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ARTICLES/ARTÍCULOS

Impact of the Pandemic on the Perceived State of Health of the Working Population in Andalusia During Lockdown

Impacto de la pandemia en el estado de salud mental percibido de la población laboral andaluza durante el confinamiento

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ABSTRACT

The study of the effects of the COVID-19 pandemic is of interest to the global scientific community, especially the effects on the population's health. This article aims to analyse the impact of the pandemic on the perceived state of mental health of the working population in Andalusia. A quantitative analysis was performed using bivariate exploration and segmentation analysis, running the CHAID algorithm on the data from the "Social Survey 2020: Habits and Living Conditions of the Andalusian Population During the State of Alarm" conducted by the Institute of Statistics and Cartography of Andalusia (IECA, 2020). The main findings show that the deterioration of the Andalusian working population's mental health is closely related to the perceived loss of income and employment, with the groups that were already particularly vulnerable being the most affected, such as young people, employees in the service sector and women, who, regardless of their occupation, are more likely to have suffered depression during this period.

KEYWORDS: COVID-19; working population in Andalusia; mental health; loss of income; depression.

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RESUMEN

El estudio de los efectos de la pandemia del COVID-19 en la salud de la población son objeto de interés de la comunidad científica a nivel mundial. En este artículo se analiza el impacto de la pandemia en la salud mental percibida de la población laboral andaluza. Se ha realizado un análisis cuantitativo mediante la exploración bivariante y el análisis de segmentación utilizando el algoritmo CHAID de los datos de la Encuesta Social 2020: Hábitos y condiciones de vida de la población andaluza durante el estado de alarma realizada por el Instituto de Estadística y Cartografía de Andalucía (IECA, 2020). Los principales resultados muestran que el empeoramiento de la salud mental de la población laboral andaluza está estrechamente relacionado con el riesgo percibido de pérdida de ingresos y empleo. Los grupos que ya eran especialmente vulnerables son los más afectados: jóvenes, empleados del sector servicios y las mujeres, siendo estas últimas presentan una mayor probabilidad de haber sentido depresión durante este periodo.

PALABRAS CLAVE: COVID-19; población laboral andaluza; salud mental percibida; pérdida de ingresos; depresión.

1. Introduction

The COVID-19 pandemic has had a significant impact on people's health globally. To reduce the impact, governments were forced to implement a series of containment measures based on the control of international and national mobility through border closures, stay-at-home orders and the cessation of economic activity. These measures had an asymmetrical effect on the whole population depending on socio-demographic, employment and financial characteristics, as several studies show (Ocaña et al., 2020; Fundación FOESSA, 2022).

In the case of the working population, the impact of the pandemic and the measures adopted by governments and the business community affected the degree to which workers were exposed to the virus, how they carried out their work activity and the risk of unemployment, temporary lay-off or cessation of activity, with the entailed loss of income. This combination of atypical circumstances that affect people's well-being has attracted great interest from the scientific community in discovering the impact on the population's mental health.

The aim of this article is to further our understanding of how the pandemic and the measures adopted by governments and businesses have impacted the perceived mental health of the Andalusian working population (hereinafter AWP), using the data from the "Social Survey 2020: Habits and Living Conditions of the Andalusian Population During the State of Alarm" conducted by the Institute of Statistics and Cartography of Andalusia (IECA, 2020) during the first months of stay-at-home orders in Spain.

2. Theoretical Framework

During lockdown in Spain, essential services continued to operate, such as healthcare, transport services and shops selling food products, with the workers in these sectors being the most exposed to the virus during this period. For the remaining sectors, in which in-person work activity was not permitted, businesses themselves took measures to adapt their work activity to telework. When the nature of the work activity did not allow for adaptation to telework, there was a cessation of the work activity; this particularly affected those people with lower incomes who, generally speaking, work in the services sector: tourism, hospitality, leisure, cleaning, commerce, transport, etc. (Ocaña et al., 2020). In the worst-case scenario, businesses turned to dismissal, which particularly affected temporary workers, young people, the self-employed and employees of small companies (Ocaña et al., 2020).

The combination of the direct consequences of the pandemic, felt, above all, by those most exposed to the virus, and the indirect consequences, derived from the measures adopted by governments that affected the working population's employment and financial situation, has had a negative impact on mental health (Bericat and Acosta, 2020; de Miquel et al., 2022), with the analysis of said impact arousing significant interest among the research community of various disciplines on an international level.

Workers in the sectors of health and commerce (essential businesses) were most exposed to the virus during lockdown. Some studies have found that the amount of sick leave has increased significantly among these workers, especially in the health sector, comprising 20% of the confirmed COVID-19 cases in Spain in March 2020 (Calvo-Bonacho et al., 2020). In addition to the higher risk of contracting the virus, excessive pressure, workload, uncertainty and overwork have contributed to the deterioration of the mental health of health sector workers, which was already worse than that of the rest of the population (Rodríguez-Rey et al., 2020).

The modus vivendi of those workers who were able to adapt their work activity to telework has not been particularly altered (Ocaña et al., 2020), as it enabled them to stay in employment during this period without risking exposure to the virus. Nevertheless, studies such as that by Sim (2020) point out that prolonged loneliness and a lack of interaction in the workspace inherent to this mode of work has affected the mental health of these people. Furthermore, the overload of communication through participation in multiple virtual meetings, as well as the feeling of being watched, has increased both the time that workers spend on their mobile phones and the incidence of depression (Mendonça et al., 2022).

Therefore, in this context of risk and uncertainty, staying in employment does not avoid the impact on mental health; rather, the obligation of going to work in the pandemic context (with the risk of loss of employment that not doing so would entail) negatively affects the psychosocial well-being of workers (Hernández-Rodríguez, 2020) who have carried out their work activity both in

person and remotely. However, it is the mental health of the most vulnerable population that has been particularly affected, as is the case of those people in a situation of precariousness who lack economic resources (Hernández-Rodríguez, 2020).

In addition to the implications for mental health linked to work conditions during the pandemic, studies prior to the pandemic point out that the perceived state of health does not appear to be linked to the state of health, but rather it is the socio-demographic characteristics and personality traits that are of greater significance in the subjective evaluation that people make of their health (Castro-Vázquez et al., 2006). In this regard, studies such as that by Rocha et al. (2010) point out that those people with poorer socio-economic conditions, as well as those who are unemployed or on leave of absence, have a worse state of mental health than the rest. In addition to this study, Di Blasi et al. (2021) point out that, even prior to lockdown, women had worse levels of depression and anxiety than men, an imbalance that continued during the early phase of the pandemic (Jaques-Aviñó et al., 2020).

To summarise, studies on the impact of the pandemic on the working population's mental health during the lockdown period show that, in addition to socio-demographic factors such as sex and age, the conditions in which the work activity was carried out and the uncertainty related to staying in or losing employment are key to understanding how the pandemic has affected the mental health of the working population.

The aim of this study is to analyse how the pandemic and the consequences of the measures taken by governments to curb it have affected the AWP according to their socio-demographic, employment and financial conditions. Thus, the following objectives are established:

Overall objective: to analyse the impact of the perceived mental health of the AWP according to their socio-demographic, employment and financial characteristics.

Specific objective 1: to study the relationship between the socio-demographic, employment and financial variables of the AWP and the subjective state of mental health during lockdown.

Specific objective 2: to analyse which variables are the best predictors for whether a person in the AWP felt depressed during lockdown.

3. Methodology

3.1. Database and Sample

To achieve the proposed objectives, data from the "Social Survey 2020: Habits and Living Conditions of the Andalusian Population During the State of Alarm" conducted by the Institute of Statistics and Cartography of Andalusia (IECA) were used. A subsample (N=1,315) was used in which all the cases are people belonging to the AWP at the time the fieldwork was conducted (between 15 April and 29 May 2020), aged between 16 and 64 years old.

3.2. Analysis Techniques

To meet the first specific objective, a quantitative analysis was performed by bivariate exploration using contingency tables, enabling the socio-demographic, employment and financial characteristics of the AWP to be described in relation to the impact of the pandemic on their perceived state of mental health. A chi-square test was also performed to analyse the relationship between the dependent and independent variables, while calculating the adjusted standardised residuals enabled those categories that particularly present said relationship, if any, to be observed.

To meet the second specific objective, a segmentation analysis was performed using the CHAID (Chi-square Automatic Interaction Detection) algorithm, enabling the profiles of people in the AWP who felt depressed during lockdown to be detected, while also detecting those who did not feel depressed during the same period, according to their socio-demographic, employment and financial characteristics. It is the algorithm itself that determines, with a 95.5% confidence level, firstly, the grouping of the independent variable categories and, secondly, which variables are the best at predicting the feeling of depression (Escobar, 1998).

3.3. Dependent Variables

3.3.1. Comparative Perceived State of Mental Health

It is a variable created from the variables "assessment of own current state of mental health" (during lockdown) and "assessment of own state of mental health twelve months ago". In those cases in which current perceived mental health has a lower value than perceived mental health twelve months ago, it has been recoded as "deteriorates"; if the opposite is true, "improves"; and if the value remains the same, "no change". For example, if perceived mental health twelve months ago was "excellent" and is now "good", it is considered to have deteriorated.

Table 1

*Frequency distribution of the variables used in the construction of the dependent variable "comparative perceived state of mental health" **

Mental health previously	F.	P.	C.P.	Mental health currently	F.	P.	C.P.
Excellent	217	16.53	16.53	Excellent	271	20.62	20.26
Very good	266	20.26	36.79	Very good	371	28.23	48.86
Good	639	48.44	85.22	Good	574	43.68	92.54
Average	167	12.72	97.94	Average	81	6.16	98.71
Poor	27	2.06	100.00	Poor	17	1.29	100.00

*F: frequency; P: percentage; C.P.: cumulative percentage.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

This new variable enables us to distinguish those cases in which the perceived state of mental health has improved, deteriorated or remained the same in comparison with the period prior to the COVID-19 crisis.

Table 2

*Frequency distribution of the dependent variable "comparative state of mental health" **

Comparative mental health	F.	P.	C.P.
Improves	83	6.32	6.32
Deteriorates	318	24.20	30.52
No change	913	69.48	100.00
Total	1,314	100.00	

*F: frequency; P: percentage; C.P.: cumulative percentage.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

3.3.2. Feeling of Depression in the Last Week

It is a variable created from the "frequency with which people have felt depressed in the last week"*

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Table 3

Frequency distribution of the variable "frequency with which people have felt depressed in the last week"

Feeling of depression	F.	P.	C.P.
Never or almost never	718	54.60	54.60
At some point	522	39.70	94.30
A lot of the time	51	3.88	98.17
All or nearly all the time	24	1.83	100.00
Total	1,315	100.00	

*F: frequency; P: percentage; C.P.: cumulative percentage.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

For this analysis, knowing the frequency of this feeling is not particularly relevant, but rather whether or not they experienced it. This variable has therefore been recoded into two categories, converting it into a dichotomous variable that distinguishes those subjects who did not feel depressed during lockdown from those who did, independently of the frequency of said feeling.

Table 4

Recodification of the dependent variable "feeling of depression in the last week"

New categories	Old categories
Has not felt depressed	Never or almost never
Has felt depressed	At some point, a lot of the time, all or nearly all of the time.

Source: own research.

Table 5

Frequency distribution of the dependent variable "has felt depressed in the last week"

Feeling of depression	F.	P.	C.P.
Has not felt depressed	718	54.6	54.6
Has felt depressed	597	45.4	100.00
Total	1,315	100.00	

*F: frequency; P: percentage; C.P.: cumulative percentage.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

3.4. Independent Variables

The independent variables in this study are divided into three groups: socio-demographic, employment and financial. Below are the basic descriptive statistics for the variables considered a priori within each group and their degree of association with the dependent variables.

Table 6

Descriptive statistics and relationship between dependent and independent variables using chi-square test

	Average	Observation	Standard Deviation
Dependent variables			
Comparative mental health (1)			
Improves	1,315	0.06	0.24
Deteriorates	1,315	0.24	0.43
No change	1,315	0.69	0.46
Feeling of depression (2)			
Has not felt depressed	1,315	0.55	0.50
Has felt depressed	1,315	0.45	0.50
Independent Variables			
Group 1. Socio-demographic			
*Sex [(1)***/(2)***]*			
Male	1,315	0.53	0.50
Female	1,315	0.47	0.50
*Age [(1)***/(2)*]*			
16–34	1,315	0.25	0.43
35-49	1,315	0.47	0.50
50-64	1,315	0.28	0.45
Province [(1) - /(2) -]			
Almería	1,315	0.08	0.27
Cádiz	1,315	0.14	0.34
Córdoba	1,315	0.09	0.29
Granada	1,315	0.11	0.32
Huelva	1,315	0.06	0.24
Jaén	1,315	0.08	0.27
Malaga	1,315	0.18	0.38
Seville	1,315	0.26	0.44
Size of municipality [(1) - /(2)]*			
City	1,315	0.51	0.50
Intermediate density area	1,315	0.40	0.49
Rural area	1,315	0.09	0.29
Country of birth [(1) - /(2) -]			
Spain	1,315	0.96	0.20
Other country	1,315	0.04	0.20
Educational attainment [(1) - /(2) -]			
Primary education	1,315	0.06	0.23
Secondary education	1,315	0.50	0.50
Higher education	1,315	0.44	0.50

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	Average	Observation	Standard Deviation
Group 2. Employment			
*Employment situation [(1)**/(2)***]*			
Full-time employees	1,315	0.54	0.50
Employees in temporary lay-off	1,315	0.16	0.37
Part-time employees	1,315	0.12	0.32
Employers with employees	1,315	0.07	0.25
Entrepreneurs without employees, self-employed worker or cooperative member	1,315	0.11	0.31
Occupation [(1)/(2)***]*			
Directors and managers	1,315	0.07	0.26
Scientific technicians and professionals and intellectuals	1,315	0.20	0.40
Technicians, support professionals	1,315	0.13	0.33
Accountancy, administrative and other office employees	1,315	0.09	0.28
Catering, personal, protection services and sales workers	1,315	0.20	0.40
Skilled agricultural, livestock, forestry and fishing sector workers	1,315	0.02	0.15
Workers qualified for manufacturing and construction	1,315	0.09	0.28
Installation and machinery operators and assemblers	1,315	0.07	0.25
Basic occupations	1,315	0.14	0.34
*Performance of the work activity [(1) - /(2)***]*			
Has worked remotely	1,315	0.30	0.46
Has not worked remotely	1,315	0.45	0.50
Illness, holiday, leave of absence	1,315	0.06	0.24
Temporary layoff or cessation of activity	1,315	0.18	0.38
Type of contract [(1) - /(2) -]			
Permanent contract	1,315	0.58	0.49
Temporary contract	1,315	0.24	0.42
Not hired (employers)	1,315	0.18	0.38
Perceived risk of loss of employment [(1)/(2)***]*			
Highly or quite likely	1,315	0.29	0.45
Unlikely or not at all likely	1,315	0.54	0.50
Already out of work	1,315	0.12	0.32
Do not know, uncertainty	1,315	0.04	0.20
Group 3. Financial			
*Level of household income in February 2020 (€)[(1) - /(2)***]*			
Less than 450	1,315	0.01	0.12
Between 451 and 900	1,315	0.10	0.30
Between 901 and 1,600	1,315	0.30	0.46
Between 1,601 and 2,500	1,315	0.25	0.44
Between 2,501 and 3,000	1,315	0.11	0.31
More than 3,000	1,315	0.16	0.37
Ease/difficulty in making ends meet [(1)/(2)***]*			
Easy or very easy	1,315	0.71	0.45
Difficult or very difficult	1,315	0.27	0.44
*Delay in mortgage payment [(1) - /(2)***]*			
Yes	1,315	0.02	0.15
No	1,315	0.98	0.15
Delay in rent payment [(1)/(2)*]*			
Yes	1,315	0.02	0.15
No	1,315	0.98	0.15

	Average	Observation	Standard Deviation
Delay in bill payment [(1) - /(2)]*			
Yes	1,315	0.04	0.20
No	1,315	0.96	0.20
*Risk of loss of income [(1)***/(2)***]*			
Highly or quite likely	1,315	0.37	0.48
Unlikely or not at all likely	1,315	0.43	0.50
Already lost income	1,315	0.15	0.36
Do not know, uncertainty	1,315	0.03	0.19

Note 1: Significance level: ***p<0.001; **p<0.01; *p<0.05; - p>0.05.
Note 2: (1): in relation to the variable "comparative mental health"; (2): in relation to the variable "feeling of depression".
Note 3: In all cases, the minimum value is 0 and the maximum is 1.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

For both the analysis using contingency tables and the segmentation analysis, those independent variables that are significantly associated with each dependent variable will be used, with a 95% confidence level (p<0.05).

4. Analysis and Results

4.1. Comparative Perceived State of Mental Health

The independent variables that are included from now on are those that are significantly related to the variable "comparative state of mental health". It is therefore assumed that a relationship exists between both variables. The key to interpreting the relationship lies in the value of the adjusted standardised residuals (Adjusted Std. Res) that, for a 95% confidence level, must be greater than 1.98 (in absolute value). For example, if the value were negative and less than -1.98, it would mean that the frequency observed for said category was less than the expected frequency if the variable followed a normal distribution.

4.1.1. Group 1. Socio-demographic Variables

In accordance with the reviewed literature, the perceived state of mental health of women can be seen to have deteriorated to a greater extent than that of men (Table 7). In fact, the values of the adjusted standardised residuals suggest that the number of women whose perceived mental health has deteriorated is greater than expected (5.5). In the case of men, a lower number was expected for those whose perceived mental health has remained the same (5.8).

With respect to age (Table 8), the intermediate age group can be seen to obtain results that differ significantly from what was expected. However, again in accordance with the literature, in the older age group, the majority of people's perceived state of mental health is seen to remain unchanged to a greater extent than expected (4.1).

The opposite occurs in the case of young people. Although the impact on perceived mental health of young people is seen to be ambivalent, there are more cases than expected both in the group of those whose mental health has deteriorated (2.0) and improved (2.4), although there are proportionally more cases in which perceived mental health has deteriorated.

Table 7

Perceived state of mental health by sex

		Deteriorates	No change	Improves
Male	%	18.1	76.4	5.6
	Adjusted Std. Res.	-5.5	5.8	-1.2
Female	%	31.2	61.6	7.2
	Adjusted Std. Res.	5.5	-5.8	1.2

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

Table 8

*Perceived state of mental health by age**

		Deteriorates	No change	Improves
16–34	%	28.3	62.6	9.1
	Adjusted Std. Res.	2.0	-3.1	2.4
35-49	%	25.5	68.2	6.3
	Adjusted Std. Res.	1.1	-0.9	-0.1
50-64	%	18.2	77.9	3.9
	Adjusted Std. Res.	-3.1	4.1	-2.3

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

4.1.2. Group 2. Employment Variables

Although the group of employers with employees (Table 9) has the highest proportion of people whose perceived state of mental health has deteriorated following lockdown (32.2%), it is in the group of part-time employees in which the proportion of workers whose perceived mental health has deteriorated is greater than expected (32.0%, 2.4). Entrepreneurs without employees, self-employed workers or members of cooperatives are those who fare best, as

the proportion of workers in this group whose perceived mental health has deteriorated is the lowest compared to the rest (14.0), and is also less than expected (-3.0), resulting in a large number of people in this group who have not experienced changes to their perceived state of mental health (80.4%).

These differences, in addition to reflecting the employment situations of each group at that time, can address the future prospects predicted according to the development of the consequences of the pandemic. This is the case of part-time employees, who in this sample are concentrated in the groups of workers in catering, personal, protection services and sales workers, and basic occupations. In this context, these two occupational groups (service sector and basic occupation workers) were particularly vulnerable. As well as being groups with particularly low salaries in comparison with the rest, the work forecasts, particularly in the hospitality industry, were not promising. At that time, the duration of the lockdown and the improvement of the health situation could not be predicted. Therefore, for the hospitality industry in Andalusia, where summer is the best season, the employment forecasts were not very clear at that time.

Table 9

*Perceived state of mental health by employment situation**

		Deteriorates	No change	Improves
Full-time employee	%	22.7	70.9	6.4
	Adjusted Std. Res.	-1.4	1.2	0.2
Employee in temporary layoff	%	27.3	64.8	7.9
	Adjusted Std. Res.	1.2	-1.6	1.0
Part-time employee	%	32.0	62.7	5.2
	Adjusted Std. Res.	2.4	-1.9	-0.6
Employers with employees	%	32.2	63.2	4.6
	Adjusted Std. Res.	1.8	-1.3	-0.7
Entrepreneurs without employees, self-employed worker or cooperative member	%	14.0	80.4	5.6
	Adjusted Std. Res.	-3.0	3.0	-0.4

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

It is therefore no surprise that the group of workers in catering, personal, protection services and sales workers (Table 10) has the highest proportion of workers whose perceived mental health has deteriorated (31.7%), also reaching a higher figure than expected (3.2). The group that appears to fare best is that of the installation and machinery operators and assemblers, as it is the group in which a higher percentage of the workers' perceived mental health improves. Furthermore, it is also the group in which, proportionally, less workers have

seen their subjective state of mental health deteriorate. However, these results must be regarded with caution, as the number of workers in the sample that make up this occupational group is not very high.

Table 10

*Perceived state of mental health by work occupation**

		Deteriorates	No change	Improves
Directors and managers	%	23.7	74.2	2.1
	Adjusted Std. Res.	-0.1	1.1	-1.8
Scientific technicians and professionals and intellectuals	%	27.5	65.3	7.3
	Adjusted Std. Res.	1.4	-1.6	0.7
Technicians, support professionals	%	23.4	71.9	4.8
	Adjusted Std. Res.	-0.3	0.7	-0.9
Accountancy, administrative and other office employees	%	20.4	69.9	9.7
	Adjusted Std. Res.	-1.0	0.1	1.6
Catering, personal, protection services and sales workers	%	31.7	61.9	6.4
	Adjusted Std. Res.	3.2	-3.0	0.1
Skilled agricultural, livestock and fishing sector workers	%	16.1	74.2	9.7
	Adjusted Std. Res.	-1.1	0.6	0.8
Workers qualified for manufacturing and construction	%	18.6	73.5	8.0
	Adjusted Std. Res.	-1.5	1.0	0.7
Installation and machinery operators and assemblers	%	14.9	74.7	10.3
	Adjusted Std. Res.	-2.1	1.1	1.6
Basic occupations	%	21.5	75.7	2.8
	Adjusted Std. Res.	-0.9	1.9	-2.1

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

The following table (Table 11) shows the impact on the perceived mental health of the AWP according to the perceived risk of unemployment. Those workers who have already lost their job are those who show the greatest degree of deterioration in their subjective mental health (31.0%), followed by those who think losing their job is very or quite likely (27.7%). The perceived mental health of those who perceive little or no risk of unemployment have remained more stable than would be expected (2.6), with the number of workers whose subjective mental health has deteriorated being less than expected (-2.7). However, those who did not know what stance to take in respect to this question (Do not know) are those who have experienced a lesser impact on their perceived mental health, since the perceived state of mental health of the people who make up this group is the same as before lockdown (78.0%).

Table 11

*Perceived state of mental health according to the perceived risk of loss of employment**

		Deteriorates	No change	Improves
Highly/Quite likely	%	27.7	65.1	7.2
	Adjusted Std. Res.	1.9	-2.2	0.8
Unlikely/Not at all likely	%	21.2	72.4	6.3
	Adjusted Std. Res.	-2.7	2.6	-0.1
Already experienced loss of employment	%	31.0	63.2	5.8
	Adjusted Std. Res.	2.1	-1.8	-0.3
Do not know	%	18.6	78.0	3.4
	Adjusted Std. Res.	-1.0	1.5	-1.0

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

4.1.3. Group 3. Financial Variables

Of the variables associated with the financial situation, it is those variables related to the impact of the pandemic on the perceived mental health of the AWP that are linked to situations of payment difficulties as a result of lockdown and perceived risk of loss of income.

Although, proportionally, there are more people who struggle to make ends meet whose subjective mental health has deteriorated (25.4% compared to 23.7%), it is somewhat contradictory that it is this group that has a higher percentage of people whose perceived mental health has improved (9.0% compared to 5.4%). More than an ambivalent impact on the mental health of people who struggle to make ends meet, this could be due to a lesser impact than expected among those people who do not struggle to make ends meet.

Table 12

*Perceived state of mental health according to the ease/difficulty in making ends meet**

		Deteriorates	No change	Improves
With ease	%	23.7	71.0	5.4
	Adjusted Std. Res.	-0.6	1.9	-2.4
With difficulty	%	25.4	65.6	9.0
	Adjusted Std. Res.	0.6	-1.9	2.4

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

Paying rent late has had a negative impact on the subjective state of mental health of the AWP, with 45.2% experiencing a deterioration of their perceived mental health compared to 23.7% of those people who were not in arrears. However, as with

difficulty in making ends meet, the impact seems to have been ambivalent, as it is also the group in which, proportionally, more people have improved the perception of their state of mental health.

Not having problems affording payments or making ends meet has not implied an improvement in the subjective state of mental health, however it has done so in maintaining it. Thus, the impact on the perceived mental health of those people who have difficulty in making ends meet or paying their rent seems ambivalent. Although in the case of difficulty in making ends meet, it is not so clear, in the case of those people who have paid their rent on time, the deterioration of their mental health is evident.

Table 13

*Perceived state of mental health if rent payment is delayed**

		Deteriorates	No change	Improves
No	%	23.7	70.1	6.2
	Adjusted Std. Res.	-2.8	3.0	-0.8
Yes	%	45.2	45.2	9.7
	Adjusted Std. Res.	2.8	-3.0	0.8

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

The impact of the pandemic on perceived mental health seems more evident in the perceived risk of loss of income. In this case, among those people who have experienced loss of income, 38.3% have seen their mental health deteriorate, considerably more than expected (5.1), followed by those who believe said loss to be highly or quite likely (24.1%). It is also evident that perceiving the loss of income as unlikely or not at all likely, or having a certain lack of knowledge in this respect (Do not know), does not lead to an improvement in the subjective state of mental health, but rather in maintaining said state.

Table 14

*Perceived state of mental health according to the perceived risk of loss of income**

		Deteriorates	No change	Improves
Highly/Quite likely	%	24.1	68.8	7.1
	Adjusted Std. Res.	-0.1	-0.4	0.9
Unlikely/Not at all likely	%	19.9	74.2	6.0
	Adjusted Std. Res.	-3.3	3.3	-0.5
Already experienced loss of income	%	38.3	56.7	5.0
	Adjusted Std. Res.	5.1	-4.2	-0.9
Do not know	%	18.8	72.9	8.3
	Adjusted Std. Res.	-0.9	0.5	0.6

*Adjusted Std. Res.: Adjusted standardised residual.
Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

4.2. Feeling of depression

To address the second objective and determine which variables are better predictors of whether the AWP has felt depressed since lockdown started, segmentation analysis using the CHAID algorithm was used. This determines, with a 95.5% confidence level, the grouping of the categories of independent variables and the best predictor variables for feelings of depression in this sample.

The results are represented graphically in a "tree" (segment tree). This tree (Figure 1) has 11 nodes, of which 6 are terminal nodes, that is, nodes that show the percentage of people who have felt depressed, on the one hand, and those who have not, on the other, according to a series of variables that define their profile.

It is based on a total sample of 1,315 cases, of which 54.6% have not felt depressed in comparison to 45.4% that have; therefore, there is certain equilibrium between both categories. The variable sex creates the first divide. The differences between men and women are evident: among women, 58.7% have felt depressed following lockdown, while 33.9% of men have felt depressed.

Among women, the perceived risk of loss of income creates the second divide, determining the first two profiles: on the one hand, among those women who perceive the loss of income as unlikely or not at all likely, there is certain equilibrium between the percentage of those who have felt depressed (49.0%) and those who have not (51.0%). Therefore, it would be difficult to determine the feeling of depression in women who consider losing their income as unlikely or not at all likely. However, among those women who consider it highly or quite likely, have already lost their income or lack knowledge (Do not know), the percentage of women who have felt depressed is 65.0%. Thus, being a women and also being in a negative financial situation, or lacking knowledge, increases the risk of depression following lockdown.

Returning to the group of men, the variable of perceived risk of loss of income in the same categories creates the second divide. In this instance, they are not terminal nodes. Furthermore, in both cases the majority of the individuals did not feel depressed during this period, although the probability of not having felt depressed is greater in the case of those who perceive the loss of income as unlikely or not at all likely (75.2% compared to 58.1%).

Among those men who do not perceive the loss of income as likely, there is a divide based on the degree of urbanisation in the municipality of residence. On the one hand, there are those who live in cities or rural areas; and on the other, those who live in intermediate density areas. In both cases, the majority have not felt depressed, although this percentage is greater among those who live in intermediate density areas. Although the differences in this instance are not very pronounced, they could be due to the lack of services in rural areas and the

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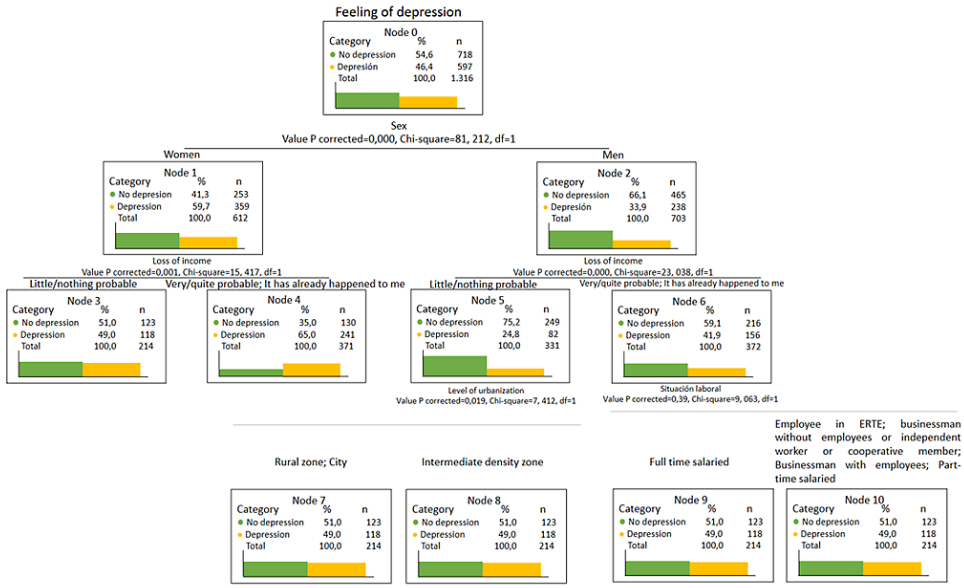
residential conditions of cities (more smaller-sized homes); while intermediate density areas tend to have the necessary services and lack the confinement of cities.

Of the men who have a greater perception of loss of income, or who have already experienced loss of income, two further groups are identified according to employment situation. In this case, the majority of full-time employees have not felt depressed (65.9%). In contrast, among the group made up of the remaining employment situations, the results are more balanced (50.5%–49.5%).

Figure 1

Segment tree: profiles within the AWP in relation to the probability of feeling depressed after lockdown



Source: own research based on IECA: Social Survey 2020. Habits and Living Conditions of the Andalusian Population During the State of Alarm.

5. Discussion

The impact of the pandemic on the perceived mental health of people is somewhat evident and has been confirmed by various studies. In the case of the AWP, we have seen how their subjective mental health has been differentially affected according to socio-demographic, employment and financial characteristics.

This study has shown that the worst results in terms of perceived state of mental health are concentrated in women, young people, employees in temporary layoff, part-time employees, employers with employees, employees in the group of catering, personal, protection services and sales workers, and basic occupations. However, the key to interpreting these results lies in the perceived risk of loss of income, strongly associated with the perceived risk of loss of employment.

In the case of young people, there are different studies that show that they are one of the groups in a more vulnerable situation within the labour market, being most affected by its precariousness —temporality, low salaries, etc.— (OXFAM Intermón, 2020), something which also occurs with occupations such as hospitality and basic occupations, which were mostly forced to cease their business activity. For this occupational group, during the state of alarm, the uncertainty prevented the end of the lockdown from being predicted, which in turn increased the likelihood (at least the perceived likelihood) of losing employment or income for the summer season when higher profits are generated.

In this case, the explanation of the deterioration of the perception of mental health may lie in the instability of employment in certain sectors, such as the hospitality industry, which was particularly compounded due to stay-at-home orders, experiencing and predicting a loss of employment and the consequential loss of income.

In this sense, as various studies and reports point out, the most vulnerable were those who were most affected by the pandemic, both in employment terms and financially, with this situation being a clear aggravating factor for their perception of their mental health. Furthermore, of the issues related to work situation and employment, there are structural issues such as the worse state of mental health of women in comparison to men who, in crisis situations such as that caused by the pandemic, are particularly compounded, with sex being a key factor in the feeling of depression.

On the other hand, there were certain limitations to this study that must be taken into account when considering the results and conclusions. Firstly, the classification of occupations in the questionnaire has not allowed for a clearer distinction of those professions that were more exposed to the virus, such as is the case of health professionals and shop assistants in essential shops.

Secondly, the variables "state of mental health twelve months ago" and "current state of mental health" used to create the dependent variable "comparative state of mental health" are measured using an unbalanced scale that includes three positive items (excellent, very good, good), one neutral item (average) and one negative item (poor), with the corresponding "do not know" and "no opinion" responses. This imbalance in the scale has not enabled these variables to be used individually to further the study of perceived mental health, as the imbalance of the scale ends up distorting the results, in this instance, with a positive bias.

Thirdly, the question related to the feeling of depression lends itself to various interpretations, as the symptomatology that characterises depression is not

explained previously. Thus, those people who have affirmed feeling depressed may have had a different symptomatology that, in some cases, may respond to feelings of sadness or discouragement that do not correspond to the clinically established symptoms for diagnosing depression. Therefore, the findings related to the feeling of depression cannot be considered strictly associated with depression in its theoretical and clinical sense.

6. Conclusions

This study proves that not only has the crisis caused by the COVID-19 pandemic affected those people who were already particularly vulnerable on a financial and working level, but also that these were the groups that experienced a deterioration of perceived state of mental health linked to employment and, particularly, financial instability.

Therefore, not only would it be necessary to draw up policies that reduce the impact of future crises on unemployment and loss of income, but also policies that ensure access to mental health services for the most vulnerable groups (the most affected by unemployment and loss of income). Two years on from the decree of state of alarm and lockdown, the strengthening of these services continues to be a political challenge in Spain. Although there is still a long way to go in this regard, the first steps must be taken for the most vulnerable (working) population group, aimed at reducing the negative consequences of the pandemic.

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8. Bibliographic References

Bericat, E. y Acosta y M. J. (2020). El impacto del COVID-19 en el bienestar emocional de los trabajadores en Uruguay. *Equipos Consultores*, 1-14.

Calvo-Bonacho, E., Catalina-Romero, C., Fernández-Labandera, C., Fernández-Meseguer, A., González Quintela, A., Martínez-Muñoz, P., Quevedo, L., Valdivieso, P. and Sánchez-Chaparro, M. Á. (2020). COVID-19 and Sick Leave: An Analysis of the Ibermutua Cohort of Over 1,651,305 Spanish Workers in the First Trimester of 2020. *Front Public Health, 8,* 580546. https://doi.org/10.3389/fpubh.2020.580546

Castro-Vázquez, Á., Espinosa-Gutiérrez, I., Rodríguez-Contreras, P. and Santos-Iglesias, P. (2007). Relación entre el estado de salud percibido e indicadores de salud en la población española. *International Journal of Clinical and Health Psychology,* 7(3), 883-898.

De Miquel, C., Domènech-Abella, J., Felez-Nobrega, M., Cristóbal-Narváez, P., Mortier, P., Vilagut, G., Alonso, J., Olaya, B. and Haro, J. M. (2022). The Mental Health of Employees with Job Loss and Income Loss during the COVID-19 Pandemic: The Mediating Role of Perceived Financial Stress. *International Journal of Enviromental Research and Public Health, 19*(6), 3158. https://doi.org/10.3390/ijerph19063158

Di Blasi, M., Albano, G., Bassi, G., Mancinelli, E., Giordano, C., Mazzeschi, C., Pazzagli, C., Salcuni, S., Lo Coco, G., Gioacchino Gelo, O. C., Lagetto, G., Freda, M. F., Esposito, G., Caci, B., Merenda, A. and Salerno, L. (2021). Factors Related to Women's Psycological Distress during the COVID-19 Pandemic: Evidence From a Two-Wave Longitudinal Study. *International Journal of Environmental Research and Public Health, 18*(21), 11656. https://doi.org/10.3390/ijerph182111656

Escobar, M. (1998). Las aplicaciones del análisis de segmentación: el procedimiento CHAID. *Empiria: Revista de metodología de ciencias sociales*, (1), 13-50.

Fundación FOESSA (2022). *Evolución de la cohesión social y consecuencias de la COVID-19 en España*. Madrid: Fundación FOESSA.

Hernández-Rodríguez, J. (2020). Impacto de la COVID-19 sobre la salud mental de las personas. *Medicentro Electrónica*, *24*(3), 578-594.

Jaques-Aviñó, C., López-Jiménez, T., Medina-Perucha, L., de Bont, J., Queiroga, A., Duarte-Salles, T. and Berenguera, A. (2020). Gender-based approach on the social impact and mental health in Spain during COVID-19 lockdown: a cross-sectional study. *BMJ Open*, *10*(11). https://doi.org/10.1136/bmjopen-2020-044617

Mendoça, I., Coelho, F., Ferrajo, P. and Abreu, A. M. (2022). Telework and Mental Health during COVID-19. *International Journal of Environmental Research and Public Health, 19*, 2602. https://doi.org/10.3390/ijerph19052602

Ocaña, C., Bandrés, E., Chuliá, E., Fernández, M. J., Malo, M. Á., Rodríguez, J. C. and Torres, R. (2020). *Impacto social de la pandemia en España. Una evaluación preliminar*. Madrid: Funcas.

OXFAM Intermón (2020). *Superar la pandemia y reducir la desigualdad. Cómo hacer frente a la crisis sin repetir errores.* Madrid: OXFAM Intermón. Descargado de https://cdn2.hubspot.net/hubfs/426027/Oxfam-Website/oi-informes/superar-covid-reducir-desigualdad-oxfam-intermon.pdf

Rocha, K. B., Pérez, K., Rodríguez-Sanz, M., Borrell, C. and Obiols, J. E. (2010). Prevalencia de problemas de salud mental y su asociación con variables socioeconómicas, de trabajo y salud: resultados de la Encuesta Nacional de Salud de España. *Psicothema*, *22*(3), 389-395.

Rodríguez-Rey, R., Garrido-Hernansaiz, H. and Bueno-Guerra, N. (2020). Working in the Times of COVID-19. Psycological Impact of the Pandemic in Frontline Workers in Spain. *International Journal of Environmental Research and Public Health*, *17*(21), 8149. doi: https://doi.org/10.3390/ijerph17218149

Sim, M. (2020). The COVID-19 pandemic: major risk to healthcare and other workers on the front line. *Occupational and Environmental Medicine*, *77*(5), 281-282. doi: http://dx.doi.org/10.1136/oemed-2020-106567