



# The Impact of the Covid-19 Pandemic on Non-Medical Workers Constantly Interacting with Patients

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## Abstract

As medical staff, orderlies are at danger of showing negative signs of psychological health. They are exposed to many stresses that may have a negative impact on their personal lives, and they have also been subjected to the difficult condition of COVID-19 in their workplace. However, since they are not considered to be medical professionals, very few studies and interventions are focused on them. The aim of the present research was to detect the interactions among the work and family environments, as well as to analyze self-perceived mental health and burnout in people who worked as orderlies during the pandemic in public healthcare centers in Huelva (Spain), considering a set of sociodemographic variables. The field work was conducted between April and June 2020. Systematic random sampling was carried out. Information from 84 contributors was gathered through the SWING, MBI-HSS, and GHQ-12 forms. Univariate and bivariate analyzes and correlation tests were carried out. The data were analyzed and correlations were established. The majority of the participants obtained a negative interaction result of work over family. Those who had had contact with SARS-CoV-2 situations presented greater proportions of positive outcome in GHQ-12, bad work-family interaction, burnout, emotional exhaustion, and depersonalization. The men presented a worse general mental health state than the women. Orderlies of Huelva who have had contact with COVID-19 in their workplace present worse indicators of psychological health and greater negative interaction of work over family than those who have not had any contact with these circumstances.

## Keywords

burnout, coronavirus infections, mental health, healthcare, public health, orderlies

## Introduction

It has been already several years since, at the end of December 2019, different local health authorities reported multiple pneumonia cases of unknown etiology with epidemiological characteristics associated with a seafood market in Wuhan (Hubei Province, China) (Zhu et al., 2020). This pneumonia was later called COVID-19 (caused by the SARS-CoV-2 virus). On January 20th 2020, the World Health Organisation (WHO) classified COVID-19 as an international public health emergency (Li et al., 2020).

Since then, the pandemic spread rapidly, becoming the worse health crisis of the last decades. Its implementation rate and high prevalence caused the collapse of hospitals

and other institutions. The healthcare staff experienced considerable psychological stress, leading to psychological health complications such as anxiety and depression in some cases (Chew et al., 2020; Guo et al., 2020).

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Numerous researches were carried out regarding the influence of SARS-CoV-2 in different populations, although it is important to highlight that most of this research was conducted in medical professionals. However, in Spanish healthcare institutions, there are also non-medical professionals who work in the first line of care, that is, directly with sick people, as is the case of orderlies. These non-medical workers carry out their fundamental duties in healthcare institutions to achieve the correct functioning of these centers. Orderlies are in charge of surveilling the maintenance of order in the hospital by supporting and guaranteeing compliance with standards. Among the different duties they carry out in healthcare centers, it is worth pointing out the following: moving documents and objects, ensuring that the patients use the facilities correctly, surveilling and guarding the facilities, moving patients, supporting the medical staff, and surveilling the behavior of patients and visitors, as well as the access of the latter to the centers (Order of July 5th 1971, which approves the Statute of non-Medical Staff at the Service of Healthcare Institutions of the Social Security). Currently, in Spain, orderlies have a subordinate situation in a classist health system (Fernández Rincón, 2019).

Despite the fact that they are workers who are present in all healthcare institutions of Spain, they are little known and poorly respected. These discrepancies are also reflected in the recognition of their professional category, since, although they are currently fighting to be recognized as medical staff, they are still considered as non-medical workers in the Spanish regulations. Their role and tasks are detailed in the Statute of non-Medical Staff at the Service of Healthcare Institutions of the Social Security, in the Order of the Ministry of Labor of July 5th 1971. Consequently, very few studies and interventions have been focused on them (UGT, 2021).

This group of workers have demanded, for years, the academic and professional recognition of their profession. They request specific training to access the position of orderly, since, currently, the only requirement is the certificate of primary education. They advocate for the creation of an intermediate-level formative healthcare degree in vocational training (VT) that allows acquiring basic knowledge before entering this position in the workplace (Albarrán-Méndez, 2020).

Due to the continuous contact with sick people, these workers are exposed to a series of circumstances that may affect their health, such as burnout. Chronic work stress and burnout are associated with multiple negative personal, social, and organizational outcomes. The consequences of this stress include poor patient care and an increase of mistakes (Ruotsalainen et al., 2014). This syndrome consists of the following three magnitudes,

which form mental health indicators: high emotional exhaustion, high depersonalization, and low personal realization (Maslach & Jackson, 1998). These unfavorable consequences caused by the work environment can be observed in both healthcare and non-healthcare personnel (Daghero et al., 2023).

Moreover, work burnout may also have a negative effect on the family scope, which generates greater stress. The interaction of work over family was classified by Moreno et al. (2009) in four dimensions, as a function of the direction of the affectation variables: positive work-family interaction, negative work-family interaction, positive family-work interaction, and negative family-work interaction (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022). If there is a negative interaction, this is defined as a set of mutually incompatible work-family demands that, as such, generate conflict among people. Some research carried out in Latin American countries on health professionals has reflected the lack of balance between the work and family environment, which has become more exacerbated in recent years (Sotomayor et al., 2022; Villavicencio Sánchez & Arce Duran, 2021). Furthermore, it has been shown that burnout syndrome is a relevant concern in countries around the world (Llor Veracruz, 2021).

In a study carried out in Spain during the COVID-19 pandemic, it was identified that regardless of the professional category, as the proximity to the patient and their environment increases, the probability of psycho-emotional affectation increases (Serrano-Domínguez et al., 2023). Despite the knowledge about the negative impact on the health of workers who are in constant interaction with patients, there is still insufficient information about results of researches conducted in orderlies during the COVID-19 pandemic. The few studies that have evaluated the mental health of health and non-health workers, detail that workers such as orderlies or administrative workers are more susceptible to risk factors in pandemic situations than other health workers (Tan et al., 2020; Zhang et al., 2020). So, a research was planned to detect the interactions between the work and family scopes, as well as to analyze self-perceived psychological health and the prevalence of burnout, in a population of orderlies who worked in specialized care during the pandemic in public healthcare institutions of Huelva (Andalusia, Spain), analyzing the relationship between these dependent variables and considering a series of sociodemographic variables. This is a work in which, in addition to analyzing a group of poorly studied workers, it was also carried out in an exceptional period, the state of COVID-19 pandemic (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).

## Methodology

### Research Design and Contributors

A descriptive, cross-sectional research was carried out with 84 orderlies from a hospital in Huelva (Spain).

### Procedure

The field work was conducted between April and June 2020.

The population data were extracted from the web portal of the Andalusian Health Service (Servicio Andaluz de Salud, 2019). The samples were selected using a probabilistic model, considering a sampling error of 0.05. To calculate the sample size, the following formula was applied:  $n = \frac{N}{1 + N(e)^2}$  ( $n$  = sample;  $N$  = number of population;  $e$  = sampling error). Systematic random sampling was carried out. For the selection of the sample, the following inclusion criteria were taken into account: (a) being orderly; (b) work in a hospital; (c) be working at the time of the COVID-19 pandemic. As an exclusion criterion, it was agreed not to include those workers with less than 6 months of service time. These workers could be highly motivated by the beginning of their professional career. The indicators of affectation of some parameter of their mental health could go unnoticed by them. For this reason, this exclusion criterion was applied to them (Ballester-Arnal et al., 2016). A labor chronogram was planned and different visits were carried out in different morning and evening shifts at different units and services. In each visit, document questionnaires were administered to each participant, which had to be completed in 30 min, with the help of one of the researchers or a collaborator to clarify any doubts. Sociodemographic information and other data related to the research topics were collected through the SWING, MBI-HSS, and GHQ-12 forms. All contributors signed the advised consent, with guaranteed anonymity. The response rate was 77%. Among the reasons stated for not completing the questionnaire, the most frequent was work load or lack of time. The study was authorized by the Hospital management team and a research ethics committee (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).

### Instruments

The contributors completed a short sociodemographic survey that provided information about their sex, age, years of working experience, marital status, and parental condition. At the end of the survey, an item asked the contributors whether they had been exposed to COVID-19 in the workplace.

One of the scales used was the Survey Work-Home Interaction-Nijmegen (SWING), developed by Geurts et al. (2005) to evaluate the positive and negative relationships between family and work. It contains of 22 items in a 4-point Likert response scale: 0 = *Never*; 1 = *Sometimes*; 2 = *Often*; 3 = *Always*. This survey is used to detect the kind of work-family and family-work relationship of workers. Its validated Spanish version of Moreno et al. (2009) was used in the present study. These authors conducted a study to examine the psychometric properties of the Spanish version of SWING in a sample of 283 ER (emergency room) workers. The data of the confirmatory factor analysis showed that the model of four factors in which the components of negative and positive interaction did not interact was the one that best suited the data. The original organize of the instrument was preserved, which consisted of 22 items distributed in four subscales: negative work-family interaction, negative family-work interaction, positive work-family interaction, and positive family-work interaction. The reliability examination of the scale indicated that this Spanish edition has satisfactory internal consistency, with values between .77 and .89. Significant correlations were found between SWING and variables related to labor, family, and well-being aspects, which supports its convergent validity. It is thus determined that this version shows acceptable psychometric properties (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).

Each participant was classified as a function of the score obtained, falling in the subcategory in which he/she obtained a higher score in the items belonging to that subcategory. For negative work-family interaction, Items 1 to 8 were added, dividing the total score by 8; for negative family-work interaction, Items 9 to 12 were added, dividing the total score by 4; for positive work-family interaction, Items 13 to 17 were added, dividing the total score by 5; and, for positive family-work interaction, Items 18 to 22 were added, dividing the total score by 5 (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).

The probable non-psychotic psychiatric pathologies (self-perceived mental health) were estimated through GHQ-12 (General Health Questionnaire in its 12-item short version). This scale was constructed to recognize probable non-psychotic psychiatric disorders in the general population (Goldberg & Williams, 1988). We considered the findings of Spanish validation studies and the recommendations of the authors of the survey to select a cut-off point of  $\geq 12$  in the typification of individuals who could present psychological or emotional disorders (Muñoz et al., 1979; Sánchez-López & Dresch, 2008). GHQ-12 has been validated in Spain and has been applied in many researches to evaluate the general

population (Gispert et al., 2003; Goldberg & Williams, 1988; Sánchez-López & Dresch, 2008). Other researchers (Ruiz et al., 2017) have performed validation studies on this survey in a sample of 1,641 people, finding satisfactory internal consistency, with a general Cronbach's alpha of .90. Lastly, researches conducted in other countries, such as that of Burrone et al. (2015), have also indicated adequate psychometric properties and reliability for the questionnaire in a population of 854 participants, with a Cronbach's alpha of .80 (Gago-Valiente et al., 2021; Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

Finally, Maslach's Burnout Inventory (MBI), developed by Maslach and Jackson (1998), which has been validated internationally, was also used in the present study, in its edition designed for healthcare professionals: MBI—Human Services Survey (MBI—HSS) (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022). The utilize of this survey to identify burnout was motivated by the reliability indices that it presents in the different dimensions that make up the syndrome. Indices of 0.90, 0.71, and 0.79 were obtained for emotional exhaustion, personal realization, and depersonalization, respectively, with an internal consistency of 0.80 for all items. Moreover, to validate the instrument, factor analyses were conducted with a three-dimensional structure that points to the dimensions of burnout; that is, the scale measures what the study variable aims to measure (Maslach & Jackson, 1982). This kind of factor validity is supported by convergent validity researches that have been performed by the same research team. Other works have analyzed MBI, showing Cronbach's alpha coefficients of .78, .71, and .76 for emotional exhaustion, depersonalization and personal realization, respectively (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022; Maslach et al., 2001). Therefore, the efficacy of MBI is demonstrated for the present research.

The standard of affectation of the participants in each of the dissimilar dimensions was evaluated using a 7-point cataloging scale (0–6), where higher scores indicate greater level of affectation for emotional exhaustion and depersonalization, whereas lower scores in personal realization indicate greater affectation of the individual in this dimension. Therefore, the cut-off point to categorize persons with high emotional exhaustion was  $\geq 27$  points in the sum of the items of this dimension within the survey,  $\geq 10$  points for high depersonalization, and  $\leq 33$  points for low personal realization (Maslach & Jackson, 1998). The diagnosis of a person with burnout syndrome is determined when all three dimensions are affected, that is, when the patient shows high emotional exhaustion, high depersonalization, and low personal realization.

Moreover, considering the three subscales or dimensions, the scores are categorized in high, medium, and low level, with the following cuts (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022):

- Emotional exhaustion: High ( $\geq 27$ ), medium (19–26), and low ( $\leq 18$ ).
- Depersonalization: High ( $\geq 10$ ), medium (6–9), and low ( $\leq 5$ ).
- Personal realization: High ( $\geq 40$ ), medium (34–39), and low ( $\leq 33$ ).

### Data Analysis

SPSS statistical software (Statistical Products and Service Solutions) v23.0 was utilized for the statistical results.

A univariate analytics was carried out, calculating the mean, standard deviation, minimum value and maximum value of the quantitative variables (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

The frequency and percentage was also calculated for the variables sex, work-family interaction, marital status, burnout and its dimensions (emotional exhaustion, depersonalization, and personal realization), parental condition, situations of contact with COVID-19, and self-perceived general health (probable or non-probable non-psychotic psychiatric case) (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2021, 2022).

Furthermore, normality tests were applied for the quantitative variables, in order to gather information of future hypothesis tests to be employed, that is, to determine whether to use parametric or non-parametric tests. Since the number of data was over 50, we decided to use the Kolmogorov-Smirnov statistic for the normality tests (Gago-Valiente et al., 2021, 2022).

Then, statistical tests were conducted based on the study objective. The analyses performed are detailed below:

- Cross tables for the work-family interactions as a function of suffering or not from burnout or affectation of its dimensions (emotional exhaustion, depersonalization, and low personal realization), sex and contact with COVID-19. Moreover, Chi-squared tests were carried out among these variables (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).
- Cross tables for emotional exhaustion, burnout, depersonalization, and personal realization as a function of marital status, sex, situations of contact with COVID-19 and parental condition. In addition, Chi-squared tests were done between these variables (Gago-Valiente et al., 2021, 2022).
- Due to the fact that the normality tests of the variables "emotional exhaustion" (quantitative), "years

**Table 1.** Percentages of Burnout, High Emotional Exhaustion, High Depersonalization, and Low Personal Realization.

Variable	Burnout		Emotional exhaustion			Depersonalization			Personal realization		
	Yes	No	High	Medium	Low	High	Medium	Low	High	Medium	Low
Percentages (%)	26.6	73.4	73.4	18.5	8.1	50.8	21.8	27.4	45.2	20.2	34.7

of working experience” (quantitative), and “personal realization” (quantitative) presented an abnormal distribution, the Mann-Whitney U-test was used for the independence tests with categorical variables with two categories, and the Kruskal-Wallis H-test for three or more groups. Spearman’s Rho was also applied for the analysis of correlations between different study variables (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022, 2022).

- Cross tables for the variable “probable or non-probable non-psychotic psychiatric case” with respect to contact with COVID-19, emotional exhaustion, burnout, depersonalization, and personal realization. Moreover, Chi-squared tests were carried out among these variables (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).
- Cross tables as a function of the findings obtained in GHQ-12 (probable or non-probable non-psychotic psychiatric case) with respect to marital status, sex, and parental condition. Chi-squared tests were done between these variables. Furthermore, a Mann-Whitney U-test was performed in the hypothesis test for the variables “years of working experience” and “results obtained in GHQ-12” (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

## Results

### Sociodemographic Variables

Up to 67.85% of the contributors were men aged 27 to 63 years ( $n = 57$ ), and 32.15% were women aged 29 to 64 years ( $n = 27$ ). A total of 64.1% had children, and the other 35.9% did not have any children. The distribution regarding the marital status was very heterogeneous.

### Work-Family Interaction

Up to 58.1% of the participants had a negative work-family interaction, and 41.9% showed a good family-work interaction. No positive work-family or negative family-work interactions were observed.

### Results on GHQ-12 Scale

The majority of the contributors did not show probable non-psychotic psychiatric disorders. The men showed a

lower affectation percentage (45.50%) compared to the women (47%).

### Prevalence of Burnout, High Emotional Exhaustion, High Depersonalization, and Low Personal Realization

Table 1 shows a moderate percentage of professionals with burnout, with emotional exhaustion being the most affected dimension. The majority of participants presented high emotional exhaustion and high depersonalization.

### Correlation of Work-Family Interaction with Situations of Contact with COVID-19, Sex, Emotional Exhaustion, Burnout, Depersonalization, and Personal Realization

There was a lower proportion of men with favorable work-family interaction (3.3%) compared to women (11.2%). The proportion of women with negative work-family interaction (32.4%) was lower than that of men (43.7%). A correlation analysis revealed that there was a relationship between these variables ( $X^2 = 19.757$ ;  $p = .000$  at 95% CI).

The evaluation of the relation of family over work and vice versa as a function of contact or no contact with COVID-19 showed a greater proportion of negative work-family interaction in the participants who had had contact with a situation of COVID-19 (47.1%) compared to those who did not have such contact (19.5%). However, in the favorable family-work interaction, the people who did not have contact with situations of COVID-19 (71%) presented greater percentages in this category than those who did have such contact (43.7%). The analysis revealed that there was a relationship between these variables ( $X^2 = 86.190$ ;  $p = .000$  at 95% CI).

Regarding the relationship of the distinct work and family interactions with burnout syndrome and its dimensions, it was observed that all these variables were correlated with each other at 95% CI. The participants who presented burnout, high emotional exhaustion, and high depersonalization acquired greater proportions of negative work-family interactions. Nevertheless, the contributors with affectation in personal realization represented greater percentages in positive family-work interactions (Table 2).

**Table 2.** Group Statistics and Pearson's Chi-Squared Test for the Variables of Burnout and Its Dimensions with the Dimensions of SWING.

Dependent variable		Negative work-family interaction	Positive family-work interaction
		%	%
Burnout <sup>a</sup>	Yes	76.3%	23.7%
	No	30.9%	69.1%
Pearson's chi-squared			77.889
Asymptotic sig. (bilateral)			.000*
Emotional exhaustion <sup>b</sup>	High	61.4%	38.6%
	Medium	19.8%	80.2%
	Low	21.6%	78.4%
	Pearson's chi-squared		
Asymptotic sig. (bilateral)			.000*
Depersonalisation <sup>b</sup>	High	54.7%	45.3%
	Medium	36.8%	63.3%
	Low	25.2%	74.8%
	Pearson's chi-squared		
Asymptotic sig. (bilateral)			.000*
Personal realisation <sup>b</sup>	High	62.1%	37.9%
	Medium	38.3%	61.8%
	Low	21.4%	78.6%
	Pearson's chi-squared		
Asymptotic sig. (bilateral)			.000*

<sup>a</sup>Grouping variable: burnout.

<sup>b</sup>Grouping variables: emotional exhaustion, depersonalization, and personal realization.

\*p-value of the chi-squared test.

### Correlation of Burnout and Its Dimensions with Marital Status, Sex, and Contact with Situations of COVID-19

It was observed that the variables burnout and sex were correlated ( $X^2 = 31.795$ ;  $p = .000$  at 95% CI). The women represented lower proportions of burnout (6%) than the men (17.50%). Correlation was also detected between the dimensions of this syndrome and sex ( $[X^2 = 19.419$ ;  $p = .000$  for personal realisation];  $[X^2 = 58.728$ ;  $p = .000$  for depersonalization]; and  $[X^2 = 10.320$ ;  $p = .006$  for emotional exhaustion] at 95% CI). In the dimension of low personal realization, the women represented lower percentages of affectation (22%) than the men (34.1%). Similarly, in the dimensions of high emotional exhaustion and high depersonalization, the women also represented lower percentages of affectation (41.8% and 26.9%, respectively) than the men (44.5% and 40.8%, respectively).

Furthermore, the analysis revealed a relationship between burnout and marital status ( $X^2 = 27.245$ ;  $p = .000$  at 95% CI). The widowed contributors represented lower proportions of burnout (0%), whereas the divorced participants obtained the greatest percentages (23.5%).

In regard with the influence of SARS-CoV-2 with respect to suffering from burnout, a correlation was

detected between these two variables ( $X^2 = 44.514$ ;  $p = .000$  at 95% CI). The workers who had no contact with situations of COVID-19 in their workplace represented lower proportions of burnout (10.8%) than those who did have such contact (89.2%).

Lastly, it is important to highlight the correlation observed for the dimensions of burnout with marital status and situations of contact with COVID-19 (at 95% CI). Table 3 shows the different proportions of affectation, as well as the statistics of the performed analysis. People without a partner were the ones most affected by high emotional exhaustion. Married participants were most affected by high depersonalization. In widowed people, higher percentages of low personal realization were observed. Finally, in workers who had contact with COVID-19 situations, higher percentages of high depersonalization and high emotional exhaustion were also observed.

### Correlation of the Results in GHQ-12 (Possible or Non-Possible Non-Psychotic Psychiatric Case) with Contact with Situations of COVID-19, Emotional Exhaustion, Burnout, Depersonalization, and Personal Realization

It was observed that the participants with probable non-psychotic psychiatric disorders (positive GHQ-12)

**Table 3.** Group Statistics and Pearson's Chi-Squared Test for Marital Status, Parental Condition, and Contact with SARS-CoV-2<sup>a</sup>.

Independent variable	Dependent variable	Marital status					Contact with COVID-19	
		Married	Single	Divorced	Widowed	With partner	Yes	No
		%	%	%	%	%	%	%
	EE							
	High	48.7%	33.9%	39.2%	0.0%	53.7%	49.6%	34.3%
	Medium	28.9%	36.7%	45.1%	28.6%	19.0%	21.7%	42.5%
	Low	22.4%	29.4%	15.7%	71.4%	27.2%	28.7%	32.2%
	Pearson's chi-squared				67.688			51.059
	Asymptotic sig. (bilateral)				.000*			.000*
	DP							
	High	33.7%	26.9%	23.5%	28.6%	33.3%	38.3%	21.1%
	Medium	21.5%	24.7%	35.3%	0.0%	44.9%	24.0%	28.7%
	Low	44.8%	48.4%	41.2%	71.4%	21.8%	37.7%	50.1%
	Pearson's chi-squared			60.043				34.273
	Asymptotic sig. (bilateral)			.000*				.000*
	PR							
	High	23.0%	23.4%	39.2%	0.0%	36.1%	28.9%	20.5%
	Medium	24.3%	38.3%	41.2%	28.6%	42.2%	35.6%	28.0%
	Low	52.6%	38.3%	19.6%	71.4%	21.8%	35.4%	51.5%
	Pearson's chi-squared			76.535				26.298
	Asymptotic sig. (bilateral)			.000*				.000*

<sup>a</sup>Grouping variables: emotional exhaustion (EE), depersonalization (DP) and personal realization (PR).

\*p-value of Pearson's Chi-squared test.

represented greater percentages of burnout (89.2%) than those with negative GHQ-12 (10.8%). Correlation was detected between these two variables ( $X^2 = 70.564$ ;  $p = .000$  at 95% CI).

The study also revealed a relationship for the result of GHQ-12 with high emotional exhaustion and high depersonalization ( $[X^2 = 167.362$ ;  $p = .000]$  for emotional exhaustion; and  $[X^2 = 30.645$ ;  $p = .000]$  for depersonalization; at 95% CI). Those contributors with probable non-psychotic psychiatric disorders (positive GHQ-12) represented greater proportions of high depersonalization and high emotional exhaustion (37.2% and 58.7%, respectively) than those without probable non-psychotic psychiatric disorders (25% and 28.5%, respectively). A correlation was also detected with personal realization ( $X^2 = 21.725$ ;  $p = .000$  at 95% CI). In this variable, the contributors with negative GHQ-12 represented lower proportions of high personal realization (19.5%) than those with positive GHQ-12 (31.5%).

Lastly, the analysis of the relationship between contact with COVID-19 and the result of GHQ-12 revealed a correlation between these two variables ( $X^2 = 62.483$ ;  $p = .000$  at 95% CI). The contributors with negative GHQ-12 had fewer situations of contact with COVID-19 in the workplace (41.3%) than those with positive GHQ-12 (58.7%).

### Correlation of the Results in GHQ-12 with Marital Status

The outcome of GHQ-12 and marital status were correlated ( $X^2 = 23.588$ ;  $p = .000$  at 95% CI). Figure 1

displays the response percentages as a function of marital status. The people with the highest percentage of probable non-psychotic psychiatric case were widows.

### Correlation of Emotional Exhaustion, Burnout, and Depersonalization with Years of Working Experience

There were statistically significant differences between suffering from burnout and years of working experience (*Mann-Whitney U* = 32,591;  $p = .000$  at 95% CI). The contributors with burnout had worked, on average, fewer years (14.5 years) than those without burnout (17.8 years).

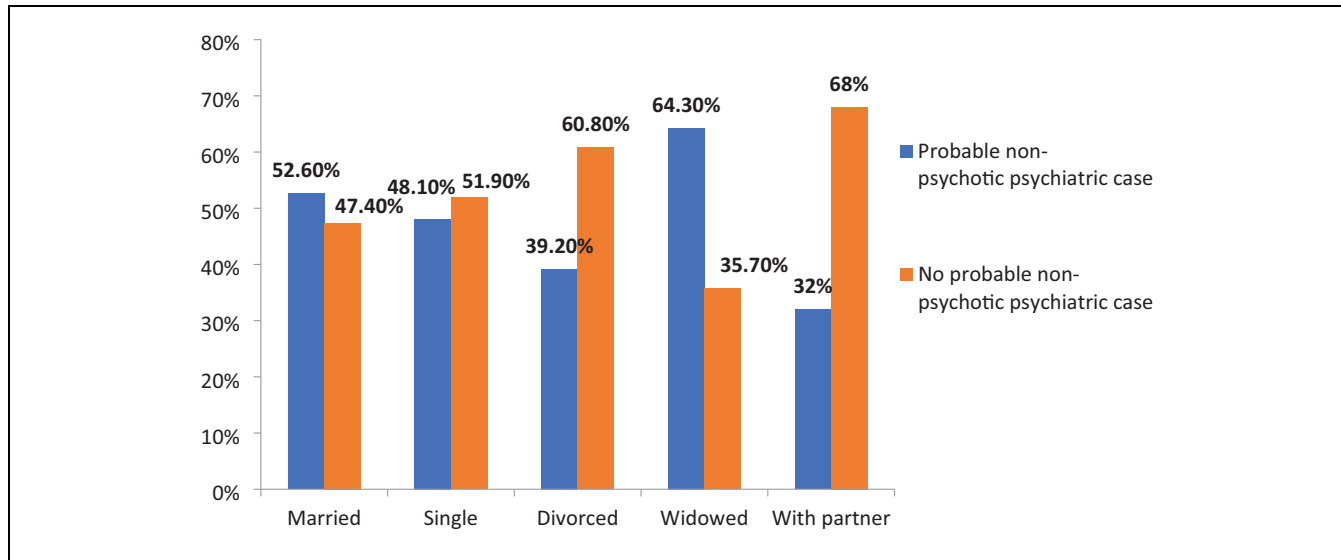
Statistically significant differences were identified for depersonalization and emotional exhaustion as a function of the years of working experience (*Kruskal-Wallis H* = 22.959 and 28.557, respectively,  $p = .000$  in the two dimensions at 95% CI). Yet, a very weak correlation was observed for both dimensions with the years of working experience (Table 4).

## Discussion

In the present study, we analyzed a series of variables related to people who work with patients in hospitals, specifically orderlies in the context of SARS-CoV-2.

### Work and family

On the one hand, it was demonstrated that the work and family scopes have an impact on each other. This impact



**Figure 1.** Outcomes of GHQ-12 as a function of marital status.

**Table 4.** Spearman's Rho Correlation for Emotional Exhaustion and Depersonalization with the Years of Working Experience.

Spearman's rho		Years of working experience	Emotional exhaustion	Depersonalization
Years of working experience	Correlation coefficient	1.000	.149**	.014
	Sig. (bilateral)		.000	.662
	N	128	128	128
Emotional exhaustion	Correlation coefficient	.149**	1.000	.363**
	Sig. (bilateral)	.000		.000
	N	128	128	128
Depersonalization	Correlation coefficient	.014	.363**	1.000
	Sig. (bilateral)	.662	.000	
	N	128	128	128

\*\*The correlation is significant at  $p = .01$  (bilateral).

was different in men and women, as reported in many studies that show greater affectation of negative interaction of work over family in men compared to women (Minaya, 2018). In this work, the sex variable has influenced this interaction, men have presented higher percentages of negative interaction between work and family. It has also been observed that men, under some circumstances, may find it more difficult to access measures of organizational conciliation than women, thus presenting a more negative interaction between these two scopes (Cifre et al., 2011). However, other researchers have not observed statistically significant differences as a function of sex (Vidal & Sánchez, 2017).

Furthermore, the participants without children showed, in general, a worse self-perceived health than those with children, indicating that the family scope could act as a modulating variable on the psychological health

of lots of people who did not present probable non-psychotic psychiatric disorders, in the interval of the present study, during the COVID-19 pandemic (Mamani-Encalada et al., 2009; Marenco-Escuderos et al., 2016; Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022). However, in other studies carried out on health workers, people with children are those who have shown greater emotional exhaustion (Sánchez Rodríguez Manzaneque et al., 2001).

### COVID-19

With respect to COVID-19 and the mental health of orderlies, the outcomes of the present research showed a negative influence of the former on the latter in most of the participants who experienced situations of contact with the virus in the workplace. This influence, as

reported in many studies, has multiple factors associated with it, with the most frequent factor being the fear of infecting relatives (Erquicia et al., 2020).

### ***Burnout syndrome***

In regard with the affectation of the burnout syndrome as a function of sex, statistically significant differences were obtained. The women presented lower percentages of affectation in the same dimensions of the syndrome compared to the men. Therefore, the influence of sex on other variables is repeated in this study. Other studies have also reported greater affectation of these dimensions in men, even relating high emotional exhaustion to low personal realization (Adriaenssens et al., 2015; Ogińska-Bulik, 2016; Piñeiro et al., 2017; Tifner et al., 2006). Being male or female could entail gender connections to other sociodemographic characteristics and variables that could act as modulators or enhancers of emotional exhaustion and depersonalization (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022; Mamani-Encalada et al., 2009). Culture could also be a variable to take into account in this context, since in similar populations in Latin America, women health workers are those with the highest percentages in variables such as anxiety (Velastegui et al., 2020).

On the other hand, with regard to the possible influence of the years of working experience on the affectation of burnout, it is important to interpret this information with caution. There could be a survival bias, that is, the people who develop from early burnout in the workplace may also quit their professional careers, thereby leaving behind the survivors, who consequently exhibit lower levels of burnout (Gago-Valiente et al., 2021, 2022; Leiter & Maslach, 2008). In the present study, statistically significant differences were found in the dimensions of burnout as a function of the years of working experience (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022). However, previous studies have reported a direct relationship between these two variables (Cabrera & Elvira, 2004), whereas other researchers did not find such correlation (Carlotto, 2008).

### ***Possible non-psychotic psychiatric cases***

With respect to the outcomes found in the scores of GHQ-12 as a function of parental condition and marital status, it is further demonstrated that the family scope could act as a modulating variable on the psychological health of the participants, which explains why these symptoms were undetected in people who presented affectation in this variable (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022; Mamani-Encalada et al., 2009; Marenco-Escuderos & Ávila-Toscano,

2016). Several studies have reported that people with children present a negative influence of family over work and, therefore, their personal realization is negatively affected, due to the lack of time (Ballester-Arnal et al., 2016), although such tendency was not observed in the present study. It would be remarkable to establish whether workers feel satisfied with the measures of family conciliation that they receive in the workplace (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2021). Some researchers have found more psychological health problems in persons who do not have a partner compared to those who do (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022; Leiter & Maslach, 2008), and this tendency has been observed in the participants of the present study, where widows obtainable the highest proportions of burnout. However, other studies have shown higher levels of emotional exhaustion or depersonalization in persons with partners and married people (Muñoz-del-Carpio et al., 2019).

Moreover, in the analysis of possible non-psychotic psychiatric cases (positive GHQ-12) and their relationship with other variables such as depersonalization, it is important to take into account a series of considerations. Depersonalization may be a symptom of major depression. It has been reported that, in people who present unipolar depression, the symptom of associated depersonalization is more strong compared to healthy controls, and there is also a favorable correlation between depersonalization and depression (Gago-Valiente et al., 2021, 2022; Maslach & Jackson, 1998). These damages may not be discrete categories, and they could have common biological bases and be at least segment of a continuous spectrum or a spectrum of affective illnesses (Hunter et al., 2004). These findings were observed in the present study, where the contributors with positive GHQ-12 also represented higher proportions of affectation in emotional exhaustion and depersonalization. Therefore, an influence was observed between the presence of possible non-psychotic psychiatric pathologies with the suffering of emotional exhaustion and depersonalization (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

With regard to the possible influence of COVID-19 on the participants of the research, a remarkable impact was observed. As in previous studies with other samples, in which the participants worked directly with patients, the present investigation detected high proportions of people who had had contact with situations of COVID-19 in the workplace and who suffer from stress, sleep disorders, anxiety and depression (Erquicia et al., 2020; Pérez-Ortega et al., 2020; Santamaría et al., 2020). Depersonalization and emotional exhaustion already had a tendency of greater affectation in men than in women before the pandemic (Gago-Valiente et al., 2021; Molina-Praena et al., 2019). However, the percentage of

workers with affectation of both dimensions was greater in this research, which was made during the pandemic (Peterson et al., 2008; Webb-Hooper et al., 2020). These data are in line with what is evidenced in other similar works, in which an increase in professional burnout factors is observed in professionals who were in contact with patients, during the COVID-19 pandemic (Oprisan et al., 2022).

Lastly, in regard with self-perceived psychological health as a function of sex, the outcomes of the present research are in line with those of other investigations (Rodríguez-Contreras & Santos-Iglesias, 2007), which report that women perceive a worse health state than men (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022). Nevertheless, unlike in other researches, the findings of this work show no correlation between the score of GHQ-12 and sex. The influence of the sex variable on other variables is observed once again. In this sense, the results of this research are consistent with what is evidenced in other studies, in which women presented higher percentages of anxiety than men (Velasstegui et al., 2020).

### Limitations

This study has some limitations that must be pointed out. Due to its cross-sectional design, it is not possible to observe the changes that many of the analyzed variables may undergo in time, which could modify the scores of numerous objective and subjective health indicators (González-Jiménez et al., 2016). Moreover, it would also be opportune to explore the possible psychiatric background of the participating population and incorporate items in the data-gathering surveys about access to resources (economic, social, medical, etc.) during the pandemic (Gago-Valiente et al., 2021).

COVID-19 has had a bigger negative impact on people with low socioeconomic status (Cañadas-De-la-Fuente et al., 2018). Thus, it would be very fascinating to carry out prospective investigations, with the same population sample, including new items with more variables, in order to further evaluate the circumstances and possible changes. Another limitation of this study is related to the sample size. Although the number of orderlies does characterize the reality of this professional group in the analyzed hospital center, the conclusions cannot be extrapolated to other centers or districts (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022). Furthermore, only hospitals orderlies have been assessed in this study, it would be interesting to also include primary care professionals.

To sum up, it is essential to conduct new investigations with a larger number of participants to ensure and increase the external validity of the conclusions,

involving more healthcare centers that classify their staff according to their diverse services and units. It would also be opportune to perform correlation studies for probable non-psychotic psychiatric disorders with depersonalization, emotional exhaustion, and personal realization (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

## Conclusions

### Generalities

This research provides very novel evidence about a series of psychological health indicators in orderlies, who have been poorly studied, in a pandemic situation, thereby updating the information about this topic to contribute to future intervention lines that address this situation (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022). This paves the road for further and larger researches in the similar line.

Moreover, the results demonstrate the different affectation in psychological health state as a function of sex, thus corroborating the importance of considering gender perspective in health science investigation (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022).

Therefore, it is concluded that the orderlies of a hospital of Huelva who had had contact with situations of COVID-19 in the workplace shown a worse psychological health than those who did not have such contact. This situation was observed through the correlation analysis of emotional exhaustion, positive result in probable non-psychotic psychiatric disorders and high depersonalization. It is also important to highlight that those people who had had contact with situations of COVID-19 in the workplace also represented greater proportions of negative interactions of work over family (Gago-Valiente, Moreno-Sánchez, Santiago-Sánchez et al., 2022).

In conclusion, it is essential to be able to use the results of this study from a psychosocial and educational approach, in order to change vulnerable targets through the strategy and implementation of formative and preventive programs for orderlies (Gago-Valiente, Moreno-Sánchez, Vélez-Moreno et al., 2022). The professional group that has been analyzed in this study was already experiencing discomfort before the pandemic due to their working conditions. With the COVID-19 pandemic, this discomfort was exacerbated. The findings of this research show that during the pandemic this group presented consequences similar to those of other professionals considered healthcare. Now that we are out of the acute phase of the COVID-19, where emergencies are not overwhelmed, it is a good time to reorganize services and recognize professionals. In this way, in possible future pandemic situations, the services will be more prepared.

### Implications for Clinical Practice and Political Action

The findings of this study have a series of implications for clinical practice and political action. Its dissemination will enable other healthcare professionals to empathize more with this group and support their demands. With knowledge of their stress levels, the administration could hire more personnel and improve the quality of patient care.

It is expected that with research like this, Spanish administrations will begin to take these professionals more into account. The first step to improve their conditions would be to grant them legal recognition as health professionals.

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### Author Contributions

Conceptualization, E.M.-S. and F.-J.G.-V.; methodology, M.-d.-l.-A.M.-G.; investigation, A.C.-J.; resources, F.-J.G.-V.; data curation, M.-I.M.-S.; writing—original draft preparation, E.T.-C.; writing—review and editing, E.M.-S.; visualization, L.M.-P.; supervision, E.M.-S.; project administration, M.-d.-l.-A.M.-G.; funding acquisition, F.-J.G.-V. All authors have read and agreed to the published version of the manuscript.

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### Ethical Approval


The study was authorized by the Hospital management team and the Research Ethics Committee of the University of Huelva (general code: TD-EPSH-2019; internal code: 1585-N-19). All contributors signed the advised consent, with guaranteed anonymity.

### Declarations

Written consent from study participants were also obtained before data collection.

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### Data Availability Statement

Further data that support the findings of this study are available upon reasonable request from the corresponding author. Some data are not publicly available due to privacy or ethical restrictions.

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