TRABAJO DE FIN DE MÁSTER

COVID-19 and mental health in primary care professionals in Cantabria

Máster Interuniversitario en Iniciación a la Investigación en Salud Mental
Universidad de Cantabria

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DECLARACION DE NO PLAGIO

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ABSTRACT

Background: The COVID-19 pandemic has rapidly spread in the last years from China to Europe and worldwide, affecting millions of people both physically and mentally. This is a problem especially among healthcare workers, as they have had to fight the pandemic from the frontline and could have caused several psychological impact as a result. Our main aim is to provide evidence on the long-term psychological impact of this pandemic in healthcare staff.

Methods: We applied a two-phased design, including self-reported questionnaires about their mental status and quality of life (PHQ-9, GAD-7, ISI, IES-R) during and after the most difficult periods of the pandemic. This study was carried out in May-June 2020 and one year later.

Results: It was clear that primary healthcare professionals presented psychological distress due to the pandemic, as well as depression and anxiety rates increased among them, and the results even increased after a year. The main factors related to this distress were being a woman and suffering COVID-19, either them or some relative, as well as being in the frontline during the pandemic.

Conclusion: COVID-19 pandemic had a several impact on mental health of primary health workers in Cantabria, even increasing after a year, which makes it necessary programmes of prevention and preparation for this kind of occurrences.

1. INTRODUCTION

The COVID-19 pandemic, caused by SARS-CoV-2 virus, has rapidly spread in the last several months from China (Wuhan) to Europe and worldwide, being Spain one of the main countries affected.

The Autonomous region of Cantabria (population 580,000 habitants), although being located in the periphery and with a shorter population than other regions of Spain, has been also hit by the virus. As of 30th May 2022, official figures showed that 143,000 subjects had been tested positive to COVID-19 in Cantabria since the beginning of the pandemic; the majority of them has been treated ambulatory through home-confinement. On the other hand, 71 patients are still receiving treatment at hospital, including 26 (36.62%) admitted into Intensive Care Unit (ICU). Sadly, 855 subjects have died with a confirmed COVID-19 diagnoses (mortality ratio: 2.03) (Servicio Cántabro de Salud, 2021). Added to this, there was a large population group (estimations ranging from 8,000 to 10,000 subjects) with a suspected-COVID-19 (not tested but with compatible symptoms and/or epidemiological data of high-exposure) that had been followed and treated ambulatory by Primary Care teams while confined at their homes.

Being the highly contagious capacity of this new SARS-CoV-2 coronavirus, WHO has recommended limiting human-to-human transmission by reducing secondary infections among close contacts and healthcare workers, preventing transmission amplification events, and preventing further international spread (WHO, 2020). The SARS-CoV-2 virus is producing a serious impact on physical health and it

entails a significant risk for life with a mortality rate reaching up to 12% in some European countries. Besides the impact on physical health, evidence from other countries, earlier hit by COVID-19 pandemic, suggest a psychological impact of the disease and the treatment requirements (confinement).

Psychological impact of COVID-19

Apart from the serious threats to people's physical health and lives that is being caused by the COVID-19 pandemic, the fears, uncertainties and strict measures of quarantine and home-confinement (leading to people isolation) can have a detrimental impact on mental health and would be contributing to an increasing incidence of mental health problems.

This psychological stress could also trigger common mental disorders, including anxiety and depressive disorders, and posttraumatic stress disorder, as it has been seen in previous epidemic crises (Shultz et al., 2015), in which, regardless of exposure, the outbreaks produced broad and profound psychological impact on the general population precipitating new psychiatric symptoms in people without mental illness or aggravating the condition of those with pre-existing mental illness (Ho et al., 2020). Thus, the psychological impact have been reflected in the incidence of psychiatric morbidities varying from depression, anxiety and posttraumatic stress disorder symptoms, to delirium, psychosis and even suicidality (Ho et al., 2020). This is also important since common mental health disorders, such as anxiety and depression, are known to have detrimental effects on other (physical) health measures (Rubin and Wessely, 2020).

Thus, studies carried recently in China showed a wide psychological impact in the general population. For instance, Duan and Zhu reported an increase of psychological problems during this epidemic, including anxiety, depression, and stress (Duan and Zhu, 2020). It has been reported that up to 35% of 52.730 participants in a nationwide study in general population from China psychological distress (Qiu et al., 2020) in relation to the COVID-19 pandemic. This psychological impact has been reported to be at least moderate although with subgroups of subjects presenting even high levels of stressful impact (Zhang and Ma, 2020). Thus, another epidemiological study carried out during the initial phase of the COVID-19 pandemic in China, including 1210 participants from the general population, observed that above half of the participants reported having a moderate or severe psychological impact, including depressive symptoms (16.5%), anxiety symptoms (28.8%) and stress levels (8.1%) (Wang et al., 2020). The psychological impact has been also observed among clinically stable COVID-19 patients hospitalized also suffered from significant posttraumatic stress symptoms when evaluated prior to their hospital discharge (Bo et al., 2020). In Spain, a survey showed that anxiety and depressive symptoms, as well as stress, had increased among general population during the pandemic (Planchuelo-Gómez et al., 2020). However, another study done in the early days of the pandemic, stated that even if this three aspect had an increased rate, depressive symptoms were the most common while the anxiety rates were much lower than Chinese ones (García-Álvarez et al., 2020). Nevertheless, it seemed as if the psychological impact did not decrease with time in the Spanish population, contrasting with the result obtained in different Chinese surveys (Planchuelo-Gómez et al., 2020).

It has been described that psychological distress levels are influenced by several factors such as fear, uncertainty, self-isolation and loneliness, but also societal rejection, discrimination, and stigmatization. Other factors influencing psychological distress are those related to the efficacy of the health system such as the availability of local medical resources, efficiency of the regional public health system, and prevention and control measures taken against the epidemic situation (Qiu et al., 2020). One of the main complaints raised by health professionals in this respect is that most health professionals working in isolation units and hospitals do not receive any training for providing mental health care (Xiang et al., 2020).

Front-line health workers and psychological impact

It has been repeatedly pointed out and warned that health professionals are at particular high risk of suffering a psychological effect from the pandemic (Fiorillo and Gorwood, 2020). Previous stressful community crises and epidemics, such as the SARS-CoV in 2003 or the MERS-CoV outbreak in 2015, proved that health care professionals where at high risk of developing psychological symptoms and mental health disorders such as anxiety, depression and post-traumatic stress disorder (Lee et al., 2018, Shigemura et al., 2020, Srivatsa and Stewart, 2020). It has been even highlighted that, as it was observed in previous pandemic crises, it is likely that in the next months, when the pandemic is over, we may have a shortage of health professionals due to burnout and mental exhaustion (Panagioti et al., 2018)

Health care professionals are at higher risk of being infected during their clinical activities than the general population. Thus, in Cantabria, 10.1% (n=179) of the total test-confirmed COVID-19 patients, were health workers from the public health system (Servicio Cántabro de Salud).

Medical staff in the front-line dealing with COVID-19 pandemic is under higher psychological pressure. Isolation and the lack of social support could be a determining factor in the way they cope with this traumatic event (Rodríguez and Sánchez, 2020). The social and public recognition to health workers expressed by the population from the beginning of the crisis, coexist with the risk of societal rejection, discrimination, and stigmatization. This has been already observed already in China, where health care professionals have been facing huge pressure, including a high risk of infection and inadequate protection from contamination, overwork, frustration, discrimination and isolation (Kang et al., 2020a), which has been causing mental health problems such as stress, anxiety, depressive symptoms, and insomnia (Kang et al., 2020a). This has been also observed in Spain, where the fear of being infected and infecting others and not being able to give an adequate attention to patients seemed to be, among other factors, the cause of anxiety, stress and depressive symptoms in healthcare staff (Del Pozo-Herce et al., 2021). Other factors mediating in the psychological impact in health professionals are the efficacy of the health system, the coordination and access to safe environment and protection equipment. This has been observed in previous epidemic crises where a better psychological adaptation was observed among health professionals who had access to well-equipped and structured environment (Lee et al., 2018). Similarly, the feeling of interpersonal isolation and the fear that they would transmit the virus to their relatives (Lee et al., 2018), the stigma and hardiness had a direct impact on mental health of health personnel (Shigemura et al., 2020). All this may lead to doctors and nurses and other health system professionals to experience clinically significant depressive symptoms.

Thus, a recent study report that among 994 medical staff working in Wuhan, the majority experienced psychological impact measured by the PHQ-9 scale; 36.9% had sub-threshold mental health disturbances, 34.4% had mild disturbances, 22.4% had moderate disturbances, and 6.2% had severe disturbance (Kang et al., 2020b). And Lai and colleagues (Lai et al., 2020) in their cross-sectional, survey-based, study on 1257 health care workers, observed that a substantial proportion of participants reported symptoms of depression (50.4%), anxiety (44.6%), insomnia (34.0%), and distress (71.5%). After the first wave of COVID-19 in Spain, healthcare staff reported symptoms of PTSD, stress, anxiety or depression (Dosil et al., 2020). However, despite being one of the most affected countries by the pandemic, Spain seemed to have a lower rate of medical staff with psychological problems, according to a survey-based study with healthcare workers of eight different European countries (Hummel et al., 2021).

Several risk factors for presenting more severe psychological symptoms have been identified; such as a gender (women) and being frontline health care workers working in high-exposure units (Lee et al., 2018, Naushad et al., 2019, Lai et al., 2020, Kang et al., 2020b). The gender differences are in line with the observed in the general population where female Chinese citizens reported higher degree of the psychological impact of the outbreak, stress, anxiety, and depression (Wang et al., 2020). As in Spain, it seems like different factors like being a women and working in specific COVID-19 units, increased the risk of having psychological disruptions such as stress, anxiety or depressive symptoms (Dosil et al., 2020). Also, younger professionals were the most affected by this symptomatology, as they lacked of enough experience to cope with such a traumatic situation and the work overload (Luceño-Moreno et al., 2020). In addition, some surveys reported that

symptomatology such as stress or anxiety were more common among nurses and assistants than among doctors, who presented more burnout syndrome (Dosil et al., 2020).

Regarding working in high-exposure units, it has been described that healthcare workers from other departments may also present psychological distress during the pandemic (Liang et al., 2020), highlighting that the mental health of the other medical department staff should not be neglect. In line with this idea, vicarious traumatization has been identified mainly in front-line health workers, but also in non-front-line medical staff and the general public (Li et al., 2020). The traumatization and the difficulties in managing psychological stressors, frustration and feeling of impotency may lead to burn-out among health care professionals, which at the same time correlates with depression (Riethof et al., 2019). According to the World Health Organization's (WHO) International Classification of Diseases (ICD), people experiencing burn-out typically feel exhaustion, but are also likely to feel detached from their jobs. Moreover, they often perform less well at work, putting their patients at risk.

It is likely that in the next months, even probably once the pandemic is over, the health system will suffer a shortage of health professionals due to burnout and mental exhaustion (Panagioti et al., 2018). Lastly, these mental health problems among health professionals affect also their clinical performance and decision making ability, jeopardizing the health system capacity of fighting the COVID-19 pandemic (Kang et al., 2020a). Burnout and psychological exhaustion, as well as the emotional implications that being exposed to having to treat people going through traumatic events, seemed to affect directly on the professional quality of life, the level

of satisfaction a helper has with his job and their performance while working (Dosil et al., 2020).

2. Objective and hypothesis

2.1. Objectives

Main objective:

The main objective of this study is to evaluate the psychological impact of COVID-19 pandemic in public health care workers in Primary Care in Cantabria.

Specific objectives:

To explore if there are specific risk factors for a greater psychological impact from COVID-19 exposure.

2.2. Hypothesis

Taking into account the previously described scientific evidence, the study has the following hypothesis:

Main hypothesis: Primary Care health professionals, exposed to COVID-19 and working with COVID-19 patients, will present psychological symptoms of distress (anxiety, depression).

Specific hypothesis 1: Women will present a greater psychological impact.

Specific hypothesis 2: Younger health workers will present a greater psychological impact.

Specific hypothesis 3: Those health professionals that are more exposed to COVID-19 (e.g.: Medical doctors and nurses) will present a greater psychological impact.

3. Material and methods

This work has been carried out based on the study project “Impact of COVID-19 on the mental health of Primary Care professionals in Cantabria. The Co-Prim Cantabria Study”, led by Dr. Ana Viejo Casas and Dr. Javier Vázquez Bourgon between May and January 2021. The study was supported by the Instituto de Investigación Sanitaria Valdecilla (PRIMVAL20/08).

The study has a transversal design. We have conducted a wide (regional level) screening to detect psychological symptoms in the study population (Primary Care network professionals).

3.1. Study population identification and survey process

Identification of health care personnel working at Primary Care regional network (Servicio Cántabro de Salud) will be done through administrative registers after Institutional approval. The questionnaires were sent to their working places. To increase subjects´ participation, we will get in contact with every Primary Care Centre Coordinator in order to request their collaboration in disseminating the information of the study among the personnel in their teams, and encourage them to participate in the study.

A specifically short and quick survey was set up to facilitate completing it. Completed surveys will be sent back by internal post to IDIVAL centre were data will be exported to the study database.

3.2. Privacy and confidentiality

All subjects will have to provide written informed consent before filling in the survey. The study was approved by the regional Ethics Committee, the Comité de Ética de Investigación Clínica de *Cantabria* (*CEIC* Cantabria), with the reference number 2020.216.

Subjects´ data will be managed confidentially following national and international regulations.

3.3. Subjects´ evaluation

A specific, short and quick survey has been set up. The survey includes: a socio-demographic and working-post characteristics questionnaire, a mental health assessment consisting in a set of psychological screening tests for depression, anxiety, insomnia and trauma-related psychological distress, a COVID-19 exposition questionnaire, and a self-perceived health-related quality of life questionnaire.

3.3.1. Socio-demographic questionnaire

It includes basic socio-demographic data such as age (years), gender (male or female), marital status (unmarried, married or divorced), educational level (undergraduate or lower, postgraduate or higher), occupation, working place and post (Primary Care team or Primary Care emergency team -SUAP-).

3.3.2. Mental health assessment

Mental health status and psychopathology will be assessed through a set of validated self-rated scales, with Spanish-adaption versions:

- The 9-item Patient Health Questionnaire (PHQ-9) to evaluate depression, rating each item from 0 to 3, giving a score of 0 to 27. The PHQ-9 assesses the severity of depression as follows: minimal/no depression (0–4), mild depression (5–9), moderate depression (10–14), or severe depression (15–27) (Kocalevent et al., 2013).

- The 7-item Generalized Anxiety Disorder (GAD-7) to evaluate anxiety severity, rates each item from 0 to 3, scoring a total of 0 to 21, considering; minimal/no anxiety (0–4), mild anxiety (5–9), moderate anxiety (10–14), or severe anxiety (15–21) (Löwe et al., 2008).

- The 7-item Insomnia Severity Index (ISI) measures insomnia severity, rating each item from 0 to 4, until a total of 0 to 27, considering: normal (0–7), subthreshold (8–14), moderate insomnia (15–21), or severe insomnia (22–28) (Morin et al., 2011).

- The 22-item Impact of Event Scale-Revised (IESR) evaluates psychological distress to a specific stressful life event (the occurrence of COVID-19 in this case); subclinical (0–8), mild distress (9–25), moderate distress (26–43), and severe distress (44–88) (Daniel and Weiss, 2007).

3.3.3. Exposure to COVID-19

Exposure to COVID-19 will be assessed with a specific questionnaire including, among other, the following questions: Have you been diagnosed with COVID-19? Have you been hospitalized due to COVID-19? Has your family been diagnosed with COVID-19? The answer to each question is yes or no. Supplementary questions regarding COVID-19 testing and personal equipment access in the working place are also included.

3.3.4. Health-related quality of life

Study subjects will be asked to define their “Perceived health status” and their “Health-related quality of life” on a Likert-type scale (between 1 –minimum- and 7 –highest- scores). We will also ask if there have been changes in these variables after the breakout of the COVID-19 pandemic.

3.4. Statistical analyses

Chi-square and ANOVA analyses were performed to compare qualitative and quantitative variables between the two groups. The Statistical Package for Social Science (SPSS) version 23.0 (IBM Corp., Armonk, NY, USA) was used for statistical analyses. All statistical tests were two-tailed and significance was determined at the 0.05 level.

4. Results

4.1. Enrolment and sample description

A total of 408 healthcare workers participated in this survey, whom 72.2% were women. Also, 43.6% were doctors, 27.9% nurses and the rest was composed by different healthcare workers such as physiotherapists, administratives or sanitary emergencies technicians. Furthermore, 57.1% of the participants of the survey worked on primary attention groups, while 30.6% were from primary attention emergency groups. The rest of the sample was composed by 061 workers and different healthcare professionals. In terms of age, the average age was 48.19 years old, being 21 years old the minimum age and 68 the maximum age.

	Baseline N=410		**1 year N=339**		**Total N=749**				
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Statistic**	**Value**	**p**
Age	48.2	10.3	48.0	9.6	48.1	10.0	t	0.292	0.770
	N	**%**	**N**	**%**	**N**	**%**			
Gender (women)	299	72.9	244	71.9	543	72.5	X^2	0.062	0.803
Civil status							Fisher	3.719	0.289
Single	75	18.4	45	13.3	120	16.1			
Married or couple	296	72.5	264	77.9	560	75.0			
Divorced or widowed	37	10	30	8.9	67	9			
Educational Level							X^2	1.702	0.427
Secondary education or lower	45	11	31	9.2	76	10.2			
University Education	363	89.0	308	90.9	671	89.8			
Occupation							X^2	8.540	0.481
Doctor	178	43.6	161	47.5	339	45.4			
Nurse	114	27.9	92	27.1	206	27.6			
Administrative	35	8.6	29	8.6	64	8.5			
Emergency sanitary technician	27	6.6	28	8.3	55	7.4			
Physiotherapist	16	3.9	14	4.1	30	4.0			
Midwife	17	4.1	8	2.4	25	3.4			
Social worker	12	2.9	5	1.5	17	2.3			
Cleaning service	9	2.2	2	0.6	11	1.5			

Place of work							X^2	7.760	0.051
Primary Care Team	233	57.1	160	47.2	393	52.6			
Primary Care Emergency Team	125	30.6	122	36.0	247	33.1			
061 Ambulance Service Team	26	6.4	29	8.6	55	7.4			
Other	24	5.9	28	8.3	52	7.0			
Residential Area							X^2	1.414	0.814
Urban Area (>10,000 inhabitants)	212	52.0	177	52.2	389	52.1			
Small Urban Area (2,000-10,000)	131	32.1	104	30.7	235	31.5			
Rural Area (<2,000 inh.)	65	15.9	58	17.1	123	16.4			

Table 1. Socio-demographic and occupational characteristics of the study samples

4.2. Prevalence of psychological symptoms among health professionals

For the evaluation of depression, the Patient Health Questionnaire was used, as has previously been said. Even if the majority of the sample did not have depression symptomatology (30.1% no depression, 39.5% mild depression), 21.6% of them reported to have moderated depression, while a significant proportion of the sample had scores equivalent to moderately severe and severe depression (7.8 and 1.0 respectively).

On the other hand, for the evaluation of insomnia was used the Insomnia Severity Index, that showed that more than the 50% of the sample (52.5%) have had insomnia, clinically relevant or not, during the pandemic. Of those, 15.7% had moderately severe insomnia and 1.2% had severe insomnia, as well as 35.5% of the sample had sleep problems without having an actual disorder.

Regarding the evaluation of anxiety, the instrument used was the GAD7, as it has already been said, and reported that 30.4% of the sample had anxiety

	Baseline N=410		1 year N=339		Total N=749				
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Statistic**	**Value**	**p**
PHQ-9 Total	7.5	4.6	8.4	5.8	7.9	5.2	t	-2.487	0.013
GAD-7 Total	7.1	4.6	7.2	5.4	7.2	5.0	t	-0.329	0.743

symptomatology after the first wave of the pandemic, while 69.6% did not have a score equivalent to anxiety symptomatology.

Finally, IES-R was used to evaluate the way in which such a stressful event like the pandemic affected healthcare professionals. 63.0% of the sample did not have any clinical problem, while 15.9 had a moderate clinical problem (table 2). However, on the other hand, 3.4% had scores equivalent to PTSD diagnosis, the stressful event being the pandemic, and 17.6% scored punctuations equivalent to a severe clinical problem.

ISI Total	8.5	5.5	8.2	5.8	8.4	5.6	t	0.597	0.551
IES-R Total	20.3	16.7	19.7	18.3	20.0	17.4	t	0.463	0.643
	N	**%**	**N**	**%**	**N**	**%**	**Statistic**	**Value**	**p**
PHQ-9							X^2	17.930	0.003
No depression - minimal	123	30.1	105	30.9	228	30.5			
Mild depression	161	39.5	102	30.1	263	35.2			
Moderate depression	88	21.6	77	22.7	165	22.1			
Moderately severe depression	32	7.8	38	11.2	70	9.4			
Severe depression	4	1.0	17	5.0	21	2.8			
Probable depression (PHQ-9≥10)	124	30.4	132	38.9	256	34.3	X^2	6.003	0.014
Probable anxiety (GAD-7≥10)	124	30.4	112	33.0	236	31.6	X^2	0.600	0.439
ISI							X^2	2.595	0.458
No insomnia	194	47.5	162	47.8	356	47.7			
Insomnia, subclinical	145	35.5	122	36.0	267	35.7			
Insomnia, moderate severity	64	15.7	46	13.6	110	14.7			
Insomnia, severe	5	1.2	9	2.7	14	1.9			
IES-R							X^2	2.198	0.532
Absence	257	63.0	225	66.4	482	64.5			
Clinical issue	65	15.9	44	13.0	109	14.6			
Probable PTSD	14	3.4	8	2.4	22	2.9			
Severe problem	72	17.6	62	18.3	134	17.9			
Probable PTSD case or psychological distress (IES-R>33)	81	19.9	68	20.1	149	19.9	X^2	0.005	1.000

Table 2. Long-term differences in self-reported psychological status among Primary Care health professionals in Cantabria

4.3. Health workers' perceived quality of life, health status and satisfaction with the Insitutional management of the COVID-19 pandemic.

In general terms, the majority of healthcare workers (more than 80%) considered their health status after pandemic above 5 out of 7, although they also reported that their general health had decreased due to COVID-19 situation (76.1% stated that their health had decreased 3 or 4 out of 7 compared to how they felt before the pandemic) (table 3). When asked about their quality of life, their answer was slightly lower, even if the majority also expressed that their quality of life was

fairly good (80.1% considering their quality of life 4 or higher out of 7), and also reporting an important decline on it since 61.3% assessed that their quality of life had changed a 3 or 4 out of 6 since the start of the pandemic.

	Basal N=410		**1 year N=339**		**Total N=749**				
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Statistic**	**Value**	**p**
How is your overall health status today?*	5.5	1.1	4.9	1.2	5.2	1.2	t	6.299	<0.001
How has it changed compared to before COVID-19?**	3.8	1.0	3.6	1.2	3.7	1.1	t	1.311	0.190
How is your current quality of life?*	5.0	1.3	4.5	1.3	4.8	1.3	t	4.704	<0.001
How has it changed compared to before COVID-19?**	3.4	1.1	3.6	1.3	3.5	1.2	t	-2.262	0.024
Do you consider that you have been exposed to SARS-CoV-2 due to the performance of your work?***	5.9	1.2	6.0	1.2	5.9	1.2	W	66360.0	0.315
Do you consider that you have been exposed to SARS-CoV-2 out of work?***	3.9	1.6	4.2	1.5	4.0	1.6	t	-2.563	0.011
Do you consider that you have had access to appropriate individual protection equipment?***	3.5	1.7	4.4	1.9	3.9	1.8	t	-7.197	<0.001
Have you felt supported by the institution you work for?***	3.0	1.6	3.4	1.7	3.2	1.7	t	-3.595	<0.001
	N	**%**	**N**	**%**	**N**	**%**	**Statistic**	**Value**	**p**
Have you been sick from COVID-19? (Yes)	15	3.7	42	12.4	57	7.6	X^2	19.943	<0.001
Have you lived with COVID-19 patients? (Yes)	13	3.2	51	15.0	64	8.6	X^2	33.235	<0.001

*Likert-type scale 1-7 (1=Very poor, 7= Excellent)
** Likert-type scale 1-7 (1=Much worse, 7= Much better)
*** Likert-type scale 1-7 (1=Disagree, 7= Strongly agree)

Table 3. Long-term differences in quality of life and other self-reported experiences related to COVID-19 pandemic in Primary Care professionals in Cantabria

4.4. Regarding COVID-19 exposition, the majority of health professionals that participated on the survey responded that they were really exposed to the virus while working, being 6 and 7 out of 7 the most common responses (30.9% and 39.7% respectively). However, they did not felt that risk outside work, 4 being the most frequent response (21.8%). Nevertheless, only 3.7% of the health workers participating on the survey have had COVID-19, and 3.2% have lived with someone who has gone through the disease.

5. DISCUSSION

According to survey findings, the pandemic has been a challenging factor for the mental health of healthcare staff. The majority of the sample considered that their health and quality of life had decreased during and after the first wave of the pandemic, and the questionnaire results related to different psychological problems such as anxiety, depression, insomnia or PTSD proved that a part of the healthcare workers have been affected in some aspect of their mental health. In the long-term aspect, we find out that psychological distress increased after a year, depression rates being of almost a 40% in our second-phase. The rest of scoring in the other scales also increased, but it didn't reach a statistical significance as the depression.

Our results are similar to previous evidence, that assures that early phases of COVID19 pandemic have caused several psychological consequences in health care professionals such as symptoms of PTSD, stress, anxiety and depression (Kang et al., 2020; Lai et al., 2020; Dosil et al., 2020). They were in line not only with previous evidence in Spain, but worldwide, which proves that this is a worldwide problem and a consequence of the pandemic.

Psychological distress of healthcare workers could possibly lead to some problems in the healthcare system, with a shortage of healthcare professionals due to psychological symptomatology (Panagioti et al., 2018) or affecting clinical performance and medical abilities of healthcare staff (Kang et al., 2020), making more difficult the approach of COVID-19 pandemic and other illnesses that need to be treated as before of the pandemic. This mental exhaustion seems to affect not

only on their mental health but also in their quality of life, satisfaction with their work and their performance as professionals (Dosil et al., 2020)

In terms of risk factors to have psychological distress due to the pandemic, both in our survey and on the previous findings agree that being a woman and working at the frontline are the main factors that lead to depression and anxiety symptomatology. However, several surveys report that younger age could also be a risk factor(Naushad et al., 2020; Lai et al., 2020; Kang et al., 2020), while our results reflect that this is not a relevant aspect on depressive symptoms but it is on anxiety symptomatology. Also, we found out that in our sample that those who suffered COVID-19 or someone in their family suffered it had a greater psychological impact.

Other factors of interest to suffer psychological distress because of the COVID-19 pandemic are the lack of social support and isolation during quarantine (Lee et al., 2020). Some of the factors influencing this psychological distress could be the work overload, some stressful experiences related to patients health and not being able to help them in a proper way, not feeling enough protected against COVID-19 or being afraid of being exposed to the virus or exposing others(Kang et al., 2020; Shigemura et al., 2020). Also, it has been observed that it was important for healthcare staff the perception they had on the resources available in order to fight the pandemic and the efficiency of the healthcare system (Qiu et al., 2020). In our survey, as well as in previous evidence, it has been observed that those professionals who perceived there was a lack of training and equipment to work during the pandemic had greater depression and anxiety symptoms (Kang et al., 2020), as well as frustration and mental exhaustion, while those that were wells equipped and perceived a good coordination of the healthcare system had a better adaptation to the pandemic and less psychological distress (Lee et al., 2018).

Strengths and limitations

Strengths of this survey are that the sample was composed by a large amount of healthcare professionals, which provided a great amount of information about their psychological status after the first wave of the pandemic, and that they provided much information about them provided to the survey, including other healthcare professionals and not only nurses and doctors like in other samples. Also, this was a two-phase design, so it provides much greater information about the perception of the impact that COVID-19 pandemic had on them.

Limitations are that the sample was composed by doctors and nurses essentially, and there is not much information about other healthcare professionals that must be taken into account although some of them were included. Also, the proportion of women in the survey was much higher than men, and the survey was anonymous so it is unknown whether the sample was the same.

Conclusions

Our survey has shown that COVID-19 has produced several psychological consequences on mental health of healthcare professionals in Cantabria, such as depression, anxiety and even PSTD. This is both a problem for them as individuals and for the healthcare system, and some of the risk factors are the lack of training and planning for this kind of occurrence, so it would be helpful to develop some plans and programmes to prepare healthcare workers for problems like a pandemic, avoid the work overdose and help them with the possible psychological problems they might have after a situation like a pandemic.

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7. APPENDIX

A. CEIm approval

B. Sociodemographic Questionnaire

C. Patients Health Questionnaire (PHQ-9)

D. Generalized Anxiety Disorder (GAD-7)

E. Insomnia Severity Index (ISI)

F. Impact of Event Scale Revised (IES-R)

G. COVID-19 Exposition Questionnaire

Appendix A: CEIm approval

T. CONCEPCION SOLANAS GUERRERO, Secretaria del **COMITÉ DE ÉTICA DE LA INVESTIGACIÓN CON MEDICAMENTOS DE CANTABRIA**

CERTIFICA

Que este Comité ha evaluado la propuesta de los Investigadores Principales del estudio:

TÍTULO: **Impact of COVID-19 on the mental health of Primary Care professionals in Cantabria. The Co-Prim Cantabria Study.**
Impacto de COVID-19 sobre la salud mental del personal de Atención Primaria en Cantabria. Estudio Co-Prim Cantabria.

TIPO DE ESTUDIO: **Proyecto de Investigación (Código interno: 2020.216)**

y considera que:

- Se cumplen los requisitos necesarios de idoneidad del protocolo en relación con los objetivos del estudio y están justificados los riesgos y molestias previsibles para el sujeto, teniendo en cuenta los beneficios esperados.
- Es adecuado el procedimiento para obtener el consentimiento informado.
- La capacidad del investigador y sus colaboradores, y las instalaciones y medios disponibles, tal y como ha sido informado, son apropiados para llevar a cabo el estudio.

Este CEIm, emite un informe **FAVORABLE** para que dicho Estudio sea realizado en el **HOSPITAL UNIVERSITARIO MARQUÉS DE VALDECILLA y GERENCIA DE ATENCIÓN PRIMARIA**, actuando como investigadores principales los Dres. **JAVIER VÁZQUEZ BOURGON y ANA FATIMA VIEJO CASAS.**

Como queda reflejado en el Acta: **14/2020 de 29 de mayo de 2020.**

Lo que firmo en Santander, a **09 de junio de 2020**

T. CONCEPCION SOLANAS GUERRERO
Secretaria del CEIm

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Appendix B: Sociodemographic Questionnaire

Estudio Salud mental y COVID-19 en Atención Primaria

Accedo a participar en este estudio y a que los datos que aporto sean utilizados con fines científicos, siempre de forma confidencial y anónima:

- **AUTORIZO MI PARTICIPACION** en el estudio. SÍ ☐ NO ☐
- **A SER CONTACTADO** en un futuro en caso de que se estime oportuno añadir nuevos datos a los recogidos en la actualidad. SÍ ☐ NO ☐

Cuestionario sociodemográfico

1	Sexo 1. Hombre 2. Mujer	☐
2	Edad (años)	_____
3	Estado civil 1. Soltero 2. Casado/Pareja estable 3. Separado/Divorciado 4. Viudo	☐
4	Nivel estudios 1. Educación básica 2. Educación secundaria 3. Educación universitaria	☐
5	Profesión 1. Médico/a 2. Enfermero/a 3. Auxiliar enfermería 4. Fisioterapeuta 5. Administrativo/a 6. Técnico emergencias sanitarias 7. Celador/a 8. Servicio limpieza	☐
6	Puesto de trabajo 1. Equipo atención primaria – EAP – 2. Servició Urgencias Atención primaria –SUAP –	☐
7	Área de trabajo (marcar las que correspondan)	☐Área I ☐ Área II ☐ Área III ☐ Área IV
8	¿Dónde vive habitualmente?	_____
9	Tipo de zona 1. Zona urbana (> 10.000 habitantes) 2. Zona semiurbana (2.001-10.000) 3. Zona rural (< 2.000) 4. Itinerante	☐
10	Número de personas con las que ha pasado el confinamiento	____ / ____ (adultos/menores)
11	¿Con quién vive actualmente? (Marcar los que corresponda)	☐Solo ☐Cónyuge-pareja ☐Padres ☐Otros familiares ☐Otros _____

Cuestionario de Satisfacción

1	¿Cómo es su estado de salud global en la actualidad?						
	1 Muy malo	2	3	4 Normal	5	6	7 Excelente
2	¿Cómo ha cambiado respecto a antes del COVID-19?						
	1 Mucho peor	2	3	4 Igual	5	6	7 Mucho mejor
3	¿Cómo es su calidad de vida en la actualidad?						
	1 Muy mala	2	3	4 Normal	5	6	7 Excelente
4	¿Cómo ha cambiado respecto a antes del COVID-19?						
	1 Mucho peor	2	3	4 Igual	5	6	7 Mucho mejor

Appendix C: Patients Health Questionnaire (PHQ-9)

Patients Health Questionnaire (PHQ9)

Durante las <u>últimas dos semanas</u>, ¿con qué frecuencia ha tenido las siguientes molestias?		Nunca	Varios días	Más de la mitad de los días	Casi todos los días
1	Poco interés o placer en hacer las cosas	0	1	2	3
2	Se ha sentido decaído/a, deprimido/a, o sin esperanza	0	1	2	3
3	Dificultad para dormir o permanecer dormido/a, o ha dormido demasiado	0	1	2	3
4	Se ha sentido cansado/a o con poca energía	0	1	2	3
5	Con poco apetito o ha comido en exceso	0	1	2	3
6	Se ha sentido mal con usted mismo/a – o que es un fracaso o que ha decepcionado a sí mismo/a o a su familia	0	1	2	3
7	Ha tenido dificultad para concentrarse en cosas tales como leer el periódico o ver la televisión	0	1	2	3
8	¿Se ha estado moviendo o hablando tan lento que otras personas podrían notarlo?, o por el contrario – ha estado tan inquieto(a) o agitado(a), que se ha estado moviendo más de lo normal?	0	1	2	3
9	Ha pensado que estaría mejor muerto(a) o se le ha ocurrido hacerse daño de alguna manera	0	1	2	3

Si usted marcó alguno de estos problemas, ¿cuánta dificultad encontró en hacer su trabajo, las tareas del hogar o relacionarse?

Nada difícil	Algo difícil	Muy difícil	Extremadamente difícil
☐	☐	☐	☐

Appendix D: Generalized Anxiety Disorder (GAD-7)

Generalized Anxiety Disorder (GAD-7)

Señale con qué frecuencia ha sufrido los siguientes problemas en los últimos 15 días		Nunca	Menos de la mitad de los días	Más de la mitad de los días	Casi todos los días
1	Se ha sentido nervioso, ansioso o muy alterado	0	1	2	3
2	No ha podido dejar de preocuparse	0	1	2	3
3	Se ha preocupado excesivamente por diferentes cosas	0	1	2	3
4	Ha tenido dificultad para relajarse	0	1	2	3
5	Se ha sentido tan intranquilo que no podía estarse quieto	0	1	2	3
6	Se ha irritado o enfadado con facilidad	0	1	2	3
7	Ha sentido miedo, como si fuera a suceder algo terrible	0	1	2	3

Appendix E: Insomnia Severity Index (ISI)

Índice Gravedad del Insomnio

1. Por favor indique la **GRAVEDAD** de su actual (p.ej., durante las últimas 2 semanas) problema(s) de sueño:

	Nada	Leve	Moderado	Grave	Muy grave
Dificultad para quedarse dormido/a:	0	1	2	3	4
Dificultad para permanecer dormido/a:	0	1	2	3	4
Despertarse muy temprano:	0	1	2	3	4

2. ¿Cómo está de **SATISFECHO/A** en la actualidad con su sueño?

Muy satisfecho	Satisfecho	Neutral	No muy satisfecho	Muy insatisfecho
0	1	2	3	4

3. ¿En qué medida considera que su problema de sueño **INTERFIERE** con su funcionamiento diario (por ejemplo, fatiga durante el día, capacidad para las tareas cotidianas/trabajo, concentración, memoria, estado de ánimo etc.)?

Nada	Un poco	Algo	Mucho	Muchísimo
0	1	2	3	4

4. ¿En qué medida cree que **LOS DEMÁS SE DAN CUENTA** de su problema de sueño por lo que afecta a su calidad de vida?

Nada	Un poco	Algo	Mucho	Muchísimo
0	1	2	3	4

5. ¿Cuán **PREOCUPADO/A** está por su actual problema de sueño?

Nada	Un poco	Algo	Mucho	Muchísimo
0	1	2	3	4

Appendix F: Impact of Event Scale Revised (IES-R)

Impact of Event Scale Revised (IES-R)

	Respecto a la situación estresante vivida en relación con el COVID-19:	Nada	Un poco	Moderado	Mucho	Extrema-damente
1	Cualquier recuerdo me hacía volver a sentir lo que sentí antes	0	1	2	3	4
2	Tenía problemas para permanecer dormido	0	1	2	3	4
3	Otras cosas me hacían pensar en el suceso	0	1	2	3	4
4	Me sentía irritable y enojado	0	1	2	3	4
5	Procuraba no alterarme cuando pensaba o recordaba lo sucedido	0	1	2	3	4
6	Pensaba en ello aún cuando no quería	0	1	2	3	4
7	Sentía como si no hubiese sucedido o no fuese real	0	1	2	3	4
8	Me mantenía lejos de cualquier cosa que me recordara lo sucedido	0	1	2	3	4
9	Imágenes del suceso asaltaban mi mente	0	1	2	3	4
10	Me sobresaltaba y asustaba fácilmente	0	1	2	3	4
11	Intentaba no pensar en el suceso	0	1	2	3	4
12	Me daba cuenta de que quedaban muchos sentimientos sin resolver	0	1	2	3	4
13	Mis sentimientos sobre el suceso estaban como adormecidos	0	1	2	3	4
14	Me encontraba como si estuviese funcionando o sintiendo como durante el evento	0	1	2	3	4
15	Tenía problemas para conciliar el sueño	0	1	2	3	4
16	Me invadían oleadas de fuertes sentimientos sobre lo sucedido	0	1	2	3	4
17	Intentaba apartarlo de mi memoria	0	1	2	3	4
18	Tenía problemas de concentración	0	1	2	3	4
19	Cosas que me recordaban lo sucedido me causaban reacciones fisiológicas tales como transpiración, dificultad al respirar, náuseas o taquicardia	0	1	2	3	4
20	Soñaba con lo sucedido	0	1	2	3	4
21	Me sentía vigilante y en guardia	0	1	2	3	4
22	Intentaba no hablar de ello	0	1	2	3	4

Appendix G: COVID-19 Exposition Questionnaire

Estudio Salud mental y COVID-19 en Atención Primaria

Cuestionario exposición a COVID-19

1	¿Considera que ha estado expuesto a SARS-CoV-2 debido al desempeño de su trabajo?						
	1 En absoluto	2	3	4	5	6	7 De forma importante
2	¿Considera que ha estado expuesto a SARS-CoV-2 en otros contextos diferentes al desempeño de su trabajo (transporte público, casa, compras, etc)?						
	1 En absoluto	2	3	4	5	6	7 De forma importante
3	¿Ha estado usted enfermo de COVID-19? 1. Si ☐ 2. No En caso afirmativo, ¿ha requerido ingreso hospitalario? 1. Si ☐ 2. No ¿O seguimiento ambulatorio? 1. Si ☐ 2. No						
4	¿Ha convivido estas últimas semanas o convive en la actualidad con algún familiar enfermo de COVID-19? 1. Si ☐ 2. No						
5	¿Se le ha realizado test de detección de COVID-19? 1. Si ☐ 2. No En caso afirmativo indique cuales (uno o varios) ☐ PCR ☐ Test serológico (Igs) rápido ☐ Test serológico (Igs) por ELISA						
6	¿Considera que ha tenido acceso a Equipos de Protección Individual apropiados?						
	1 En absoluto	2	3	4	5	6	7 De forma importante
7	¿Se ha sentido apoyado/respaldado por la institución para la que trabaja?						
	1 En absoluto	2	3	4	5	6	7 De forma importante

Muchas gracias por su participación en el estudio.

En el caso de que quiera participar más adelante en una segunda fase del estudio, consistente en entrevista clínica telefónica o presencial, por favor indíquenos sus datos de contacto:

Nombre: .....

e-mail: .....