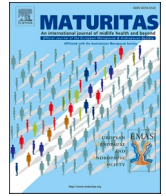




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Health-related quality of life and resilience in peri- and postmenopausal women during Covid-19 confinement

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ABSTRACT

Objective: To assess the impact of confinement due to the coronavirus (Covid-19) pandemic on health-related quality of life (HRQoL) and resilience in peri- and postmenopausal women.

Material and Methods: We used an online questionnaire which was sent between April 30th and May 13th, 2020 to women aged 40–70 years who were peri- or postmenopausal according to STRAW criteria. We used the 16-item Cervantes short-form scale (Cervantes-SF) to measure HRQoL, and the 14-item Wagnild and Young Resilience Scale (RS-14) to measure resilience. High scores on the Cervantes-SF indicate low HRQoL and high scores on the RS-14 indicate high levels of resilience. Covid-19 status, sociodemographic descriptors, and lifestyle variables were also evaluated.

Results: We included 2430 peri- and postmenopausal women with valid questionnaires. All items of the Cervantes-SF were completed in 2151 cases, whilst the RS-14 was completed in 2413 cases. There was a negative correlation between scores on the Cervantes-SF and RS-14 scales (Rho -0.350; $p < 0.0001$). Multiple linear regression analysis revealed a statistically significant association between Cervantes-SF scores and living with others (β -coefficient -10.2; $p < 0.001$), use of antidepressants (β 9.3; $p < 0.001$), physical activity (β -8.6; $p < 0.001$) and sexual activity (β -2.7; $p < 0.001$). Resilience was associated with the use of antidepressants (β -5.9; $p < 0.001$), physical activity (β 3.2; $p < 0.001$) and sexual activity (β 1.7; $p = 0.005$). According to the multivariate analysis, there were no associations between either Covid-19 or menopausal status and HRQoL or resilience scores.

Conclusions: During the period of mandatory Covid-19 confinement, peri- and postmenopausal women who engaged in physical and sexual activity had higher HRQoL and higher levels of resilience, whilst women who were using antidepressants had lower HRQoL and lower levels of resilience. HRQoL was greater in women who lived with others.

1. Introduction

Coronavirus disease (Covid-19) is a pandemic disease that is

currently affecting several aspects of daily life. Spain and Italy were the first European countries to be affected, with Spain being among the countries that have reported the highest number of cases in May 2020

Abbreviations: Covid-19, coronavirus disease; Cervantes-SF, cervantes short form scale; HRQoL, health-related quality of life; RS-14, wagnild and young resilience scale 14 items.

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[1]. When the Spanish Government declared a state of emergency to reduce the spread of the disease, a mandatory lockdown was imposed where all Spanish citizens were obliged to remain confined to their homes for most (if not all) of the time.

Isolation, however, has been strongly linked to depression, anxiety and cognitive decline, and reduces resilience factors such as self-worth, sense of purpose and feeling valued [2,3]. Moreover, the multitude of factors associated with this quarantine period, including fears related to health and contagion, misinformation about the pandemic, travel bans, government orders, boredom, frustration, inadequate supplies and financial losses, could all have an impact on physical and psychological health, particularly for people in menopausal transition period [4,5]. The negative effects of quarantine are associated with the duration of isolation, among other factors, and some researchers have suggested that such consequences could be long-lasting [6,7].

Additionally, in peri- and postmenopausal women, forced alterations in lifestyle habits resulting from quarantine such as changes in interpersonal relationships, nutrition habits, exercise, or sexuality could lead to an aggravation of their menopausal symptoms and a loss of health-related quality of life (HRQoL), particularly in terms of psycho-behavioral aspects and romantic relationships [8].

Resilience, defined as the capacity of an individual (or group of individuals) to overcome adversity, characterizes those people who, despite experiencing adverse situations, show healthy psychological development and can even become stronger as a consequence of such experiences. Recent research has shown that there is an association between resilience and menopause, with some authors indicating that high resilience reduces the impact of menopausal symptoms [9–11].

The aim of this study was to evaluate the relationship between Covid-19 confinement and the HRQoL and resilience of peri- and postmenopausal women. A secondary objective was to assess how changes in lifestyle and personal factors impact on their HRQoL and resilience during this prolonged period of quarantine.

2. Materials and methods

We conducted a cross-sectional study during the mandatory confinement period following the state of emergency declared in Spain on March 15th as a response to the Covid-19 outbreak. This study was conducted between April 30th and May 13th, 2020 using an online questionnaire that included the Cervantes sort form (Cervantes-SF) and the 14-item Wagnild and Young Resilience Scale (RS-14). The study was sponsored by the Spanish Menopausal Society and approved by the Aragon Ethical Committee (CEICA) on April 29th, 2020 (C.I. PI20/188). Following the Spanish norm, a consent form was not necessary for anonymized and voluntary online surveys. All women were informed in detail of the tool and its privacy policy, giving the option to oppose, rectify or delete their data during performing the survey. We use an online application questionnaire through the Google Apps platform / suite of collaborative applications, in the Google Apps for Education (GAPE) program. This is a tool used by the University of Zaragoza which acquires responsibility for the privacy and data security. Women's participation was completely anonymous and voluntary. Data that could identify the women with the answers given were not recorded. All women were provided with a corporate phone number or email address to resolve possible doubts or questions regarding the study.

The questionnaires were distributed by e-mail and social networks among women living in Spain. We included all women aged between 40 and 70 years who could understand the survey and agreed to participate. They were required to meet at least one of the following STRAW criteria [12]: persistent >7-day difference in length of consecutive cycle and vasomotor symptoms (perimenopause) or an interval of at least 12 months since the last menstrual period (postmenopause). If the participants failed to meet all these criteria, the questionnaire was blocked and annulled. The included participants answered questions about socio-demographic aspects such as lifestyle, employment, or treatments,

Table 1

Baseline data of 2430 climacteric women in COVID19 confinement.

	N (%) or mean ± SD
Covid-19 status	1895 (78.0)
• Not suspected	38 (1.6)
• Confirmed (PCR+)	126 (5.2)
• Suspected (no PCR) ^a	371 (15.3)
• Unknown	
Age (years) n=2354	56.9 ± 5.8
• < 45y	8 (0.3)
• 45–54y	834 (35.4)
• 55–64y	1259 (53.5)
• ≥ 65y	253 (10.7)
Menopausal status	370 (15.2)
• Perimenopausal	2060 (84.8)
• Postmenopausal	
Age at final menstrual period, n=2060	49.6 ± 4.3
Years from the final menstrual period, n=2060	8.6 ± 6.2
Treatment during menopause	151 (6.2)
• Hormonal (local or systemic)	2279 (93.8)
• No or natural treatments	
Education level	225 (9.3)
• Primary	775 (31.9)
• Secondary	1430 (58.8)
• University	
Living with others	1932 (79.5)
• Yes	245 (10.1)
• No	253 (10.4)
• Unknown	
Dependent minors	497 (20.5)
• Yes	1933 (79.5)
• No	
Caring for elderly dependents	490 (20.2)
• Yes	1940 (79.8)
• No	
Access to garden or other outside space	939 (38.6)
• Yes	1120 (46.1)
• No	371 (15.3)
• Unknown	
Employment activity	616 (25.3)
• Never worked	600 (24.7)
• Working from home	151 (6.2)
• Temporarily unemployed	612 (25.2)
• Working outside the home	80 (3.3)
• Recently unemployed	371 (15.3)
• Unknown	
Use of Antidepressants	458 (18.8)
• Yes	1972 (81.2)
• No	
Physical activity ^b	1777 (73.1)
• Yes	653 (26.9)
• No	
Physical activity reduced by 50 % (n = 1777)	1291 (72.7)
• Yes	484 (27.2)
• No	
Sexual activity ^c	1258 (51.8)
• Yes	780 (32.1)
• No	392 (16.1)
• Unknown	

PCR: protein chain reaction to analyze the presence of SARS-CoV-2.

^a Suspected symptoms of covid19 related in the absence of confirmation by PCR.

^b Regular exercise of moderate intensity (i.e. walk quickly for 90 min per week; run, ride or dance for 60 min per week; or do resistance exercises such as Pilates, for 120 min per week).

^c Coitus, necking or engage in masturbation.

and completed the Cervantes-SF and RS-14 scales.

Cervantes-SF is a validated scale for measuring HRQoL in peri- and postmenopausal Spanish women. Cervantes-SF measures the negative aspects of HRQoL, with higher scores indicating poor HRQoL. This questionnaire has 16 items, scored on a Likert-type scale ranging from 0 to 5, across various domains (menopause and health, psychology, sexuality, partner relationships) related to menopausal symptoms and complaints. The scale is scored from 0 to 100, where 0 indicates the best

Table 2
Scores on Cervantes SF scale and Wagnild and Young Resilience Scale (WYRS).

Cervantes SF scale global (n = 2151)*	
Mean ± standard deviation	38.1 ± 16.9
Median [p25-p75]	36.9 [25.3–49.3]
Cronbach' s α coefficients	0.853
Cervantes SF scale domain	
• Health and Menopause (n = 2426)	38.3 ± 21.9
• Psychological (n = 2430)	31.6 ± 25.2
• Sexual (n = 2414)	51.9 ± 27.8
• Partner (n = 2219)	30.6 ± 30.2
WYRS global score (n = 2413)*	
Mean ± standard deviation	73.5 ± 13.5
Median [p25-p75]	75.0 [65.0–83.0]
Cronbach' s α coefficients	0.917

* Resultant sample after excluding all cases with 1 or more items left unanswered.

and 100 the worst possible menopause related HRQoL [13,14]. A recent study on menopausal women has demonstrated the applicability of Cervantes-SF in the clinical practice [15]. The RS-14 (Spanish version) was used to assess resilience and to measure levels of psychological coping during Covid-19 confinement. This scale consists of 14 items and the total score is obtained by summing all items, which ranges from 14 to 98 points. RS-14 is a positive scale, where higher scores indicate higher resilience [16].

A participant was confirmed as having Covid-19 when the standard specific protein chain reaction (PCR) test (using a nasopharyngeal sample) was positive for SARS-CoV-2. The woman was suspected of Covid-19 if she presented the related symptoms in the absence of confirmation by PCR.

To be considered physically active, the women were required to engage in regular exercise of moderate intensity (i.e. walk quickly for 90 min per week; run, ride or dance for 60 min per week; or do resistance exercises such as Pilates, for 120 min per week). To be considered sexually active, the criteria were to be in a sexual relationship (coitus or necking) or to engage in masturbation.

2.1. Statistical analysis

Discrete variables are expressed in frequencies and percentages, and quantitative variables were presented as means and standard deviations. The Cervantes-SF score was calculated as described previously [13]. The internal consistency of the Cervantes-SF and RS-14 scales was evaluated by calculating Cronbach's alpha coefficients. Student t-tests and ANOVAs were used to analyze the relationship between Cervantes-SF and RS-14

scores and the other measured variables. Post-hoc Bonferroni test was used to analyze the association between each of the categories in variables with 3 or more categories. Man-Whitney and Kruskal Wallis tests were used for quantitative non-parametric variables. Spearman or Pearson's correlation coefficients were calculated to determine the correlation between Cervantes-SF and RS-14 scores and the continuous variables. Backward stepwise multiple linear regression analysis was carried out to identify the independent variables related to Cervantes-SF and RS-14, where total Cervantes-SF or RS-14 scores were included as the dependent variables. Variables with *p*-value < 0.05 in the univariate analysis were used to construct the final linear regression model. All statistical tests were two-tailed and the significance level was set at *p* < 0.05.

3. Results

The questionnaires were completed by a total of 2462 peri- and postmenopausal women who met the inclusion criteria. We excluded 32 cases due to incomplete data, and the final sample consisted of 2430 cases. These data are displayed in Table 1.

The Cervantes-SF scale was completed in 2151 cases, 279 were excluded for leaving one or more of the 16 items unanswered (mainly items 13–16, related to sexual activity and partner relationships). The mean global score of the Cervantes-SF was 38.1 ± 16.9. The scores obtained on the different Cervantes-SF domains are displayed in Table 2. Regarding the resilience scale, 2413 women completed all items, and only 17 cases were excluded due to one or more items being left unanswered. The mean resilience score was 73.5 ± 13.5. There was a significant negative correlation between the Cervantes-SF score and resilience (Rho -0.350, *p* < 0.001) (Fig. 1). Both scales showed good internal consistency, as measured by Cronbach's alpha (0.83 for Cervantes-SF and 0.91 for RS-14) (Table 3).

Table 3 displays the Cervantes-SF and RS-14 scores obtained during Covid-19 confinement, along with their relationship with the socio-demographic descriptors and personal characteristics. Although Covid-19 status was not associated with differences in HRQoL measured by Cervantes-SF, we found a statistically significant association with resilience, the latter being higher in women with a confirmed Covid-19 diagnosis (*p* < 0.001). Menopausal status, and age at last menstrual period were associated with HRQoL, but not with resilience. We found a significantly lower HRQoL (higher Cervantes-SF score) in postmenopausal women (*p* = 0.015) and a negative correlation between age at menopause onset and Cervantes-SF score (*p* < 0.001). Education level was associated with HRQoL and resilience; completion of university studies was associated with better HRQoL (*p* = 0.011) and resilience (*p*

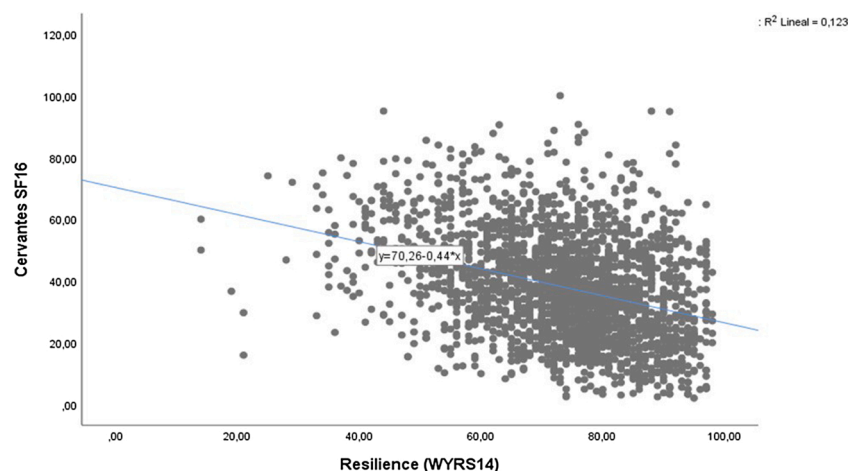


Fig. 1. Correlation between Cervantes short form (Cervantes SF16) and Wagnild and Young Resilience Scales (WYRS14). High values indicate poor health-related quality of life in Cervantes-SF16 and good resilience in WYRS-14.

Table 3
Relationship between Cervantes score and resilience. Data are presented as mean ± standard deviation.

	Cervantes Score	p value	Resilience score	p value
Covid-19 status	38.2 ± 17.3	0.496	73.9 ± 13.2	<
• Not suspected	36.2 ± 16.8		76.3 ± 13.2	0.001
• Confirmed (PCR+)	39.7 ± 17.9		74.2 ± 15.1	
• Suspected (no PCR) ^a	37.2 ± 14.3		70.8 ± 13.5	
• Unknown				
Age (years). Correlation, Rho	0.008	0.705	-0.029	0.158
• < 45y	42.0 ± 11.7	0.345	70.9 ± 8.7	0.295
• 45–54y	37.5 ± 16.9		74.2 ± 13.3	
• 55–64y	37.1 ± 17.0		73.1 ± 13.4	
• ≥ 65y	38.1 ± 16.9		72.9 ± 14.2	
Menopausal status	36.1 ± 15.7	0.015	73.3 ± 13.1	0.786
• Perimenopausal	38.5 ± 17.1		73.5 ± 13.6	
• Postmenopausal				
Age at final menstrual period. Correlation, Rho	-0.081	<0.001	0.030	0.169
Years from final menstrual period. Correlation, Rho	0.029	0.226	-0.039	0.084
Treatment in menopause	36.1 ± 19.0	0.159	73.4 ± 16.0	0.888
• Hormonal (local or systemic)	38.2 ± 16.7		73.5 ± 13.5	
• No or natural treatments				
Studies	40.0 ± 18.4	0.011	73.5 ± 13.4	0.001
• Primary	39.1 ± 17.0		72.1 ± 14.7	
• Secondary	37.2 ± 16.5		74.3 ± 12.8	
• University				
Living with others	37.1 ± 16.6	<0.001	73.9 ± 12.9	0.108
• Yes	49.8 ± 18.6		73.7 ± 14.5	
• No	37.4 ± 14.7		72.3 ± 16.1	
• Unknown				
Dependent minors	37.8 ± 16.1	0.742	73.9 ± 12.9	0.495
• Yes	38.1 ± 17.1		73.4 ± 13.7	
• No				
Caring for elderly dependents	40.0 ± 16.8	0.009	71.8 ± 14.3	0.002
• Yes	37.6 ± 16.9		73.9 ± 13.3	
• No				
Access to garden or other outside space	36.9 ± 16.9	0.002	74.8 ± 13.0	0.008
• Yes	39.4 ± 17.6		73.3 ± 13.2	
• No				
Employment activity	38.7 ± 17.8	0.009	73.0 ± 13.7	0.060
• Never worked	37.4 ± 16.1		75.2 ± 12.1	
• Working from home	35.9 ± 17.3		74.5 ± 13.0	
• Temporarily unemployed	38.3 ± 17.4		73.7 ± 13.3	
• Working outside the home	44.4 ± 20.1		73.3 ± 15.1	
• Recently unemployed				
Use of Antidepressants	47.9 ± 17.6	< 0.001	68.2 ± 14.8	<
• Yes	35.7 ± 15.9		74.3 ± 12.9	0.001
• No				
Physical activity ^b	36.4 ± 16.5	< 0.001	74.5 ± 13.1	<
• Yes	42.7 ± 17.0		70.7 ± 14.2	0.001
• No				
Physical activity reduced by 50 %	37.7 ± 16.5	< 0.001	74.2 ± 13.4	0.122
• Yes	33.0 ± 16.1		75.3 ± 12.3	
• No				
Sexual activity ^c	32.1 ± 14.8	< 0.001	74.9 ± 12.5	<0.001
• Yes	49.9 ± 15.9		72.4 ± 14.0	
• No	37.1 ± 14.4		71.1 ± 15.2	
• Unknown				

PCR: protein chain reaction to analyze the presence of SARS-CoV-2.

^a Suspected symptoms of covid19 related in the absence of confirmation by PCR.

^b Regular exercise of moderate intensity (i.e. walk quickly for 90 min per week; run, ride or dance for 60 min per week; or do resistance exercises such as Pilates, for 120 min per week).

^c Coitus, necking or engage in masturbation.

= 0.001) than other levels. Living alone in the participant’s usual residence during the Covid-19 confinement was associated with significantly poorer HRQoL ($p < 0.001$). However, caring for the elderly was also associated with a significant reduction in HRQoL ($p = 0.009$) and resilience ($p = 0.002$). Living in a home with access to an outside space, such as a garden or terrace, was associated with significantly higher HRQoL ($p = 0.002$) and resilience ($p = 0.008$). Employment status had an impact on confined women; HRQoL was significantly worse in those women who lost their job recently ($p = 0.009$), and resilience was higher in those who worked from home ($p = 0.040$, using a Bonferroni test to compare those working at home and those who do not). The use of antidepressants was significantly associated with a lower HRQoL and resilience ($p < 0.001$); conversely, engaging in physical activity at home was significantly associated with HRQoL and resilience ($p < 0.001$). Those women who reduced their usual physical activity by approximately half showed a poorer HRQoL ($p < 0.001$), but not resilience. HRQoL and resilience were significantly higher in those women who were sexually active ($p < 0.001$) in comparison with those who were not (Table 3).

The multivariate analysis revealed that the factors independently associated with better HRQoL were living with others ($p < 0.001$), being physically active ($p < 0.001$) and being sexually active ($p < 0.001$); whilst the only independent factor associated with poor HRQoL was the use of antidepressants ($p < 0.001$). The independent factors associated with better resilience were being physically active ($p < 0.001$) and being sexually active ($p = 0.005$); whilst the only factor related to poor resilience was the use of antidepressants ($p < 0.001$) (Table 4).

4. Discussion

The findings of this study indicate that the HRQoL and resilience of peri- and postmenopausal women confined due to the Covid-19 pandemic are influenced by several demographic descriptors related to their lifestyle and environment. Women who are physically and/or sexually active have significantly higher levels of HRQoL and resilience. Conversely, women who use antidepressants showed lower HRQoL and resilience.

A recent study has found that people who have suspected COVID19 symptoms have higher rates of depression and lower HRQoL than those without such symptoms [17]. In our cohort of peri- and postmenopausal women, we found no association between either confirmed or suspected Covid-19 and a poorer HRQoL, as measured by this Cervantes-SF scale. One possible reason for this discrepancy could be the fact that, unlike other scales, Cervantes-SF measures HRQoL related to menopause and not generic HRQoL, whilst only a small percentage of our cohort had suspected or confirmed Covid-19 (6.8 %). Moreover, more than half of the women in our study sample had completed university studies, a variable that was associated with higher HRQoL and resilience. During the Covid-19 confinement period, other studies have demonstrated that a high level of education and health literacy are associated with a low occurrence of depression and better HRQoL [17].

Although menopausal status was associated with HRQoL (but not with resilience), this status was not an independent factor in the multivariate analysis. These findings are in accordance with those of other studies. For instance, a study conducted in Spain found an association between perimenopausal status and lower resilience, but not in the multivariate analysis [18,19]. In addition, researchers in China found no association between HRQoL and menopausal status, suggesting that HRQoL was strongly linked to the attitude that is shown towards the menopause (along with health status and lifestyle), rather than hormonal status [20].

In relation to HRQoL measured by the Cervantes-SF score, we found significantly higher HRQoL in women who live with others compared with those who live alone. This variable obtained the highest coefficient regarding HRQoL in multivariate analysis. This finding is in line with those of other studies reporting that isolation at home during

Table 4

Factors related to scores on the Cervantes SF and Resilience scales. Results of the multiple linear regression analysis including variables with $p < 0.05$ in univariate analysis.

CERVANTES SF $r^2 = 0.161$, adjusted $r^2 = 0.155$. $p < 0.001$					
Factors	β coefficient	Standard error	95 % Confidence interval	t	p value
Menopause status	1.31	1.76	-2.15 to 4.76	0.74	0.459
Age at final menstrual period	-0.15	0.11	-0.36 to 0.06	-1.40	0.165
Education level	-0.60	0.67	-1.90 to 0.71	-0.90	0.370
Living with others	-10.21	1.49	-13.07 to -7.24	-6.83	<0.001
Caring for elders	2.09	1.15	-0.16 to 4.33	1.82	0.069
Having garden/outside space	-1.52	0.88	-3.25 to 0.21	-1.73	0.085
Use of antidepressants	9.27	1.16	4.01 to -11.54	8.04	<0.001
Physical activity ^a	-8.63	2.07	-12.69 to -4.58	-4.18	<0.001
Sexual activity ^b	-2.75	0.39	-3.52 to -1.99	-7.06	<0.001
RESILIENCE $r^2 = 0.055$, adjusted $r^2 = 0.052$. $p < 0.001$					
Factors	β coefficient	Standard error	95 % Confidence interval	t	p value
Covid-19 status	0.54	0.57	-0.60 to 1.66	0.94	0.349
Education level	0.51	0.43	-0.35 to 1.36	1.17	0.243
Caring for elders	-0.85	0.72	-2.25 to 0.55	-1.19	0.235
Having garden/outside space	1.21	0.57	0.09 to 2.33	2.13	0.093
Use of antidepressants	-5.94	0.73	-7.37 to -4.51	-8.16	<0.001
Physical activity ^a	3.19	0.64	1.93 to 4.46	4.95	<0.001
Sexual activity ^b	1.67	0.59	0.51 to 2.83	2.83	0.005

^a Regular exercise of moderate intensity (i.e. walk quickly for 90 min per week; run, ride or dance for 60 min per week; or do resistance exercises such as Pilates, for 120 min per week).

^b Coitus, necking or engage in masturbation.

confinement has very negative effects on mental health status and HRQoL [6,21–25]. These studies found that the threat of death, difficulty in obtaining foods, medicines, and other supplies, and barriers faced when trying to access information about the disease with new media were all factors that have a negative impact on women who live alone. In addition, depressive symptoms are more frequent in women who live alone [26–28]. However, living with elderly relatives who require care was found to be a situation related to low HRQoL and resilience. This agrees with other observations, and provides support for the argument that caring for the elderly could be a living situation that requires long-term emotional support and counseling to ensure that these women are able to manage their emotional reactions to losses in their own lives [29].

Living in a home that offers access to outside space is a valued resource during quarantine. In our study, women with access to a garden, patio, or terrace had better HRQoL and resilience than those without such access. This agrees with other studies that have found a positive association between gardening and various health outcomes such as depression [30,31]. In this regard, poor HRQoL could be related to poor quality housing [32]. In this way, income and socio-economic status could act as a modulator factor in HRQoL, because housing with outside areas is more accessible in families with higher incomes.

It is well-documented that vulnerability to depression increases during the menopause transition [33,32], with some studies demonstrating a strong association between depression, use of antidepressants, and poor HRQoL and resilience [18,34]. Thus, preventing the onset or exacerbation of depression could significantly improve the HRQoL in postmenopausal women. This idea is supported by the findings of our study, where the use of antidepressants was the only independent factor related to poor HRQoL and resilience. This finding demonstrates the important impact of depressive status on peri- and postmenopausal women.

Physical and sexual activity were independent factors of good HRQoL and resilience. These findings could indicate that peri- and postmenopausal women who are physically and/or sexually active are more likely to show high satisfaction with life, and probably, better health outcomes. However, the positive impact of sexual activity on HRQoL and resilience was modest, suggesting a mild positive effect on peri- and postmenopausal women in comparison to physical activity or

living with others. Previous studies have found that physical activity is linked to better HRQoL [35–37], and plays an important role in increasing resilience [38]. Further, sexual activity has been found to be a good predictor of global life satisfaction in older adults [39]. Taken together, these findings point to the possibility that presence of sexual activity and especially physical activity during the Covid-19 confinement are factors that could improve the well-being of peri- and postmenopausal women.

Resilience had a positive and significant correlation to HRQoL (negative correlation with Cervantes-SF score) in peri- and postmenopausal women. Resilience could act as a mediator of the effects of various stressors, such as servicing as a caregiver, on women's estimation of their quality of life. Several factors related to menopause assessed in this study were associated with both resilience and HRQoL, which suggests that resilience could act as a moderator of the effects of menopausal status on HRQoL.

This study has some limitations related to the design of the research. In the self-report surveys used here, the data could be inaccurate or some items left unanswered simply because the women could not completely understand the questions, or because they lacked medical feedback or professional help. Other limitations were the loss of sexual function data due to the exclusion of surveys that were incomplete with regard to sexual function questions. In addition, taking in consideration our results about sexual activity, the lack of specific questions regard partnership, sexual orientation and forms of sexual activity limits the conclusions related to sexuality. Nonetheless, the strength of our study includes the large sample that was recruited in a short period of time (which also followed a prolonged period of lockdown). Finally, the present study is novel due to the fact that we evaluated HRQoL and resilience in these women in the context of the recent confinement situation.

5. Conclusions

The levels of HRQoL and resilience showed by peri- and postmenopausal women during the Covid-19 confinement were higher for those who reported being physically active and, in a lesser extent, for those being sexually active. In contrast, the use of antidepressants was found to be strongly associated with lower HRQoL and resilience. Covid-

19 and menopausal status do not alter the levels of HRQoL or resilience, as revealed by a multivariate analysis. However, with the exception of those caring for the elderly, living with others during confinement was associated with better HRQoL. Further, studies comparing cohorts of women in confinement with other similar participants out of this period could be helpful for evaluating more fully the differences in HRQoL and resilience according to lifestyle-related factors in peri- and postmenopausal women.

Contributors

Pluvio J. Coronado contributed to the conception and design of the study, data interpretation, and preparation of the manuscript.

Maria Fasero contributed to the conception and design of the study, data interpretation, and preparation of the manuscript.

Borja Otero contributed to data interpretation.

Sonia Sanchez contributed to data interpretation.

Esther de la Viuda contributed to data interpretation.

Isabel Ramirez-Polo contributed to data interpretation.

Plácido Llana contributed to data interpretation.

Nicolas Mendoza contributed to data interpretation and preparation of the manuscript.

Laura Baquedano contributed to the conception and design of the study, data interpretation, and preparation of the manuscript.

All authors saw and approved the final version of the paper.

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Ethical approval

The study was sponsored by the Spanish Menopausal Society and approved by an Ethical Committee on April 29th, 2020 (C.I. PI20/188).

Research data (data sharing and collaboration)

There are no linked research data sets for this paper. Data will be made available on request.

Provenance and peer review

This article was not commissioned and was externally peer reviewed.

Declaration of Competing Interest

The authors report no declarations of interest.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.maturitas.2020.09.004>.

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