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Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

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ABSTRACT

Introduction. The World Health Organization declared a pandemic due to COVID-19 on 11 March 2020 and remarked on the relevance of studying its consequences on mental health. A cross-sectional study was conducted to evaluate the immediate psychological response to the pandemic and quarantine in Spain.

Methods. From March 23 to 28, an online survey was conducted in a Spanish community sample. Sociodemographic, health and behavioral variables were surveyed. Depression and anxiety sypmtoms were measured by the Depressión, Anxiety and Stress Scale (DASS-21), posttraumatic symptoms by the Impact of Event Scale-Revised (IES-R) and self-care patterns by the Self-Care Scale (SCS).

Results. 3524 respondents were included, 24.1% showed moderate or severe psychological impact, 21.9% reported moderate, severe or extremely severe depression and 32% moderate, severe or extremely severe anxiety. Female gender, younger age, low education, psychiatric diagnosis, worse physical health, contact history, lack of routines, and some psychological symptoms were related to worse psychological responses.

Conclusions. This study provides evidence for a negative mental health impact of the pandemic in the Spanish community that started at the early stages and identifies some variables linked to worse psychological response.

Keywords. Covid-19; Depression; Anxiety; Stress; Psychological Trauma.

RESPUESTA PSICOLÓGICA INMEDIATA DURANTE UNA ETAPA MUY TEMPRANA DE LA PANDEMIA POR CORONAVIRUS (COVID-19) EN UNA MUESTRA COMUNITARIA ESPAÑOLA

RESUMEN

Introducción. La Organización Mundial de la Salud declaró la pandemia por COVID-19 el 11 de marzo de 2020 y subrayó la importancia de estudiar sus consecuencias en la salud mental de la población. Se presenta un estudio transversal evaluando las respuestas psicológicas a la primera ola de la pandemia en España.

Metodología. Entre el 23 y 28 de marzo, se realizó una encuesta online en una muestra española seleccionada tras un muestreo en bola de nieve. Se recogieron variables sociodemográficas, de salud y comportamentales. Se evaluaron la ansiedad y depresión a través de la Escala de Depresión, Ansiedad y Estrés (DASS-21), los síntomas postraumáticos a través de la Escala de Impacto del Evento Revisada (IES-R) y los patrones de autocuidado con la Escala de Autocuidado (SCS).

Resultados. Se incluyeron 3524 participantes, 24,1 % mostraron síntomas postraumáticos moderados o severos, 21,9 % refirieron síntomas depresivos moderados, severos o extremadamente severos y 32 % síntomas ansiosos moderados, severos o extremadamente severos. El género femenino, la menor edad, menor nivel educativo, diagnóstico psiquiátrico previo, peor salud física, contacto con COVID-19, falta de rutinas y algunos síntomas psicológicos se relacionaron con peores respuestas psicológicas.

Conclusiones. Se confirma el impacto sobre la salud mental que la primera ola de la pandemia tuvo en España

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Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

y se identifican algunas variables relacionadas con peor respuesta que pueden resultar útiles en la prevención en salud mental en futuras situaciones equivalentes.

Palabras Clave. Covid-19; Depresión; Ansiedad; Estrés; Trauma Psicológico.

On March 11th, 2020, the World Health Organization (WHO) declared a global pandemic caused by coronavirus desease (COVID-1). The quick spread of COVID-19 is causing numerous deaths as well as devastating socioeconomic and health effects. The WHO has remarked on the relevance of studying its consequences on mental health.

Recent research has evaluated the psychological impact of COVID-19. Some studies are focused on specific risk groups such as health workers[1], survivors[2,3] or mental health patients [4,5].

Considering the psychological response of the general population to the pandemic and quarantine, at the time this research was conducted, the only data available came from China [6,7,8]. As the pandemic spread, data from other affected countries arrived, such as Japan, Italy, Spain, Soudi Arabia, etc. [9,10,11,12,13,14]. Most studies found moderate to severe depressive, stress and/or anxiety symptoms in a large percentage (16-64%) of the population studied [8,10,11,15,16] while post-traumatic symptoms have been reported in 7-53% [8,6]. The deterioration in the population mental health has also been stablished by a few longitudinal studies comparing pre-pandemic to pandemic data in diverse populations [17,18,19,20].

Psychological response to the pandemic is also influenced by some sociodemographic factors. Female gender and lower education levels are linked to worse mental health [21]. In regards to age, a vulnerability factor has been described for both, youth and elderly [77,22]. The presence of previous physical or mental health issues are correlated to a worse psychological response [23]. Some psychological aspects such as uncertainty [24], risk exposure, risk perception, isolation and loneliness [25,26], as well as the declaration of the pandemic itself [27] are also linked to a deterioration in different mental health variables.

The aim of this research is to study the immediate psychological response to the COVID-19 and quarantine in a Spanish community sample at the very early stage of the pandemic.

METHOD

Participants

A total of 4139 people completed the survey but the final sample comprised 3524 respondents (n = 3524) because 120 participants were removed because they did not provide informed consent, 21 people were under 18 years old, and 430 were respondents from other countries and 44 abnormal responses.

Most participants were women (74.2%, $n = 2611$, M_{total} = 39.24, SD_{total} = 12.00; M_{women} = 38.49, SD_{women} = 11.39; M_{men} = 41.40, SD_{men} = 13.38). A total of 68.6% ($n = 2415$) of the respondents were married or in a relationship. Concerning the level of education, 75.8% ($n = 2670$) had at least a university degree. Concerning housing, 43.9% ($n = 1547$) of the sample lived in a flat with either a terrace or balcony, 26.3% ($n = 926$) in a flat without any outdoor areas and 18.2% ($n = 640$) in a house with outdoor areas. A total of 85.1% ($n = 2999$) had always lived in the same house, and only 6.9% ($n = 244$) of the participants needed to move to another house because of the COVID-19 pandemic. Regarding household characteristics, 31.6% ($n = 1113$) of them were living with their partners and children, 24% ($n = 847$) only with their partners and 15.4% ($n = 541$) with their parents. Most of the participants were not living with children (50.2%, $n = 1770$).

Study Design

A cross-sectional survey design was adopted to assess the immediate psychological response to the event and the mental health state of a Spanish community sample at an early stage of the COVID-19 pandemic. All procedures contributing to this work comply with the ethical standards and with the Helsinki Declaration of 1975, as revised in 2008. The research protocol was approved by the Loyola Andalucía University Ethics Committee (Spain).

A snowball sampling strategy was utilized. The online survey was quickly shared through social media throughout the country, and the adult Spanish population was encouraged to participate without any reward. Participants provided informed consent after receiving a complete description of the study and completed the survey through an online platform.

Procedures and Instruments

The recruitment period and data collection lasted from March 23 to 28, 2020 (9-14 days after the declaration of the emergency state and quarantine during the first wave)[28]. For further epidemiological data see Supplemental Data 1.

The survey was composed by an ad hoc collection of sociodemographic, health and behavioral variables and by three standardized and validated instruments. All quantitative items that were used were of forced-choice format. Data collected included gender, age, education, employment, household composition and housing location in the

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

past 14 days, subjective perceptions of physical and mental state, antecedents of psychiatric illness, general routines and toxic habits during the quarantine, different measures of exposure, perceived threat of COVID-19 infection, somatization, agoraphobia, sleep patterns, drug use, hypochondriac concerns, and level of isolation.

The Impact of Event Scale-Revised (IES-R) was used to assess psychological impact of a traumatic event and measures posttraumatic symptoms [29]. This self-reported questionnaire is composed of 22 items distributed across three subscales: avoidance, intrusion, and hyperarousal. The global IES-R score was categorized following previous literature [30]: 0–23 (normal), 24–32 (mild psychological impact), 33–36 (moderate psychological impact), and > 37 (severe psychological impact).

The Depression, Anxiety and Stress Scale (DASS-21) [31] was used to assess depression and anxiety symptoms in the sample. The results were categorized as previously proposed [32], with the scores multiplied by 2 to establish comparisons to the 42-item DASS and to Wang's study [8]. The depression subscale scores were categorized into normal (0–9), mild (10–12), moderate (13–20), severe (21–27), and extremely severe depression (28–42). The anxiety subscale scores were categorized into normal (0–6), mild (7–9), moderate (10–14), severe (15–19), and extremely severe anxiety (20–42). The stress subscale scores were categorized into normal (0–10), mild stress (11–18), moderate stress (19–26), severe stress (27–34), and extremely severe stress (35–42). Both the IES-R and the DASS-21 have been validated in Spanish populations [33,34]. For our study, the Cronbach's alpha index was .91 for the IES-R and .86, .85 and .90 for the depression, anxiety and stress subscales, respectively, of the DASS-21.

The Self-Care Scale (SCS) was the validated instrument assessing habitual self-care patterns of participants [35]. It is a Likert (1-7) self-reported questionnaire composed of 31 items divided into 6 subscales: self-destructive behavior, taking into account one´s own needs, resentment over not receiving reciprocity, difficulty in receiving and accepting help, lack of tolerance of shared positive affect and absence of positive activities. Higher scores in the SCS mean worse self-care patterns. For our study, we used the global index which showed a Cronbach's alpha index of .94.

Data Analysis

Firstly, descriptive statistics were calculated for sociodemographic variables, physical and psychological symptoms, psychiatric antecedents, exposure and perceived threat of COVID-19, and additional health variables. Percentages of responses were calculated according to the number of respondents per response with respect to the number of total

responses to a question. The scores of the IES-R, DASS-21 and their subscales were expressed as the mean and standard deviation. As a second step, in order to analyze the relation between variables, we performed Student's t-test and ANOVA for comparisons between categorical and quantitative variables. We dichotomized SCS scores base on the mean (below and above the mean). We calculated Pearson's correlation for continuous variables. Finally, a univariate general linear model was used to analyze which categorical variables predict the IES-R and DASS-21 scores. All the analyses were complemented with the corresponding effect size statistic [36], one directly obtained from the statistical program and another one calculated using an online calculator [37].

All tests were two-tailed, with a significance level of $p <$ .05. Statistical analysis was performed using SPSS Statistics 26.0 (IBM SPSS Statistics, New York, United States).

RESULTS

Health and Behaviors during the Quarantine

A total of 16.9% (n = 595) of the participants considered that they had been in direct contact with any material or person infected with COVID-19, while 41.8% (n = 1474) answered "possibly". A total of 3.2% (n = 112) of the sample reported being infected, while 28.9% (n = 1018) responded maybe yes. Nevertheless, only 3.8% (n = 135) had been quarantined for compatibility with COVID-19 symptomatology. A total of 20.8% (n = 733) considered themselves to be part of a COVID-19 risk group. It is important to remark that at that moment, uncertainty considering this variable was high because of the lack of an effective testing.

Concerning the level of isolation during the quarantine period, up to 53.4% (n = 1882) stated that they stayed at home the whole time, and 40.8% (n = 1437) went out only for essential reasons (work, shopping, etc.). A total of 72.4% (n = 2550) tried to maintain and organize their schedules concerning sleeping, and 69.1% (n = 2435) felt that they maintained their general daily routines.

A total of 32% (n = 1132) of the participants had previously been diagnosed with any mental disorder. Of them, 19.7% (n = 289) manifested that their symptoms had worsened after the alarm state. A total of 93.3% (n = 3289) of the included respondents had not received any professional psychological support during the quarantine. On a scale from 0 to 10, participants evaluated their current physical/medical condition with a median score of 7.59 (SD=1.46) and their mental state with a mean score of 6.66 (SD=1.74). Since the alarm state and subsequent quarantine was declared, 4.6% (n = 163) of the participants stated that they were taking more sedative drugs than they had before, 8%

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

(n = 281) smoked more, 7.6% (n = 269) drank more alcohol and 1% (n = 37) took more drugs. A total 22% (n = 776) were suffering at that moment sleep disturbances, 24% (n = 849) reported that their level of somatization increased, 10.4% (n = 67) suffered more agoraphobic symptoms, and 13.3% (n = 470) showed higher hypochondriac concerns even without any physical symptoms.

Early Psychological Response and Factors Related

When measured by the IES-R, a total of 24.1% (n = 850) of the participants showed mild psychological impact of the event, 8.1% (n = 286) moderate impact and 16% (n = 565) severe psychological impact. Considering the responses on DASS-21 subscales, a total of 5.3% (n = 188) showed mild depression, 5.1% (n = 78) moderate depression, and 0.2% (n = 8) severe depression. A total of 10.8% (n = 380) suffered mild anxiety levels, 8.1% (n = 286) moderate levels, 2.4% (n = 84) severe levels and 0.3% (n = 10) extremely severe levels. 10.8% (n = 380) Twenty-three percent (n = 819) of the participants showed mild stress levels and 2.6% (n = 93) moderate levels.

Considering the complete sample (n = 3524), mean score for IES-R was 23.82 (SD = 12.05), 14.87 (SD = 12.19) for the DASS-21 and 3.08 (SD = 1.06) for the SCS. Stratifying by gender, women (n = 2611) scored 25.56 (SD = 11.81) in the IES-R, 16.05 (SD = 12.42) in the DASS-21 and 3.10 (SD = 1.08) in the SCS; while men (n = 909) scored 18.79 (SD = 11.30) in the IES-R, 11.46 (SD = 10.78) in the DASS-21and 3.01 (SD = 0.99) in the SCS.

We studied mean differences in the psychological responses considering a selection of sociodemographic, health and behavioral variables, which can be checked in Supplemental Data 2 (IES-R global and subscales) and Supplemental Data 3 (DASS-21 global and subscales).

Lower scores were found in men in all measures of psychological impact. In global variables such us the global IES-R (t(3518) = -15.05, p < .001, d = 0.15) and global DASS-21 (t(3518) = -10.62, p < .001, d = 0.12). Regarding age, the 18-33 group obtained the highest means on IES-R (F(3, 3520) = 20.12, p < .001, d = 0.23) and DASS-21 (F(3, 3520) = 23.33, p < .001, d = 0.23) and for both global scale and their subscales, as age increases, scores decrease. In general, as the educational level increases, scores in the IES-R and DASS-21 decrease (F(4, 3470) = 14.39, p < .001, d = 0.25; F(4, 3470) = 16.15, p < .001, d = 0.26, respectively).

Those who could not say whether they had ever been diagnosed with any mental disorder manifested significantly worse global IES-R scores (F(2, 3521) = 111.64, p < .001, d = 0.52) and worse DASS-21 scores (F(2, 3521) = 229.91, p <

.001, d = 0.82) compared to those diagnosed and those without any diagnosis. Participants who did not maintain reasonable routines during the quarantine showed significantly more posttraumatic, depressive and anxiety symptoms than those with structured routines (DASS-21: F(2, 3521) = 84.49; p < .001, d = 0.44; IES-R: F(2, 3521) = 26.68, p < .001, d = 0.26). Those participants who increased the use of sedative drugs and alcohol scored significantly higher on the IES-R (F(3, 3520) = 86.34, p < .001, d = 1.16; F(3, 3520) = 15.55, p < .001, d = 0.33, respectively) and DASS-21 (F(3, 3520) = 106.23, p < .001, d = 1.32; F(3, 3520) = 13.84, p < .001, d = 0.30, respectively) and their three subscales. Participants with increased sleeping troubles scored significantly higher on the IES-R (F(3, 3520) = 321.84, p < .001, d = 1.09) and DASS-21(F(3, 3520) = 265.81, p < .001, d = 0.99) and their three subscales.

Regarding participants' history of contact with materials or people infected with COVID-19, those who answered "maybe" showed higher IES-R (F(2, 3521) = 8.93, p < .001, d = .14) and higher DASS-21 scores (F(2, 3521) = 8.37, p < .001, d = 0.13) than those who stated "no". When asked if they considered themselves to be part of a risk group for the coronavirus, those who answered "maybe" (compared to those who answered "no") scored significantly higher on IES-R (F(2, 3521) = 52.91, p < .001, d = 0.48) and DASS-21 (F(2, 3521) = 67.09, p < .001, d = 0.58) and their subscales. On the other hand, those who considered themselves to be infected (confirmed or not) scored significantly higher on the DASS-21 (F(2, 3521) = 33.91, p < .001, d = 0.28) and their three subscales. In IES-intrusion and IES-Hyperarousal, people who answered "maybe" and "yes" showed very similar scores.

Correlations amongst self-care and psychological measurements were calculated by Pearson's correlation coefficient. DASS-21 scores were strongly correlated with IES-R (r = .73, p < .001) and SCS (r = .66, p < .001). The IES-R and SCS were significantly but not as strongly correlated (r =.48, p < .001).

Influence of Sociodemographic, Health and Behavioral Variables on the Psychological Response

The model proposed by the univariate general linear model for explaining the IES-R includes gender, age, level of education, previous diagnosis of mental health disorder, increased use of sedative medication, risk group for COVID-19 and the categorical Self-Care Scale. This model explains 32% of the variance in IES-R scores, and all variables are significant (see Table 1). The more predictive variables are the SCS (ηp^2 = .16), gender (ηp^2 = .05) and sedative medication (ηp^2 = .03).

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

The parameters of the model are presented in Table 2, in which we can see the significant categories of each predictive variable. Attending to the magnitude and sign of parameters, participants with the highest scores on the IES-R present the following characteristics: being a young woman, having a low level of education, possibly being at risk of COVID-19, having previous diagnosis of a mental health disease, having low scores on self-care, and taking more sedative medication.

The first model tested included other nonsignificant variables. Somatization, agoraphobia, hypochondria or problems with sleep, were not included because of collinearity problems. Interaction terms between variables were also nonsignificant, so they were removed.

The model proposed for explaining the DASS-21 includes gender, age, level of education, previous diagnosis of mental health disorder, increased use of sedative medication, considering oneself to be in a risk group for COVID-19, categorized Self-Care Scale, COVID-19 infection, perceived physical

Table 1	Univariate general linear model for predicting IES-R scores

	F	p	ηp^2
Corrected model	91.56	<.001	.32
Intersection	1464.04	<.001	.30
Education	7.43	<.001	.01
Gender	197.65	<.001	.05
Age	16.07	<.001	.01
MH diagnosis	5.32	.005	.00
Sedative medication	40.70	<.001	.03
Risk group	35.99	<.001	.02
Self-care	221.90	<.001	.16
Error			
Total			
Corrected Total			

Notes: ηp^2 = partial eta-square, considering reference values of .01, .06 and > .14 as small, medium and large sizes, respectively (Cohen, 1988); and R-square = .32 (adjusted R-square = .30).

Table 2	Parameters in the univariate general linear model for predicting IES-R

Parameters	B	SE	T	p	95% Confidence Interval		ηp^2
					Lower limit	Upper limit	
Intersection	29.22	1.25	23.45	.00	26.78	31.66	.18
Education							
Primary studies or lower	2.74	1.02	2.70	<.001	0.75	4.74	.02
Professional training	2.48	0.59	4.23	<.001	1.33	3.64	.01
Secondary School	1.58	0.64	2.48	.01	0.33	2.83	.00
University	1.67	0.39	4.29	<.001	0.91	2.44	.01
Master, postgraduate, doctorate	Reference						
Age							
18–33	5.16	1.15	4.51	<.001	2.92	7.41	.00
34–49	4.08	1.15	3.62	<.001	1.87	6.28	.00
50–65	1.96	1.15	1.70	.09	-0.30	4.21	.00
66–79	Reference						
Gender							
Men	-5.56	0.40	-14.06	<.001	-6.34	-4.79	.05
Woman	Reference						
At risk for COVID-19							
No	-2.50	0.44	-5.52	<.001	-3.32	-1.59	.01
Maybe	1.56	0.62	2.52	.01	0.34	2.78	.00
Yes	Reference						
Diagnosis of MH disease							
No	-1.25	0·40	-3.11	<.001	-2.03	-0.46	.00
Maybe	0.46	1·23	0.38	.71	-1.95	2.88	.00
Yes	Reference						
Sedative medication							
Similar	1.82	0·58	3.14	<.001	0.685	2.96	.00
More	9.02	0·83	10.86	<.001	7.39	10.64	.03
Less	2.89	1·75	1.65	.1	-0.55	6.33	.00
Not	Reference						
Self-care							
≤ 2·02	-14.17	0·62	-22.99	.00	-15.38	-12.96	.13
2·03–3·08	-10.21	0·52	-19.42	<.001	-11.24	-9.18	.10
3·09–4·14	-4.89	0·52	-9.35	<.001	-5.93	-3.87	.03
≥4·15	Reference						

Notes: ηp^2 = Partial eta square, considering as reference values .01, .06 and > .14 as small, medium and large sizes, respectively.

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

condition and routine at home. This model explained 51% of the variance in the DASS-21, and all variables were significant (see Table 3). With respect to the effect sizes, the more predictive variables are self-care (ηp^2 = .30), sedative medication (ηp^2 = .05) and previous diagnosis of mental health disease (ηp^2 = .03).

The parameters of the model are presented in Table 4. With respect to the magnitude and sign of parameters, participants with the highest scores on the DASS-21 presented the following characteristics: being a young woman, having a low level of education, possibly being in a risk group for COVID-19, possibly being infected, having a previous psychiatric diagnosis, having worse self-care, showing increased intake of sedative drugs, having poor self-perceived physical condition and having no routine at home.

The first model tested included other variables related to the COVID-19 situation and psychological symptoms, but they were nonsignificant or not included because of collinearity problems. Interaction terms between variables were also nonsignificant, so they were removed.

DISCUSSION

The present study provides data on the presence of posttraumatic, anxious and depressive symptoms in the early days of the pandemic in Spain. In general, it is consonant with González-Sanguino's study [10] but our study obtained higher anxiety rates (32% compared to 21.6%). Lower psychological impact (24.1% versus 53.8%) but higher stress rates (30.3% vs 8.1%) were obtained when compared to the Wang et al. study [8] by using the same instruments. Less difference was found concerning depression and anxiety. A

longitudinal study by the same group [38] showed that the initial psychological impact decreases over the first 4 weeks but anxiety, depression and stress measures are maintained. Longitudinal studies in Spanish population are needed in order to confirm this tendency.

Insomnia has been estimated at 38.9% across five studies

Table 3	Univariate general linear model for predicting DASS-21

	F	P	ηp^2
Corrected model	150.42	<.001	.51
Intersection	991.84	<.001	.23
Education	3.60	.006	.00
Gender	67.26	<.001	.02
Age	19.93	<.001	.02
Mental health diagnosis	45.67	<.001	.03
Relaxing drugs	64.89	<.001	.05
Risk group	26.10	<.001	.02
Self-care	502.18	<.001	.30
Self-perceived physical condition	23.75	<.001	.01
Infected by COVID-19	12.38	<.001	.01
Routine at home	9.71	<.001	.01
Error			
Total			
Corrected Total			

Notes: ηp^2 = partial eta-square, considering reference values of .01, .06 and > .14 as small, medium and large sizes, respectively (Cohen, 1988); and R-square = .51 (adjusted R-square = .51).

Table 4	Parameters in the univariate general linear model for predicting DASS-21

Parameter	B	SE	T	P	95% Confidence Interval		ηp^2
					Lower limit	Upper limit	
Intersection	24.59	1.12	22.04	.00	22.40	26.77	.12
Risk for COVID-19							
No	-0.78	0.39	-2.02	.04	-1.54	-0.02	.00
Maybe	2.58	0.53	4.83	< .0001	1.53	3.62	.01
Yes	Reference						
Diagnosis of MH disease							
No	-3.22	0.35	-9.32	< .0001	-3.90	-2.54	.03
Maybe	0.32	1.06	0.30	.76	-1.75	2.39	< .0001
Yes	Reference						
Self-care							
≤ 2.02	-18.60	0.54	-34.67	< .0001	-19.65	-17.55	.26
2.03-3.08	-15.33	0.46	-33.54	< .0001	-16.23	-14.44	.25
3.09-4.14	-9.12	0.45	-20.21	< .0001	-10.01	-8.24	.11
≥4.15	Reference						

Table 4	Parameters in the univariate general linear model for predicting DASS-21 (continuation)						
Education							
Primary studies or low	1.91	0.88	2.17	.03	0.18	3.64	.00
Professional training	0.87	0.51	1.71	.09	-0.13	1.87	.00
Secondary school	1.66	0.55	3.01	<. 0001	0.58	2.74	.00
University	0.91	0.34	2.72	.01	0.25	1.57	.00
Master, postgraduate, doctórate	Reference						
Gender							
Men	-2.79	0.34	-8.20	< .0001	-3.46	-2.13	.02
Woman	Reference						
Age							
18-33	4.51	0.99	4.56	< .0001	2.57	6.44	.01
34-49	2.99	0.97	3.10	< .0001	1.10	4.89	.00
50-65	1.30	0.99	1.32	.19	-0.64	3.24	.00
66-79	Reference						
Sedative medication							
Similar	3.05	0.50	6.10	< .0001	2.07	4.03	.01
More	9.40	0.71	13.16	< .0001	8.00	10.81	.05
Less	3.43	1.51	2.28	.02	0.48	6.38	.00
Not	Reference						
Self-perceived physical condition							
Bad (1-4)	4.56	0.85	5.38	< .0001	2.90	6.22	.01
Normal (5-7)	1.66	0.32	5.26	< .0001	1.04	2.28	.01
Good (8-10)	Reference						
Infected by COVID-19							
No	-1.60	0.33	-4.88	< .0001	-2.24	-0.96	.01
Yes	-0.29	0.86	-3.32	.74	-1.98	1.41	< .0001
Maybe	Reference						
Routine at home							
Half	0.94	0.36	2·64	<0·0001	0.24	1.65	.00
No	2.36	0.59	3·99	<0·0001	1.20	3.52	.01
Yes	Reference						

Notes: ηp^2 =Partial eta square, considering as reference values .01, .06 and > .14 as small, medium and large sizes, respectively.

[21] and it has previously been linked to higher levels of PTSS [6]. Twenty-two percent of the surveyed people were having sleep disturbances. Social support may help to improve sleep [39] and might be considered when designing early psychosocial interventions in the community. Other symptoms, such as somatization, hypochondriac concerns and agoraphobia had not been previously evaluated at least to our knowledge.

On the other hand, female gender, being young, uneducated, exposed or infected with COVID-19, previous mental or physical disability had been already related to worse psychological responses were correlated to worse psychological responses, as previous literature pointed [6,8,11,40].

The only study evaluating self-care behaviors in general population during the COVID-19 pandemic found that 66 to 80 % of the population complied with self-care recommendations [41] but it did not evaluate general self-care patterns as the SCS does In our study, we found that those self-care patterns the participants showed in the year before the pandemic were strongly related to the way the participants coped with it, so self-care driven interventions may help preventing psychological distress in future waves.

Housing and household characteristics were not related to psychological responses, at least at an early stage of the pandemic. Concerning the patterns of exits from the house during the quarantine, we hypothesize that those who were allowed to work might belong to essential working sectors and be more exposed to the virus, but our study cannot confirm it. In a situation of isolation of the whole population, going out may not be interpreted as safe and may generate uncertainty. In fact, prior studies have noted that uncertainty was one of the topics more related to worse psychological responses to stressful events [23,42,43].

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic
(COVID-19) in a Spanish Community Sample

Concerning gender differences, possible explanations can be considered. First, women may be more vulnerable to exhibiting a worse psychological response to traumatic events in general and during an epidemic/pandemic in particular [44,45,46]. Second, social constructions around gender may be related to different risks in women suffering trauma-related disturbances [47]. Third, some men may be using an avoidance defense mechanism. We do not know if the lower percentage of respondent men found in this and similar studies [8,40] indicates that they are calmer with respect to the pandemic or, in contrast, that they may find it harder to think about. Finally, other reasons related to the characteristics of recruitment (social media use) and procedures cannot be excluded.

In our study, participants with a previous psychiatric diagnosis were more impacted, and their psychiatric symptoms worsened in one in five patients. Hao et al.,[5] research found that 31.6% of psychiatric patients and 13.8% of healthy controls received a score that met the diagnostic criteria for PTSD. Anxiety, depression and stress levels were also significantly higher in this population when compared to health controls. Furthermore, it is known that access to mental health services for current psychiatric patients during the pandemic is often difficult [22]. This provides preliminary support for considering them a vulnerable group and a target for secondary prevention programs. In regards to the general population, to increase social support based both on natural support networks and local psychosocial interventions in the communities are needed in order to increase resilience and prevent mental health struggling[39,48].

Lastly, some strengths and limitations of the study must be mentioned. The use of a snowball sampling may have conditioned the characteristics of the sample which cannot be considered a fully accurate representation of the general Spanish population although the sample size is considerable. These aspects are shared with other studies carried out immediately after the first outbreak, in concordance with the limitations the quarantine measures supposed [7,8]. The cross-sectional study and the lack of prepandemic data in our sample is also a limitation of the study. The main strengths of the study can be listed as follows: 1) It was carried out at a very early stage of the pandemic, 2) It used two instruments that allowed us to compare Spanish and Chinese populations, and 3) It included a measure of previous self-care patterns.

Acknowledgements
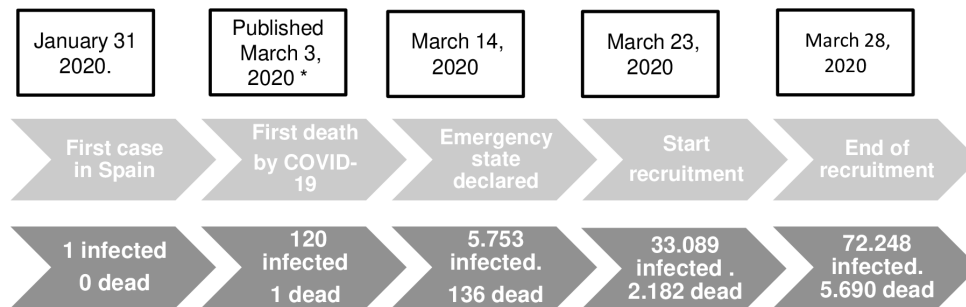
Conflicts of interest: None.

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Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

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Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

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Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

Supplemental Data

COVID-19 epidemiologicla data in Spain

January 31 2020.	Published March 3, 2020 *	March 14, 2020	March 23, 2020	March 28, 2020
First case in Spain	**First death by COVID-19**	**Emergency state declared**	**Start recruitment**	**End of recruitment**
1 infected 0 dead	**120 infected 1 dead**	**5.753 infected. 136 dead**	**33.089 infected . 2.182 dead**	**72.248 infected. 5.690 dead**

*Dead in February the 13th in Valencia (retrospective research)

Note: In Spain, the quarantine due to the first wave of the pandemic lasted from March 14 to May 4, when a progressive de-escalation started, lasting until 21th June 2020.

Data extracted from the Health Ministery. Government of Spain (2020)

Supplemental Data 2

Mean difference analysis for IES-R subscales

	Descriptive statistics		Global IES					IES–Intrusion					IES–Avoidance					IES–Hyperarousalion				
Gender	N	%	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	p	d
Men	909	25·8	18·79	11·29	−15·04	<0·0001	0·15	6·99	4·90	−13·97	<0·0001	0·14	7·75	4·60	−13·24	<0·0001	0·14	4·05	3·40	−12·78	<0·0001	0·14
Women	2611	74·2	25·55	11·80				9·71	5·48				10·05	4·47				5·80	3·97			
Age																						
18–33	1187	33·7	25·23	12·04	20·11	<0·0001	0·23	9·34	5·63	11·19[a]	<0·0001	0·06	10·10	4·66	20·02	<0·0001	0·15	5·77	3·97	33·17[a]	<0·0001	0·11
34–49	1637	46·5	23·97	12·00				9·11	5·43				9·43	4·56				5·42	3·91			
50–65	609	17·3	21·50	11·89				8·37	5·24				8·47	4·46				4·65	3·71			
66–79	91	2·6	18·12	10·03				6·92	4·44				8·08	4·65				3·10	2·63			
Nivel educativo																						
Primary school or lower	106	3·1	26·94	13·70	14·37	<0·0001	0·25	10·54	6·25	11·03	<0·0001	0·17	10·09	4·75	10·51	<0·0001	0·19	6·30	4·35	11·55	<0·0001	0·20
Professional training	385	11·1	26·23	13·05				10·08	5·81				10·12	4·87				6·02	4·16			
Upper secondary school	314	9·0	24·22	12·42				8·98	5·68				9·56	4·73				5·68	4·11			
University (Bachelors)	1412	40·6	24·42	11·69				9·18	5·34				9·76	4·57				5·47	3·84			
University (Master/Doctorate)	1258	36·2	21·94	11·68				8·33	5·30				8·80	4·49				4·80	3·75			
Student																						
Public worker	395	11·2	25·95	11·84	10·636	<0·0001	0·35	9·15	5·50	6·79[a]	<0·0001	0·26	10·67	4·64	10·09	<0·0001	0·26	6·11	3·93	12·35[a]	<0·0001	0·24
Hire hand	775	22·0	23·74	11·89				9·25	5·30				9·19	4·54				5·30	3·86			
Self-empoyed	1208	34·3	23·75	12·02				8·98	5·48				9·47	4·59				5·30	3·84			
Self-employed with employees	454	12·9	21·90	11·58				8·22	5·28				8·88	4·54				4·79	3·72			
Retired	107	3·0	21·61	12·70				8·59	5·44				8·03	4·66				4·98	3·96			

Mean difference analysis for IES-R subscales

	N	%	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	p	d
Unemployed	150	4.3	19.54	10.68				7.39	4.67				8.43	4.44				3.71	3.16			
Other	262	7.4	27.66	12.72				10.50	5.80				10.55	4.77				6.60	4.39			
Otro	173	4.9	23.99	11.94				9.24	5.91				9.36	4.27				5.37	3.89			
Mental disorder																						
No	2319	65.8	21.71	11.41	111.64	<0.0001	0.52	8.29	5.17	57.43	<0.0001	0.43	8.88	4.54	53.43	<0.0001	0.41	4.52	3.52	148.62	<0.0001	0.69
I don´t know	73	2.1	29.82	12.66				11.27	6.02				11.05	4.47				7.49	4.31			
Yes	1132	32.1	27.75	12.17				10.34	5.71				10.52	4.58				6.89	4.10			
Worsening of mental disorder																						
No	898	61.3	21.91	10.98	243.08	<0.0001	1.39	8.02	5.01	196.16	<0.0001	1.27	9.07	4.59	78.14	<0.0001	0.68	4.81	3.40	262.84	<0.0001	1.49
Yes	289	19.7	36.74	10.66				14.44	5.34				12.03	4.27				10.26	3.87			
Maybe	278	19.0	31.39	9.85				11.72	4.90				11.91	4.00				7.75	3.32			
Routine																						
More or less	841	23.9	25.75	11.69	26.68	<0.0001	0.26	9.69	5.45	14.16[a]	<0.0001	0.14	10.00	4.52	12.84	<0.0001	0.13	6.05	3.81	36.08[a]	<0.0001	0.23
No	248	7.0	26.79	13.60				9.97	6.36				10.17	5.00				6.64	4.55			
Yes	2435	69.1	22.85	11.87				8.67	5.33				9.19	4.58				4.97	3.80			
Sedative drugs intake																						
Similar	384	10.9	26.80	11.82	86.34	<0.0001	1.16	9.94	5.45	69.23	<0.0001	1.11	10.22	4.67	24.96	<0.0001	0.50	6.64	3.89	125.65	<0.0001	1.35
More than used to	163	4.6	36.64	11.03				14.49	5.32				11.94	4.41				10.20	3.85			
Less than used to	35	1.0	28.82	12.69				10.37	5.40				11.40	4.72				7.05	4.18			
No	2942	83.5	22.66	11.62				8.57	5.29				9.19	4.56				4.89	3.67			
Alcohol consumption																						
Similar	986	28.0	22.12	11.82	15.55	<0.0001	0.33	8.43	5.26	7.88	<0.0001	0.30	8.80	4.60	14.43	<0.0001	0.42	4.87	3.69	14.22[a]	<0.0001	0.43
More than used to	269	7.6	27.39	11.63				10.05	5.38				10.75	4.33				6.57	4.04			
Less than used to	574	16.3	23.62	11.93				8.88	5.30				9.49	4.68				5.24	3.87			
No	1695	48.1	24.30	12.12				9.22	5.60				9.61	4.59				5.46	3.97			
Sleeping troubles																						
Similar	910	25.8	25.05	11.19	321.84	<0.0001	1.09	9.38	4.99	258.78[a]	<0.0001	1.01	9.7	4.48	81.12	<0.0001	0.58	5.90	3.60	390.34[a]	<0.0001	1.25
More than used to	776	22.0	33.12	11.14				13.14	5.43				11.33	4.25				8.63	3.85			
Less than used to	100	2.8	25.21	11.18				8.88	4.86				10.40	4.95				5.93	3.70			
No	1738	49.3	18.94	10.14				6.98	4.60				8.40	4.52				3.55	2.91			
Contact to COVID-19																						
No	1455	41.3	22.83	11.82	8.93	≤0.001	0.14	8.53	5.30	9.69	<0.0001	0.16	9.32	4.69	2.77	0.06	---	4.97	3.73	12.54[a]	<0.0001	0.12
Yes	595	16.9	24.09	12.23				9.41	5.61				9.25	4.56				5.42	3.89			
Maybe	1474	41.8	24.68	12.13				9.32	5.52				9.67	4.56				5.69	4.05			
Risk group for COVID-19																						
No	2353	66.8	22.67	11.56	52.91	<0.0001	0.48	8.44	5.23	41.67[a]	<0.0001	0.38	9.27	4.58	20.93	<0.0001	0.32	4.95	3.70	53.17[a]	<0.0001	0.48
I don´t know	438	12.4	28.95	13.47				10.94	5.92				10.78	4.89				7.22	4.39			
Yes	733	20.8	24.44	11.85				9.66	5.56				9.26	4.45				5.50	3.90			
Infected																						
No	2394	67.9	22.76	11.78	29.40	<0.0001	0.27	8.49	5.30	32.95[a]	<0.0001	0.35	9.28	4.63	6.33	0.00	0.02	4.98	3.74	31.38[a]	<0.0001	0.32
Yes	112	3.2	25.91	13.27				10.44	5.95				9.21	4.79				6.25	4.55			
Maybe	1018	28.9	26.08	12.20				10.07	5.59				9.89	4.53				6.11	4.08			
Quarantined																						
No	3389	96.2	23.75	11.98	2.95	0.09	0.12	8.98	5.44	-1.67	0.09	---	9.44	4.59	-0.63	0.53	---	5.32	3.89	4.42	0.04	0.18
Yes	135	3.8	25.57	13.61				9.78	5.91				9.74	5.31				6.04	4.21			
Self-care																						
Below the mean	1810	51.4	19.11	10.53	25.95[a]	<0.0001	0.84	7.29	4.76	20.21[a]	<0.0001	0.68	8.01	4.38	20.12	<0.0001	0.68	3.80	3.13	26.19[a]	<0.0001	0.88
Upper the mean	1714	48.6	28.79	11.54				10.82	5.56				10.98	4.37				6.98	3.97			

Notes:
[a] a Robust statistic: Welch
[b] Effect size: Cohen's d. Reference values of 0.20, 0.50 and 0.80 were used as small, medium and large sizes respectively.

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

Supplemental Data 3

| | | | Mean difference analysis for Self-Care scale and DASS-21 subscales | | | | | | | | | | | | | | | | | | | |

			Global DASS					DASS-Stress					DASS- Depression					DASS-Anxiety				
Gender	N	%	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	p	d	M	SD	F	P	d
Men	909	25·8	11·46	10·78	−10·61	< .0001	0·12	5·35	4·68	−12·41	<0001	0·13	3·53	3·85	−4·53	≤ .001	0·08	2·58	3·41	−11·21	<.0001	0·13
Women	2611	74·2	16·05	12·42				7·67	5·33				4·22	4·21				4·16	4·30			
Age																						
18-33	1187	33·7	16·60	12·93	23·33	< .0001	0·23	7·80	5·58	36·73[a]	< .0001	0·13	4·58	4·44	13·71[a]	≤ .001	0·21	4·22	4·45	21·76[a]	< .0001	0·27
34-49	1637	46·5	14·83	11·84				7·19	5·12				3·89	4·02				3·75	4·07			
50-65	609	17·3	12·47	11·32				5·80	4·80				3·57	3·86				3·10	3·73			
66-79	91	2·6	9·00	8·99				4·02	4·18				2·91	2·95				2·07	2·70			
Nivel educativo																						
Primary school or lower	106	3·1	19·04	13·21	16·15	< .0001	0·26	7·91	5·52	6·63	< .0001	0·17	6·08	4·36	24·22	< .0001	0·29	5·03	4·90	13·89	< .0001	0·10
Professional training	385	11·1	16·93	13·69				7·70	5·78				4·82	4·67				4·40	4·57			
Upper secondary school	314	9·0	16·80	13·48				7·55	5·74				4·93	4·58				4·30	4·61			
University (Bachelors)	1412	40·6	15·15	12·02				7·20	5·19				4·08	4·11				3·86	4·11			
University	1258	36·2	12·95	11·07				6·50	5·00				3·30	3·64				3·13	3·69			
Employment																						
Student	395	11·2	17·99	13·36	14·27[a]	< .0001	0·36	8·38	5·72	12·85[a]	≤ .001	0·24	5·23	4·77	11·91[a]	< .0001	0·33	4·50	·23	7·90[a]	< .0001	0·19
Public worker	775	22·0	13·96	11·41				6·89	5·04				3·53	3·72				3·93	·14			
Hire hand	1208	34·3	14·63	11·73				7·00	5·16				3·87	3·91				4·06	·12			
Self-empoyed	454	12·9	13·66	11·46				6·60	5·00				3·72	3·97				3·87	·18			
Self-employed with employees	107	3·0	12·73	11·40				6·30	4·72				3·17	3·52				4·20	·41			
Retired	150	4·3	10·37	10·46				4·54	4·62				3·35	3·60				3·27	·27			
Unemployed	262	7·4	19·54	14·99				8·58	5·82				5·88	5·33				5·10	·31			
Other	173	4·9	14·77	11·58				7·07	5·28				3·98	3·76				3·85	·29			
Mental disorder																						
No	2319	65·8	11·64	9·97	275·82[a]	< .0001	0·82	5·82	4·70	195·87[a]	< .0001	0·64	3·11	3·31	152·80[a]	< .0001	0·93	2·71	3·26	191·85[a]	< .0001	0·68
Maybe	73	2·1	23·40	12·10				10·03	5·38				7·23	4·83				6·13	4·52			
Yes	1132	32·1	20·92	13·66				9·45	5·46				5·74	4·90				5·73	4·89			
Worsening of mental disorder																						
No	898	61·3	13·16	10·11	388·57	< .0001	1·64	6·44	4·60	327·50	< .0001	1·61	3·61	3·77	156·11[a]	< .0001	1·14	3·11	3·27	268·95[a]	< .0001	1·47
Yes	289	19·7	32·47	13·05				13·83	4·61				9·01	5·45				9·63	5·22			
Maybe	278	19·0	24·73	10·84				11·12	4·52				6·59	5·20				7·02	4·17			
Routine																						
More or less	841	23·9	17·77	12·45	84·49[a]	< .0001	0·62	8·02	5·24	32·52[a]	< .0001	0·22	5·21	4·39	116·97[a]	<0001	0·73	4·54	4·32	40·59[a]	< .0001	0·43
No	248	7·0	21·28	14·97				8·63	6·08				7·27	5·43				5·37	5·18			
Yes	2435	69·1	13·21	11·35				6·59	5·11				3·30	3·61				3·32	3·87			
Sedative drugs intake																						
Similar	384	10·9	20·12	13·55	138·44[a]	< .0001	1·32	8·90	5·34	120·86[a]	< .0001	1·37	5·80	5·01	59·98[a]	< .0001	0·81	5·42	4·65	82·43[a]	< .0001	1·06
More than used to	163	4·6	29·65	13·32				13·13	4·68				7·68	5·07				8·84	5·39			

Milagrosa Sánchez-Martín, *et al.*

Immediate Psychological Response during the Very Early Stage of the Coronavirus Pandemic (COVID-19) in a Spanish Community Sample

Mean difference analysis for Self-Care scale and DASS-21 subscale

	n	%	M	SD	stat	p	d	M	SD	stat	p	d	M	SD	stat	p	d	M	SD	stat	p	d
Less than used to	35	1·0	21·66	12·90				9·29	5·33				6·43	3·84				5·94	4·93			
No	2942	83·5	13·28	11·11				6·47	5·01				3·58	3·77				3·23	3·70			
Alcohol consumption																						
Similar	986	28·0	13·22	11·03	14·18[a]	<.0001	0·30	6·43	4·88	15·01[a]	<.0001	0·26	3·63	3·81	7·32[a]	<0001	0·05	3·16	3·62	13·57[a]	<.0001	0·39
More than used to	269	7·6	18·32	12·78				8·74	5·23				4·81	4·51				4·76	4·66			
Less than used to	574	16·3	15·21	12·27				7·04	5·42				4·32	4·13				3·85	4·12			
No	1695	48·1	15·16	12·55				7·19	5·37				4·06	4·23				3·90	4·30			
Sleeping troubles																						
Similar	910	25·8	16·97	12·10	265·81[a]	<.0001	0·99	7·92	5·06	251·94[a]	<.0001	1·00	4·70	4·32	144·05[a]	<.0001	0·71	4·34	4·16	171·52[a]	<.0001	0·79
More than used to	776	22·0	23·07	13·19				10·61	5·11				6·19	4·78				6·27	5·00			
Less than used to	100	2·8	15·90	10·67				7·59	4·94				4·51	3·58				3·80	3·73			
No	1738	49·3	10·05	9·20				5·02	4·43				2·70	3·15				2·32	2·96			
Contact to COVID-19																						
No	1455	41·3	13·98	11·96	8·36	<.0001	0·13	6·70	5·26	6·77	<.0001	0·08	3·87	4·11	4·85	.01	0·01	3·41	3·96	10·10[a]	<.0001	0·08
Yes	595	16·9	14·70	11·92				7·11	5·25				3·84	3·90				3·75	4·10			
Maybe	1474	41·8	15·81	12·44				7·42	5·26				4·30	4·25				4·09	4·31			
Risk group for COVID-19																						
No	2353	66·8	13·81	11·54	67·09	<.0001	0·58	6·70	5·11	37·88	<.0001	0·45	3·78	3·96	36·42	<.0001	0·44	3·85	·08	51·01	<.0001	0·52
I don´t know	438	12·4	21·01	14·37				9·25	5·72				5·90	4·98				5·06	·24			
Yes	733	20·8	14·61	11·70				6·97	5·17				3·78	3·86				4·06	·15			
Infected																						
No	2394	67·9	13·72	11·62	33·91	<.0001	0·28	6·64	5·16	25·80	<.0001	0·26	3·78	3·99	14·29[a]	<.0001	0·20	3·30	3·84	40·15[a]	<.0001	0·34
Yes	112	3·2	17·43	13·78				8	5·50				4·63	4·84				4·79	4·79			
Maybe	1018	28·9	17·29	12·88				7·99	5·37				4·59	4·32				4·70	4·56			
Quarantined																						
No	3389	96·2	14·80	12·14	2·93	.09	0·12	7·06	5·26	-0·65	0·51	---	4·03	4·12	-0·49	0·61	...	3·70	4·10	-3·21	.002	0·15
Yes	135	3·8	16·63	13·20				7·36	5·26				4·21	4·44				5·05	4·80			
Self-care																						
Below the mean	1810	51·4	8·61	7·69	36·42[a]	<..0001	1·23	4·62	4·01	31·98[a]	<.0001	1·08	1·97	2·16	34·94[a]	<.0001	1·18	2·00	2·69	28·14[a]	<.0001	0·95
Upper the mean	1714	48·6	21·48	12·56				9·65	5·20				6·22	4·57				5·59	4·58			

Notes:

[a] Robust statistic: Welch

[b] Effect size: Cohen's d reference values of 0.20, 0.50 and 0.80 were used as small, medium and large sizes respectively.