The majority of the respondents were women (75%) and most participants were aged between 31 and 40 years old (31%). Participants were mainly from the Northern Region (55.4%).

Female participants presented a statistically significant higher GHQ-12 score (p-value 0.024).

Higher GHQ-12 scores were observed in participants aged 31 to 40, with no children, with elderly cohabitants, living in an alternative residence during the COVID-19 pandemic, from the Centre Region, and those who worked at a COVID unit. However, there was no statistically significant difference between these groups.

Table 2 shows GHQ-12 scores before and during COVID-19 pandemic. Nearly 80% of the 184 participants exhibited psychological distress during the pandemic. However, even before COVID-19 pandemic, about 70% already exhibited psychological distress. Although GHQ-12 scores during COVID-19 pandemic were slightly higher there was no significant statistical difference (p-value 0.301).

Finally, we asked the participants what were the main adversities faced throughout COVID-19 pandemic and the majority answered fear of infecting the family and lack of hospital organization. Other answers are presented in Fig. 1.

Table 1. Sociodemographic data and GHQ-12 score

	n=184	GHQ-12 score	*p*-value
Age (years) – n(%)			
25-30	51(27.7)	17.33±6.76	
31-40	57(31)	17.77±6.39	
41-50	38(20.7)	16.92±4.58	0.219
51-60	28(15.2)	15.86±4.70	
>60	10(5.4)	13.50±4.35	
Gender – n(%)			
Female	137(74.5)	16(8)	0.024
Male	47(25.5)	14(6)	
Marital status – n(%)			
Single	75(40.8)	17.87±6.61	
Married	91(49.5)	16.53±5.35	0.279
Divorced	16(8.7)	15.13±4.73	
Widowed	2(1)	16.50±6.36	
Children – n(%)			
Yes	91(49.5)	15(7)	0.200
No	93(50.5)	16(10)	
Cohabitants >65 years – n(%)			
Yes	20(10.9)	20(11)	0.086
No	164(89.1)	15(7)	
Alternative residence – n(%)			
Yes	32(17.4)	17(10)	0.164
No	152(82.6)	15(7)	
Regional Health Administration – n(%)			
Norte	102(55.4)	15(7)	
Centro	30(16.3)	18.5(8.5)	
Lisboa e Vale do Tejo	37(20.1)	18(11.5)	
Alentejo	0(0)		0.228
Algarve	6(3.3)	14(3.75)	
Madeira	4(2.2)	13(3.75)	
Açores	5(2.7)	15(6.50)	
Professional category			
Resident	67(36.4)	16(10)	
Assistant	53(28.8)	16(10)	0.481
Graduate Assistant	52(28.3)	15(6.75)	
Senior Graduate Assistant	12 (6.5)	15.50(8.50)	
Workplace			
COVID Unit	72 (39.1)	16(7.25)	0.257
Other Units	112(60.9)	15(7)	

Table 2. GHQ-12 scores before and during the COVID-19 pandemic

	GHQ-12 score >12 – n(%)	GHQ-12 score	*p*-value
Before COVID-19 pandemic	127(69.0)	16.58±6.78	0.301
During COVID-19 pandemic	145(78.8)	16.95±5.88	

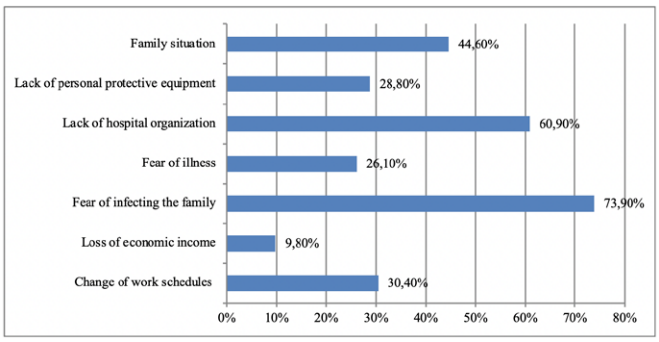

Figure 1. Main adversities faced during the COVID-19 pandemic

DISCUSSION

The COVID-19 pandemic is not the first health crisis we have faced; as such, the psychological impact in healthcare professionals has been investigated during previous epidemics.[2-4,8,14,15] Previous studies conducted during the influenza A/H1N1 pandemic and the Middle East respiratory syndrome (MERS) outbreak have already shown that healthcare providers, especially front-line workers, present a particularly high risk of psychological distress.[14,15]

Anaesthesiologists played a major role during the COVID-19 pandemic due to their skills in several areas, such as Emergency Medicine, Intensive Care Medicine, and Airway Management. According to a study conducted among Portuguese anaesthesiologists, 47.4% of anaesthesiologists provided healthcare to COVID-19 patients and 64.7% were engaged in the development of contingency plans.[16] Furthermore, 41.4% of Post-anaesthesia Care Units (PACU) were converted into Intensive Care Units (ICU).[16]

In our study, almost 80% of anaesthesiologists presented increased levels of psychological distress during the COVID-19 pandemic. Additionally, women had significantly higher levels of psychological distress. These findings are in agreement with previous literature: Lai *et al*[6] reported a 71.5% prevalence of distress and more severe degrees of depression, anxiety, insomnia and distress among women and frontline healthcare workers during this pandemic. Another study regarding the mental health of medical and nursing staff in Wuhan during the COVID-19 outbreak reported that 63% of the staff showed mild to severe mental health disturbances and this burden was particularly heavy on young women.[17] Nevertheless, it has also been showed that women have more strategies for coping with stress.[18]

However, it might be interesting to realize that even before the pandemic, Portuguese anaesthesiologists reported increased levels of psychological distress as well. The most likely explanation is a memory bias since the participants were asked to answer the questionnaire regarding their psychological well-being before the pandemic. Nonetheless, Anaesthesiology is a very demanding and stressful specialty, which might justify the high psychological distress reported before the pandemic. As a matter of fact, studies carried out before this health crisis had already shown that anaesthesiologists manifested high levels of psychological distress and burnout: a study reported that 39.4% of Dutch anaesthesiologists presented psychological distress, as evaluated by the GHQ questionnaire.[19]

The COVID-19 has posed strain on the entire healthcare system and the improvement of the mental health of anaesthesiologists and other healthcare workers should be our priority, to avoid potential short and long-term consequences.[8] Therefore, it is important to recognize this problem and take measures into account. Firstly, we should ensure that hospitals have organized plans and provide enough supplies of the appropriate personal protective equipment. We should also adjust work shifts, enhance education and training, ensure proper rest, and provide each medical team with a psychologist. Even though most physicians are getting back to their routines, we cannot disregard the possibility of a second wave of infections; the only way to effectively fight a second wave is to assure the mental health of all healthcare workers.

The possible memory bias was the major limitation of our study. Furthermore, we would need a larger sample in order to identify significant differences and relationships from the data collected. However, this was the first study in Portugal to evaluate the psychological impact of COVID-19 pandemic in anaesthesiologists who proved to be key elements in the fight of this worldwide health crisis. In future research, we suggest to evaluate how mental health promotion measures improve coping and ameliorate the psychological well-being of anaesthesiologists and other healthcare workers of the National Health Service.

CONCLUSION

In this survey of anaesthesiologists working in the National Health Service, participants reported experiencing a higher psychological burden during the COVID-19 pandemic, especially women.

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