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The Impact of the COVID-19 Pandemic on the Healthcare System and on the Mental Health of Primary Health Care Providers

Repercussão da Pandemia de COVID-19 nos Serviços de Saúde e na Saúde Mental dos Profissionais dos Cuidados de Saúde Primários

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ABSTRACT

Introduction: The COVID-19 pandemic forced the reorganization of primary health care services. The aim of this study was to describe how the health services responded to organizational requests; how the health services involved and supported their employees; how professionals perceived their involvement in the procedures and what support was provided to them. Additions aims included assessing the levels of anxiety and depression of professionals and their association with the perceived support, availability of personal protective equipment and involvement in pandemic-related tasks.

Material and Methods: Cross-sectional, analytical study directed at professionals from three health center groups using an online questionnaire. We collected information from sociodemographic data, access to personal protective equipment, perceived support, workload and levels of anxiety and depression. Between each variable and the levels of anxiety and depression, multivariate logistic regression was applied.

Results: There were responses from 237 professionals (83.8% women; mean age 43.7 years; 43.2% physicians). Almost 60% worked with COVID-19 patients. The availability of personal protective equipment in March *versus* June 2020 increased (17.7% *vs* 55.3%). There was a risk management plan in 86% of the workplaces. A high workload (90%) and time pressure (74.6%) were identified. Physicians and nurses had a higher prevalence of depression associated with workload and fatigue ($p < 0.001$). Protective anxiety factors were having space to talk about problems, support in face of these problems and having a place to relax in the health unit. A lower risk of depression was found in the administrative staff group, in those who felt supported, and in those who actively participated in the contingency plans.

Conclusion: The COVID-19 pandemic led to considerable changes in the dynamics of primary health care. The time pressure to carry out tasks and the level of concentration required were associated with a higher risk of mental disease. The support felt by healthcare professionals regarding their problems and concerns and the existence of places to relax in the health units were identified as protective factors. Health promotion, the maintenance of the social contacts of healthcare professionals and their involvement in the processes should be taken into account in the organizational dynamics of the institutions.

Keywords: Anxiety; COVID-19; Depression; Health Services; Pandemics; Primary Health Care; Risk Management

RESUMO

Introdução: A pandemia de COVID-19 forçou a reorganização dos serviços dos cuidados de saúde primários. Com este estudo pretendemos descrever como responderam os serviços de saúde às solicitações organizacionais, como envolveram e apoiaram os seus colaboradores; como os profissionais percecionaram o seu envolvimento nos procedimentos e que apoio lhes foi fornecido. Pretendemos também avaliar os níveis de ansiedade e depressão dos profissionais e a sua associação não só com o apoio sentido pelos profissionais, mas também com a disponibilidade de equipamentos de proteção individual e com o seu envolvimento nas tarefas relacionadas com a pandemia.

Material e Métodos: Estudo transversal analítico dirigido aos profissionais de três agrupamentos de centros de saúde usando um questionário *online*. Colhemos dados sociodemográficos, informação sobre o acesso a equipamento de proteção individual, apoio percecionado, carga de trabalho e níveis de ansiedade e depressão. Entre cada variável e os níveis de ansiedade e depressão aplicou-se regressão logística multivariada.

Resultados: Responderam 237 profissionais (83,8% mulheres; idade média 43,7 anos; 43,2% de médicos). Quase 60% trabalhou com doentes COVID-19. A disponibilidade de equipamento de proteção individual em março *versus* junho de 2020 aumentou (17,7% *vs* 55,3%). Existia plano de gestão do risco em 86% dos locais. Identificou-se uma alta carga de trabalho (90%) e pressão do tempo (74,6%). Médicos e enfermeiros apresentavam maior prevalência de depressão associada à carga de trabalho e fadiga ($p < 0,001$). Ter espaço para falar dos problemas, apoio sentido perante esses problemas e dispor na unidade de saúde de um espaço para relaxar foram alguns fatores protetores de ansiedade. Foi encontrado menor riso de depressão no grupo do secretariado clínico, nos profissionais que se sentiram apoiados, e nos que tiveram participação ativa nos planos de contingência.

Conclusão: A pandemia de COVID-19 levou a grandes alterações na dinâmica dos CSP. A pressão do tempo para realização de tarefas e a concentração exigida associaram-se a maior risco de desenvolvimento de patologia mental. O apoio sentido pelos profissionais perante os seus problemas e preocupações, e a existência de espaços para relaxar nas USF foram identificados como fatores protetores. A promoção da saúde, a manutenção dos contactos sociais dos profissionais e o seu envolvimento nos processos deverão ser tidos em conta na dinâmica organizacional das instituições.

Palavras-chave: Ansiedade; COVID-19; Cuidados de Saúde Primários; Depressão; Gestão do Risco; Pandemia

INTRODUCTION

The COVID-19 pandemic has spread globally since the end of 2019. The implementation of response plans containing the disease[2,3] and minimising the damage have become crucial, due to the rapid spread of the disease and

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lethality rate.[1]

Emergency plans have affected normality and involved the readjustment of procedures. Their management involved the development of a structure leading institutions to reduce their vulnerability to danger and empowers them to deal with the effects of emerging danger, creating safer and more resilient environments.[4] This governance must be based on the coordination of processes and must be integrative, taking into account structures and staff.[3,4]

The association between psychosocial working conditions and the development of emotional exhaustion or burnout has been described.[5] The COVID-19 pandemic involved unprecedented pressures on healthcare professionals and systems around the world, with a profound impact on mental health of professionals as has occurred during previous pandemics.[6,7]

Previous evidence showed that organisational factors including the presence of safety protocols, have a positive impact on workers' mental health.[8] Therefore, control or command structures, whether central or local, should consider an effective internal and external communication process[9] in support to the professionals involved and the patients. As regards healthcare professionals and during an infectious disease outbreak, in addition to communicating up-to-date technical guidelines on the outbreak (clinical data, transmission chains, epidemiological data and intervention procedures), guidelines on personal and patient/person safety are crucial. A process of clinical/technical support for decision-making and peer discussion should be developed,[8] promoting collaboration and avoiding isolation and exhaustion among professionals and promoting their physical and mental well-being.[8,10,11]

Global institutions such as the World Health Organisation (WHO)[12] have published recommendations and guidelines, and these should be adapted to each reality and available resources, in line with national[3] and regional healthcare organisations, academies[13] and professional associations.[14-16]

The knowledge on how primary healthcare (PHC) units have responded to this reality is therefore very relevant, in addition to the way Portuguese healthcare professionals working at PHC are coping with the situation, what is their level of involvement in the process and what support has been provided.

The study was aimed at describing the way healthcare units have responded to organisational demands in a pandemic context and within three healthcare centre groupings (*Agrupamentos de Centros de Saúde* - ACeS), how staff was involved and supported, how professionals have described their involvement in the procedures and what support was provided. It was also aimed at assessing the levels of anxiety and depression of healthcare professionals using the Hospital Anxiety and Depression Scale - HADS[17] and its association with the support described by professionals, the availability of personal protective equipment (PPE) and the involvement of professionals in the tasks and procedures defined by the COVID-19 Contingency Plan.

MATERIAL AND METHODS

An analytical and cross-sectional observational study was carried out in June 2020, by applying a self-completion questionnaire to professionals from three healthcare centre groupings (ACeS) (Porto Ocidental, Matosinhos and Gaia) made available online, using the Google Forms tool. An informed consent was obtained from each participant.

Approval was obtained from the ACeS involved as well as from the ethics committees of the *Administração Regional de Saúde do Norte* and the *Unidade Local de Saúde de Matosinhos*.

Sociodemographic (gender, age) and occupational data (professional category, description of activity related to COVID-19 [work in a dedicated COVID-19-community area (ADC-C)] were obtained, in addition to data related to the development of contingency plans/risk management, the pressure felt by professionals, their decision-making capacity, tiredness/fatigue at work, PPE availability, disclosure of information about the pandemic, the support felt by professionals and support given by managers, the involvement of staff in implementing the contingency plan and the organisation of the departments during the pandemic (in-service meetings and training, creation of a specifically-designed break room, psychological support) - independent variables. The questionnaire included the Hospital Anxiety and Depression Scale (HADS) (validated Portuguese version).[14] This scale provides three separate scores for anxiety and depression, ranking respondents as: normal (0 - 7 points), borderline (8 - 10 points) and abnormal (11 - 21 points) - dependent variables.[17]

Statistical analysis

The IBM SPSS® software, version 22, has been used. The description of the variables used absolute (n) and relative (%) frequencies for categorical variables and means (M) and standard deviations (SD) for continuous variables, upon confirmation of the symmetry of their distributions by looking at the histogram. The normality of the continuous variables was assessed using the Kolmogorov-Smirnov test and the histogram. Chi-square Fisher exact test was used for the association of categorical variables and the ANOVA-1 factor for continuous variables.

Four multivariate logistic models were developed for the assessment of the associations between anxiety and depression (dependent variables), normal *vs.* borderline and normal *vs.* abnormal. The logistic models were adjusted for

the independent variables (dichotomised) that showed a statistically significant univariate association ($p < 0.05$) with anxiety or depression (normal *vs.* borderline or normal *vs.* abnormal). The adjusted odds ratios and 95% confidence intervals were estimated. Results were considered statistically significant for $p < 0.05$. Tiredness/fatigue variable was associated with anxiety/depression but was not included in the multivariate models as little variability was shown in some categories.

RESULTS

Data from a group of 1,326 healthcare professionals from *Porto Ocidental* (n = 505), *Gaia* (n = 271) and *Matosinhos* (n = 550) *ACeS* were obtained.

It was ensured that at least 10% of respondents from each ACeS were obtained, to promote the representativeness of each ACeS in the sample. Therefore, a final sample of 237 respondents was considered [96 (19.0%) from *ACeS Porto Ocidental*, 61 (22.5%) from *ACeS Gaia* and 80 (14.5%) from *ACeS Matosinhos*].

Characteristics of the study group

In the study group, 83.8% were female, and physicians (43.2%) were mostly involved, followed by nurses (32.2%), clinical secretaries (13.1%) and others (11.4%), with ages ranging from 18 to 68, mean age of 43.74 (SD = 10.33) (Table 1).

More than half of the group was not engaged in a dedicated COVID-19-community area (ADC-C) (60.9%). Self-monitoring for COVID infection was applied by about half of the respondents (48.9%), the presence of COVID-19 infection was suspected by 25.1% and daily monitoring was applied by 57%. Approximately 40% of respondents worked in ADC-C (65.8% of physicians; 34.2% of nurses).

"Decision-making capacity" was perceived as at least "somewhat capable" (29.5%), "quite capable" (49.4%) and "very capable" (17.7%). The expected likelihood of getting some help with this decision was concentrated in the "some" (24.2%), "a lot" (41.1%) and "a great deal" (20.3%) categories. The perception of getting any help from colleagues in the event of any constraint was mainly distributed among the categories "sometimes" (20.7%), "a lot" (42.2%) and "often" (29.5%).

As regards the perception of encouragement from managers, there was a tendency for responses more concentrated in "never" (19.4%), "rarely" (22.8%) and "sometimes" (30.0%) categories.

As regards to attention and kindness, around 80% of respondents have described they managed to be "often" or "always" kind to their work colleagues, although almost 50 % have considered that they only "sometimes" managed to be kind to themselves.

Department reorganisation

Most healthcare professionals have described the development of a management plan of the risk of contagion (86.0%), mostly developed within the family health units (*unidades de saúde familiar* - USF) (60.2%), followed by ACeS (33.3%), occupational health departments (4.5%) and other departments (2.0%).

A higher availability of PPE (55.5%) was found in the departments in June 2020, when compared to the second or third week of March (17.7%).

According to 63% of respondents, a psychological support program for professionals working in the context of this pandemic has been developed. However, only one respondent had attended and only rarely.

A positive distribution of up-to-date scientific guidelines/information on the COVID-19 pandemic and updated procedures at each USF has been found, with a higher concentration of responses as "often" and "always" (75.4% and 70.8%, respectively).

Staff involvement

Healthcare professionals were involved (60.5%) in the tasks required to implement the contingency plan ("often" = 35.2%; "always" = 25.4%). The least involvement was described by medical secretaries ("never" = 12.9%) and other professionals ("never" = 23.1% and "rarely" = 11.5%).

An active participation in tasks related to the contingency plan has been suggested, although almost 25% of respondents have described as having been only "sometimes", "rarely" or "never" involved.

Providing support to employees

As regards the perception of managers involved in guiding and supporting professionals at any stage of their work, this was described by 63.7% as "never", "rarely" or "sometimes" and by 36.3% as "often" or "always". Most respondents (65%) have described that they could rely on their colleagues in case any constraint showed up and have described there was room at the department to talk about their concerns (47.4%), with 47.7% feeling that they had support whenever problems and concerns arose ("often" or "always"). However, 81.3% of respondents have described that they "never", "rarely" or only "sometimes" felt encouraged to maintain social contacts and 70% have described that they were "never", "rarely" or only "sometimes" reminded to stay healthy.

As regards managers, 46% of respondents have described that they were "often" or "always" encouraged by managers in recognising and discussing their concerns and around 33% have described that managers "often" or "always" had encouraged their employees to maintain social contacts.

Table 1 – Socio-demographic and distribution of study participants

		No.		Age			
		F	M	Mean	SD	Minimum	Maximum
ACeS Porto Ocidental	GPs	28	5	43.09	12.55	30.00	68.00
	Registrars	4	1	28.60	1.82	26.00	31.00
	Public Health doctors	1	0	59.00		59.00	59.00
	Nurses	25	7	45.13	8.63	33.00	61.00
	SS technicians	5	0	50.20	10.87	42.00	64.00
	Medical secretaries	15	1	46.69	8.80	29.00	63.00
	Others	4	0	47.25	6.02	42.00	55.00
	Total	82	14	44.32	10.72	26.00	68.00
	No data	0			0		
ACeS Gaia	GPs	11	4	46.13	9.34	30.00	65.00
	Registrars	4	3	26.71	1.50	25.00	29.00
	Public Health doctors	1	1	48.00	21.21	33.00	63.00
	Nurses	17	3	44.57	7.33	36.00	62.00
	SS technicians	2	0	62.00	2.83	60.00	64.00
	Medical secretaries	8	3	41.55	9.31	18.00	52.00
	Others	1	1	35.50	9.19	29.00	42.00
	Total	44	15	42.72	10.64	18.00	65.00
	No data	2			1		
ACeS Matosinhos	GPs	27	4	42.84	10.33	29.00	65.00
	Registrars	2	2	27.75	3.10	25.00	32.00
	Public Health doctors	2	0	65.00	0.00	65.00	65.00
	Nurses	22	1	44.14	7.36	36.00	66.00
	SS technicians	1	0	39.00		39.00	39.00
	Medical secretaries	11	1	47.50	4.80	41.00	55.00
	Others	5	1	44.83	8.86	32.00	55.00
	Total	70	9	43.81	9.66	25.00	66.00
	No data	1			1		

GP: General Practitioner; SS: Social services

There was no specific employee break room at the respondent's healthcare unit (71%).

Support for training and update

More than 50 % of respondents have described that the follow-up and update of procedures related to the pandemic was "often" or "always" carried out; 60.8 per cent of respondents "never", "rarely" or "sometimes" felt encouraged by their managers to seek information on the COVID-19 pandemic, while this was described by 39.2% as "often" or "always".

Workload

Most respondents have described that high concentration was required for their work, such as managing and doing different tasks at the same time, carrying heavy mental load, handling different things at the same time. A "quite often" response was described by 35.0 % of respondents and "often" by 54.9 %.

Tiredness/fatigue ("significant", 48.7%, "extreme", 29.2%) as well as time pressure when carrying out tasks ("significant", 39.0%, "extreme", 35.6%) were the most frequent responses in this group of respondents.

In-service meetings and training

Training activities related to basic professional development/postgraduate training, within the scope of the COVID-19 pandemic and in-service meetings remained unchanged, even though with a tendency towards becoming less frequent, while those related to postgraduate training

remained unchanged. Responses were more concentrated within the left half of the scale, with 68.4% (postgraduate training), 48.5% (COVID-19 training) and 57.8% (in-service meetings) "not applicable", "never" and "rarely" responses.

The descriptive variables showed that higher levels of tiredness/fatigue (significant/extreme) were associated with higher percentage of responses as "frequently", related to the concentration required at work ($p < 0.001$). Higher levels of tiredness/fatigue ("significant/extreme") were also associated with time pressure to carry out tasks, described as "extreme" ($p < 0.001$).

The regularity of monitoring and updating procedures/protocols was positively associated with the regularity of in-service meetings ($p < 0.001$) and with the regularity of training and update activities in the context of the COVID-19 pandemic ($p < 0.001$).

Anxiety and depression

A 29.5% prevalence rate of borderline anxiety and 30.0% of abnormal anxiety have been found, in addition to a 27.4% (borderline) and 19.8% (abnormal) prevalence rate of depression.

The associations between the different variables and anxiety and depression, respectively, are shown in Tables 2 and 3.

When compared to "absent"/"scarce"/"some", "high"/"extreme" time pressure to perform tasks was positively associated with anxiety (normal *vs.* borderline, OR = 2.80, 95% CI: 1.34 - 5.86; normal *vs.* abnormal, OR = 3.68, 95% CI: 1.48 - 9.16) and depression (normal *vs.* abnormal, OR = 3.17, 95% CI: 1.16 - 8.72).

A "frequently"/"always" response regarding feeling supported with issues or concerns, compared to "never"/"rarely"/"sometimes", was negatively associated with anxiety (normal *vs.* borderline, OR = 0.46, 95% CI: 0.24 - 0.88).

The presence of a specifically designed employee break room in the unit was negatively associated with anxiety (normal *vs.* abnormal, OR = 0.30, 95% CI: 0.10 - 0.94), while having space to talk about issues was negatively associated with depression (normal *vs.* borderline, OR = 0.18, 95% CI: 0.07 - 0.44).

Table 2 – Multivariate logistic regressions for anxiety (normal *versus* borderline/abnormal)

	Normal *vs.* Borderline			Normal *vs.* Abnormal		
	OR*	*p*-value	95% CI	OR*	*p*-value	95% CI
Time pressure for performing tasks						
Absent / Scarce / Some	**1**			**1**		
High / Extreme	**2.80**	**< 0.01**	**1.34 - 5.86**	**3.68†**	**< 0.01**	**1.48 - 9.16**
High concentration required						
Never / Rarely / Sometimes	-	-	-	**1**		
Frequently / Always	-	-	-	**2.31†**	**0.03**	**1.07 - 5.00**
Guidance and support by managers						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.69	0.40	0.29 - 1.62
Encouragement in recognising and discussing concerns						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.56	0.14	0.26 - 1.20
Room for discussing the problems at the department						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.54	0.16	0.23 - 1.28
Support to issues and concerns felt by the staff						
Never / Rarely / Sometimes	**1**			1		
Frequently / Always	**0.46**	**0.02**	**0.24 - 0.88**	0.60	0.23	0.26 - 1.38
A specifically designed break room has been created at the department						
No / Not aware	-	-	-	**1**		
Yes	-	-	-	**0.30†**	**0.04**	**0.10 - 0.94**

*: Adjusted OR for the variables are shown in this table, according to statistical significance ($p < 0.05$) obtained in univariate analysis of each independent variable with anxiety (normal *vs.* borderline or normal *vs.* abnormal); NA: not applicable; †: $p < 0.05$

DISCUSSION

This study has described the process of adaptation of primary care units to the pandemic, as well as the impact of this adaptation on the levels of anxiety and depression of staff and has proved to be a relevant tool in supporting clinical governance in case of compulsory workplace shutdown involving significant changes in the organisation.

The study was based on a convenience sample including only ACeS located at Greater Porto, which may not be entirely representative of the country's reality. All the professionals working in the three ACeS involved were included, to maximise the representativeness of the sample. However, the results may not reflect the reality of other ACeS.

A questionnaire developed by the authors has been used, based on the recommendations of WHO consensus groups,[12] even though this has not been validated. Nevertheless, the questionnaire was independently and sequentially analysed by five researchers, with the final decision based on consensus. The questionnaire was based on past events, thus introducing the possibility of memory bias. The fact that the most remote questions refer to the beginning of the pandemic, a defining moment in the lives of healthcare

Table 3 – Regressões logísticas multivariáveis para depressão (normal *versus borderline*/anormal)

	Normal *vs.* Borderline			Normal *vs.* Abnormal		
	OR*	*p*-value	95% CI	OR*	*p*-value	95% CI
Time pressure for performing tasks						
Absent / Scarce / Some	-	-	-	**1**		
High / Extreme	-	-	-	**3.17†**	**0.025**	**1.16 - 8.72**
Guidance and support by managers						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.93	0.89	0.33 - 2.66
Room for discussing the problems at the department						
Never / Rarely / Sometimes	**1**			1		
Frequently / Always	**0.18†**	**< 0.001**	**0.07 - 0.44**	0.57	0.27	0.21 - 1.55
Support to issues and concerns felt by the staff						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.44	0.09	0.17 - 1.14
Reminded for the need to keep healthy						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.57	0.34	0.18 - 1.82
A specifically designed break room has been created at the department						
No / Not aware	-	-	-	1		
Yes	-	-	-	0.41	0.12	0.13 - 1.26
PPE availability at the 2nd and 3rd weeks of March 2020						
Fully available / Very available / Available	-	-	-	1		
Scarce / Unavailable	-	-	-	2.46	0.06	0.97 - 6.23
Current PPE availability						
Fully available / Very available / Available	-	-	-	1		
Scarce / Unavailable	-	-	-	1.34	0.61	0.43 - 4.18
Involvement in the tasks of the contingency plan						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	1.55	0.44	0.51 - 4.69
Active participation in the tasks of the contingency plan						
Never / Rarely / Sometimes	-	-	-	1		
Frequently / Always	-	-	-	0.50	0.22	0.17 - 1.50

*: Adjusted OR for the variables are shown in this table, according to statistical significance ($p < 0.05$) obtained in univariate analysis of each independent variable with depression (normal *vs.* borderline or normal *vs.* abnormal); NA: not applicable; †: $p < 0.05$

professionals, could minimise this bias in this specific case.

Approximately 40% of respondents in our group were engaged to work in ADC-C and around half carried out tasks related to patients with a suspected SARS-CoV2 infection, reflecting a significant staff allocation to these tasks, which may have neglected others and shows the great impact of the changes on the activity of primary care healthcare professionals, in line with what was found in other countries.[18-20] Previous evidence has shown that frontline staff do have a higher risk of developing anxiety and depression,[8,21] different from what has been found in our study, and in our sample doctors were the ones who took on the most ADC-C tasks, reflecting the type of tasks assigned to these clinical departments.[22]

A risk management plan has been developed at most departments within the first three months following the declaration of a state of emergency in Portugal. The USFs, followed by the ACeS, were the most active structures, with the former doing so in more than half of the cases (60.2%). Healthcare professionals have described that they were called upon to actively participate (53.3%) in the tasks related to the contingency plan implemented in their departments and were involved in the activities for its implementation (60.6%). Less involvement was described by medical secretaries. These data show the autonomy, work dynamics with an emphasis on teamwork and the ability of USFs and local management to respond.[23]

As regards the support given to staff and assumed by managers, there seems to have been more emphasis on discussing concerns and issues than on encouraging staff in maintaining social contacts and staying healthy. This may be related to the context of the pandemic itself, which would not enable social contacts and leisure activities. However, evidence shows that interventions focused on family and social support and active listening to staff are relevant strategies in preventing mental pathology associated with COVID-19 and maintaining the overall well-being.[14-27] On the other hand, social isolation is associated with a poorer prognosis; therefore, future interventions should also be focused on the well-being of professionals out of work.[27,28]

Data have shown that up-to-date scientific guidance and information on the COVID-19 pandemic were frequently disclosed to staff, as well as updated procedures. Previous evidence has shown that well-defined action protocols relate to higher confidence and satisfaction, reducing the risk of presenting with mental pathology.[8] However, in this study, there were no statistically significant associations between these variables and the development of anxiety or depression. This may be related to the fact that, in most cases, contingency plans were initially developed by the departments.

It was described by respondents that managers encouraged the staff to keep up to date with the pandemic. On the other hand, there was a reduction in the frequency of in-service meetings and training within the scope of basic professional development/postgraduate training. It seems that alternative ways of keeping up to date on the pandemic have been found, probably using channels including email, healthcare platforms, online training, etc.[29-31] There was also an association between the regularity of in-service meetings and the regularity of training and updating activities in the context of the COVID-19 pandemic and the updating of procedures in this area, showing that many of these meeting times were probably used in favour of the pandemic. This reality was certainly the result of the urgent need to meet the challenges related to the pandemic situation, but it may have hindered the overall training of professionals.[29,31,32]

High workload was described by respondents, requiring high concentration, and carrying out several tasks simultaneously, with significant mental distress. A systematic review showed a heavy workload as a predisposing factor for mental pathology.[6,26] Our results supported this information by showing a positive association between time pressure to carry out daily tasks and a higher risk of developing anxiety and depression.[27,33-35] However, the ability to make quick work decisions seems not to have been affected by the pandemic three months after it began, which may reflect the professionals' adaptability.

A 30% prevalence rate of anxiety and 19.8% of depression have been found, higher than the prevalence in the general Portuguese population (16.5 and 6.8% in 2013, respectively).[36] These figures are in line with those found in other studies in pandemic contexts, even though with very different prevalence rates depending on the geographical context and the population.[8,29,37]

In our study, the prevalence of anxiety was higher than depression, which is in line with other studies.[38]

A higher risk of anxiety was associated with time pressure to carry out daily tasks. On the other hand, an employee break room and the support given to staff when exposed to issues and concerns were protective factors for abnormal anxiety. As regards depression, there was a greater risk in terms of time pressure to carry out tasks. These results are in line with those found in previous studies which have shown that having a break room[33] and peer support[39-41] are protective factors against the development of mental disorders. In a hostile environment, both in terms of workload and emotional burden, work support and personal and social relationships are also determining factors in maintaining mental health.[8,26,27]

CONCLUSION

The COVID-19 pandemic has led to major changes in the dynamics of primary care. Time pressure to complete

tasks and the concentration required have been associated with a higher risk of developing mental disorders. The support felt by professionals with their issues and concerns, and a specifically designed break room in the unit were identified as protective factors. Future interventions in this area should therefore take these dimensions into account, focused on the professional and personal well-being of healthcare professionals for a better preparation for emergency situations.

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AUTHOR CONTRIBUTION

CO: Study conception and design. Study coordination. Disclosure of the questionnaires and data collection. Data analysis. Initial writing of the manuscript and review of the final manuscript.

RB, JCG, LA, AMC: Study conception and design. Data analysis. Initial writing of the manuscript and review of the final.

HUMAN AND ANIMAL PROTECTION

The authors declare that this project complied with the regulations that were established by the Ethics and Clinical Research Committee, according to the 2013 update of the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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REFERENCES

1. World Health Organization. Report of the WHOChina joint mission on coronavirus disease 2019 (COVID19). 2020. [cited 2020 Mar 14]. Available from: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf.
2. Haines A, de Barros EF, Berlin A, Heymann DL, Harris MJ. National UK programme of community health workers for COVID-19 response. Lancet. 2020;395:1173-5.
3. Direção Geral da Saúde. Plano nacional de preparação e resposta para a doença pelo novo coronavirus – COVID-19. [cited 2020 Mar 03]. Available from: https://www.dgs.pt/documentos-e-publicacoes/plano-nacional-de-preparacao-e-resposta-para-a-doenca-por-novo-coronavirus-covid-19-pdf.aspx2020.
4. Macedo M. Gestão da emergência. Proteger 2016. Estoril: Associação Portuguesa de Segurança; 2016.
5. Seidler A, Thinschmid M, Deckert S, Then F, Hegewald J, Nieuwenhuijsn K, et al. The role of psychosocial working conditions on burnout and its core component emotional exhaustion – a systematic review. J Occup Med Toxicol. 2014;9:10.
6. Edwards A, Cooper A, Joseph-Williams N, Lewis R, Law RJ. Rapid review on the impact of the COVID-19 pandemic on the mental health of health and social care workers within the UK. Report: RR00002. Wales COVID-19 Evidence Centre. July 2021. [cited 2022 May 02]. Available from: http://www.primecentre.wales/resources/RR/Clean/RR00002_Wales_Covid-19_Evidence_Centre-Rapid_Review_Mental_Health_Keyworkers_21-July-202.
7. Ontario Agency for Health Protection and Promotion (Public Health Ontario). COVID-19 – strategies adaptable from healthcare to public health settings to support the mental health and resilience of the workforce during the COVID-19 pandemic recovery. Toronto, ON: Queen's Printer for Ontario; 2021. [cited 2022 May 01]. Available from: https://www.publichealthontario.ca/-/media/documents/ncov/ipac/2021/08/covid-19-public-health-workforce-recovery.pdf?sc_lang=en.
8. Giorgi G, Lecca LI, Alessio F, Finstad GL, Bondanini G, Lulli LG, et al. COVID-19-related mental health effects in the workplace: a narrative review. Int J Environ Res Public Health. 2020;17:7857.
9. Grange E, Neil E, Stoffel M, Singh AP, Tseng E, Resco-Summers K, et al. Responding to COVID-19: the UW medicine information technology services experience. App Clin Inform. 2020;11:26575.
10. Williams R, Murray E, Neal A, Kemp V. The top ten messages for supporting healthcare staff during the COVID-19 pandemic. A discussion document. London: Royal College of Psychiatrists; 2020.
11. World Health Organization. Mental health and psychosocial considerations during the COVID-19 outbreak. 2020. [cited 2020 Mar 03]. Available from: https://www.who.int/publications-detail/mental-health-and-psychosocial-considerations-during-the-covid-19-outbreak.
12. World Health Organization. Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health. 2020. [cited 2020 Mar 14]. Available from: https://www.who.int/publications-detail/coronavirus-disease-(covid-19)-outbreak-rights-roles-and-responsibilities-of-health-workers-including-key-considerations-for-occupational-safety-and-health.
13. Conselho Nacional das Escolas Médicas Portuguesas. Comunicado do Conselho Nacional das Escolas Médicas Portuguesas (CEMP) de 25 de Março de 2020. [cited 2020 Apr 15]. Available from: https://www.cemp.pt/2020/03/25/comunicado-25-de-marco-2020/.
14. Ordem dos Farmacêuticos. Plano contingência covid-19 farmácia. CEDIME. 2020 Março. [cited 2020 Apr 15]. Available from: https://www.ordemfarmaceuticos.pt/fotos/documentos/plano_de_contingencia_da_farmacia_para_o_covid_19_5774390585e60fd3b28fbc.pdf.
15. Ordem dos Enfermeiros. Prioridades para vencer o combate ao COVID-19. 2020. [cited 2020 Apr 15]. Available from: https://www.ordemenfermeiros.pt/centro/noticias/conteudos/prioridades-para-vencer-o-combate-ao-covid-19/.
16. Ordem dos Médicos. Colégio de Especialidade de Medicina Geral e Familiar. Reorganização dos serviços em Medicina Geral e Familiar no contexto de exceção no combate à COVID-19. 2020. [cited 2020 Apr 25]. Available from: https://ordemdosmedicos.pt/reorganizacao-de-servicos-em-medicina-geral-e-familiar-no-contexto-de-excecao-do-combate-a-covid-19/.
17. Pais-Ribeiro J, Silva I, Ferreira T, Martins A, Meneses R, Baltar M. Validation study of a Portuguese version of the Hospital Anxiety and Depression Scale. Psychol Health Med. 2007;12:225-35; quiz 35-7.
18. Mash R, Goliath C, Perez G. Re-organising primary health care to

respond to the Coronavirus epidemic in Cape Town, South Africa. Afr J Prim Health Care Fam Med. 2020;12:e1-4.
19. Marques NP, Silveira DM, Marques NC, Martelli DR, Oliveira EA, Martelli-Junior H. Cancer diagnosis in Brazil in the COVID-19 era. Semin Oncol. 2021;48:156-9.
20. Daumas RP, Silva GA, Tasca R, Leite ID, Brasil P, Greco DB, et al. The role of primary care in the Brazilian healthcare system: limits and possibilities for fighting COVID-19. Cad Saude Publica. 2020;36:e00104120.
21. Trumello C, Bramanti SM, Ballarotto G, Candelori C, Cerniglia L, Cimino S, et al. Psychological adjustment of healthcare workers in Italy during the COVID-19 pandemic: differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. Int J Environ Res Public Health. 2020;17:8358.
22. Direção Geral da Saúde. Normas de Orientação. Norma nº 004/2020 de 23/03/2020 atualizada a 19/04/2020, COVID-19: Abordagem do doente com suspeita ou confirmação de COVID-19. 2020. [cited 2020 Apr 25]. Available from: https://covid19.min-saude.pt/wp-content/uploads/2021/04/Norma_004_2020_act_19_04_2021.pdf.
23. Portugal. Decreto-Lei n.º 298/2007. Diário da República, I Série, n.º 161 (2007/08/22). p.5587-96.
24. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in china. Psychother Psychosom. 2020;89:242-50.
25. Xiao Y, Bian Y, Zhang L. Mental health of chinese online networkers under COVID-19: a sociological analysis of survey data. Int J Environ Res Public Health. 2020;17:8843.
26. Vizheh M, Qorbani M, Arzaghi SM, Muhidin S, Javanmard Z, Esmaeili M. The mental health of healthcare workers in the COVID-19 pandemic: a systematic review. J Diabetes Metab Disord. 2020:1-12.
27. Heath C, Sommerfield A, von Ungern-Sternberg BS. Resilience strategies to manage psychological distress among healthcare workers during the COVID-19 pandemic: a narrative review. Anaesthesia. 2020;75:1364-71.
28. Peng R, Zhou W, Zhou D, Chu M, Ling L. The mediating role of fatigue between mental health and its associated factors: evidence from Chinese healthcare workers during the COVID-19 pandemic. Front Psychiatry. 2021;12:665992.
29. Li L, Xv Q, Yan J. COVID-19: the need for continuous medical education and training. Lancet Respir Med. 2020;8:e23.
30. Antonello VS, Panzenhagen AC, Balanza-Martinez V, Shansis FM. Virtual meetings and social isolation in COVID-19 times: transposable barriers. Trends Psychiatry Psychother. 2020;42:221-2.
31. Shah S, Diwan S, Kohan L, Rosenblum D, Gharibo C, Soin A, et al. The technological impact of COVID-19 on the future of education and health care delivery. Pain Physician. 2020;23:S367-80.
32. Ahmed H, Allaf M, Elghazaly H. COVID-19 and medical education. Lancet Infect Dis. 2020;20:777-8.
33. Lu W, Wang H, Lin Y, Li L. Psychological status of medical workforce during the COVID-19 pandemic: a cross-sectional study. Psychiatry Res. 2020;288:112936.
34. Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsi E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. Brain Behav Immun. 2020;88:901-7.
35. Baptista S, Teixeira A, Castro L, Cunha M, Serrao C, Rodrigues A, et al. Physician burnout in primary care during the COVID-19 pandemic: a cross-sectional study in Portugal. J Prim Care Community Health. 2021;12:21501327211008437.
36. Caldas de Almeida JM, Xavier M, Cardoso G, Gonçalves Pereira M, Gusmão R, Corrêa B, et al. Estudo epidemiológico nacional de saúde mental - 1º relatório. Lisboa: Faculdade de Ciências Médicas da Universidade Nova de Lisboa; 2013.
37. Busch IM, Moretti F, Mazzi M, Wu AW, Rimondini M. What we have learned from two decades of epidemics and pandemics: a systematic review and meta-analysis of the psychological burden of frontline healthcare workers. Psychother Psychosom 2021;90:178-90.
38. Fiest KM, Parsons Leigh J, Krewulak KD, Plotnikoff KM, Kemp LG, Ng-Kamstra J, et al. Experiences and management of physician psychological symptoms during infectious disease outbreaks: a rapid review. BMC Psychiatry. 2021;21:91.
39. Shanafelt T, Ripp J, Trockel M. Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. JAMA. 2020;323:2133-4.
40. Ho CS, Chee CY, Ho RC. Mental health strategies to combat the psychological impact of coronavirus disease 2019 (COVID-19) beyond paranoia and panic. Ann Acad Med Singap. 2020;49:155-60.
41. Chan AO, Huak CY. Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. Occup Med. 2004;54:190-6.