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Changes in Online Sexual Activities During the Lockdown Caused by COVID-19 in Spain: "INSIDE" Project

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Abstract

Introduction The lockdown, as a measure to stop the spread of COVID-19, has had an impact on different areas of our life, including sexuality. This study aims to analyze its impact on online sexual activities (OSAs) in people who lived in Spain during confinement.

Methods This study involved 1448 people aged 18–60 years who were assessed through an online survey during confinement in Spain (April, 2020). The design of this study was a cross-sectional design, in which information on OSA before confinement and OSA, physical and social environment, and other variables related to gender and negative mood during confinement were collected at a single point in time.

Results Our results show that both men and women, regardless of their sexual orientation, have experienced an increase in time and frequency invested in OSAs. In addition, individuals have also innovated their OSAs, for example, contacting sex workers. Factors such as high sexual desire, being a man, and consuming pornography were positively related to the frequency of ASOs during confinement, while high sexual desire and sexting were related to the time spent on ASOs during confinement.

Conclusions The COVID-19 lockdown has had an impact on online sexuality. Both men and women have experienced an increase in their online sexual activity during confinement. In addition, some factors related to the increase in the time and frequency of OSAs are identified.

Policy Implications Identifying how these changes have been during this very restrictive period and what factors related to the increase in OSAs can help us prevent possible consequences in similar scenarios.

Keywords COVID-19 · Online Sexual Activities · Lockdown · Sexuality · Pornography

Introduction

The pandemic caused by the SARS-CoV-2 virus and the measures used to stop its spread have had a significant impact on our lives (Ballester-Arnal & Gil-Llario, 2020; Cheval et al., 2021; Halder et al., 2020; McPherson et al., 2021; Panchal et al., 2021; Serafini et al., 2020; Xiong et al., 2020).

One of the affected areas is sexuality. Sexuality, and specifically sexual health, encompasses physical, mental, emotional, and social aspects (World Health Organization, 2018, 2020).

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These aspects have been significantly affected by the pandemic, especially during strict lockdowns, so it is not surprising that it has also had an impact on sexuality. In general, several studies have identified a widespread impairment in sexual functioning, characterized by a decrease in sexual desire and sexual frequency (Cito et al., 2021; Karsiyakali et al., 2021; Li et al., 2020). These studies have been conducted in various locations and social contexts, highlighting factors associated with a decline in sexual desire and activity (Ballester-Arnal et al., 2020; Gleason et al., 2021; Jacob et al., 2020; Karsiyakali et al., 2021; López-Bueno et al., 2021; Wignall et al., 2021). Some of these factors, such as lack of privacy and intimacy, emotional problems, and social distancing, are closely related to the pandemic. Other factors, such as gender or sexual orientation, are also relevant in the impact of confinement on sexuality. For example, we know that women reported a greater decrease in sexual desire and sexual interests during confinement, especially in terms of desire outside the couple (Štulhofer et al., 2022; Wignall et al., 2021). Whereas, with regard to sexual orientation, sexual minority individuals experienced greater sexual desire and activity during confinement than heterosexual individuals (Ballester-Arnal et al., 2023; Nebot-Garcia et al., 2023; Wignall et al., 2021). Moreover, they were more likely to explore new sexual practices during this period than heterosexual individuals (Ballester-Arnal et al., 2021).

Impact of the COVID-19 Pandemic on Online Sexual Activity

Variables related to the impact of COVID-19 on sexuality may have varying effects specifically on online sexual activities (OSAs). Firstly, it is widely acknowledged that during the pandemic, the Internet emerged as an essential tool for work, academics, socializing, leisure, and more, leading to a significant surge in its usage (Burkauskas et al., 2022; Zarco-Alpuente et al., 2022). This increase in internet use, associated with other potentially addictive characteristics of cybersex, such as privacy, easy access, or anonymity (Cooper et al., 1999; Young, 1999), which were particularly important during lockdowns, may be linked to an upswing in the performance of these activities during that period. Additionally, other variables, such as sexual orientation, gender (being male), relationship status (Ballester-Arnal et al., 2014; Bőthe et al., 2020; Solano et al., 2018), and various motivations like seeking sexual pleasure, alleviating boredom, fulfilling social needs, or regulating mood, have been identified as predictors of cybersex use (Castro-Calvo et al., 2018). Conversely, the confinement situation has been associated with frequent consequences such as stress, daily life challenges, fear, anger, feelings of loneliness, and rejection, which have also been linked to episodes of excessive pornography consumption and loss of control in cybersex use (Reid et al., 2011; Wordecha et al., 2018). Furthermore, several global health organizations have recommended online or telephone sex as a safer alternative to in-person sexual activity to prevent the transmission of COVID-19 (NYC, 2020; ISSWSH, 2020). Therefore, it is not surprising that websites featuring explicit content, such as Pornhub, have experienced a significant increase in traffic during the months of lockdown, with a reported 61% surge in visits in Spain during the initial days of quarantine (Pornhub, 2020).

So far, we have found limited empirical studies specifically exploring the impact of the confinement on online sexual behavior. Lehmiller et al. (2021) explored the impact of the pandemic on the sexual behavior of 1559 people, mostly from the United States. Specifically, 20.3% of those surveyed incorporated new sexual practices into their lives, many of them online, such as sexting, having cybersex or filming oneself masturbating, among others. These changes in sexual behavior were more frequent in sexual minority individuals, younger individuals, those with lower financial resources, and/or those living alone. In a sample of American and Israeli MSM (men who have sex with men), Shilo and Mor (2020) detected an increase in the use of online sexual activities compared to pre-pandemic data. In addition, individuals who reported increased engagement in these behaviors also exhibited higher levels of mental distress, suggesting that this increase may not solely be driven by the pursuit of sexual satisfaction but could also serve as an emotional regulator through cybersex. Hensel et al. (2020) also detected changes in the online sexual activities of Americans. Specifically, while offline activities involving interaction with others declined, activities such as masturbation, watching sexually explicit videos, engaging in phone or video sex chats with a partner, or exchanging sexy or nude pictures with a romantic or sexual partner remained relatively stable, with some even experiencing a slight increase. Similarly, in the Australian population, a sample of adults exhibited similar trends, reporting a decreased frequency of sexual practices with partners (whether in stable or casual relationships) and an increase in the use of dating apps for chatting/texting or organizing virtual dates during lockdown (Coombe et al., 2020; Goller et al., 2022).

These findings provide insight into the differential impact that the pandemic may have had on our offline and online sexual behaviors. However, the specific variables that may influence this phenomenon remain unclear. In addition, none of the published studies to the best of our knowledge refer to what has happened in this regard in Spain. Nor have previous studies explored some relevant variables, such as the perception of an increase, decrease, or change in sexual behavior compared to before the pandemic. Therefore, this study aimed to answer the following questions: (1) have OSAs changed in any way (frequency, time invested, type of behavior, etc.) in Spain during the lockdown caused by COVID-19

(period of time of approximately two months in which the mobility of the population was completely restricted)? (2) Some variables such as gender (being male), belonging to a sexual minority and the consequences of the experience of confinement (negative moods, privacy, loneliness, changes in sexual behavior offline such as increased of sexual desire, not living with a partner during confinement, or little satisfaction with sexual relations during confinement) are related to the change in OSAs during confinement?.

Based on existing research regarding the lockdown and sexuality, the internet use for sexual purposes, and the factors involved in increased cybersex consumption in other contexts, we predicted the following hypotheses:

Hypothesis 1 (H1): Time spent and frequency of online sexual activities will have significantly increased in Spain during the lockdown, regardless of gender or sexual orientation.

Hypothesis 2 (H2): Time spent and frequency of OSAs will be more pronounced in men than in women.

Hypothesis 3 (H3): Time spent, frequency, and variety of online sexual activities during the lockdown will increase more in sexual minority people compared to heterosexuals.

Hypothesis 4 (H4): In addition to experiencing a greater increase in OSAs in men and sexual minority people, other factors such as having privacy at home or living alone during confinement, having a high sexual desire during quarantine and experiencing negative emotional states, not living with a partner during the confinement, or low satisfaction with sexual intercourse during the lockdown will also be associated with this increase.

Method

Participants

For this study, we carried out a convenience sampling through which a total of 1632 completed answers and 2562 incomplete answers were obtained. The inclusion criteria that we followed in this study were: (a) being over 18 years old and under 60 years old, (b) having self-identified as male or female, and (c) having completed the total of the survey. The decision to exclude people who did not self-identify as male or female and/or those who were over 60 years of age was due to the low prevalence of these groups in our sample.

After removing responses that did not meet these inclusion criteria, our sample was made up of a total of 1448 people (32.53% men and 67.47% women). The average age of the participants is 31.92 years ($SD = 10.03$) and men being slightly older ($M = 33.05$; $SD = 10.86$) than women ($M = 31.38$; $SD = 9.57$). Most of the participants considered themselves as heterosexuals (78.3%; 67.5% of men, 83.5% of women), while 21.7% identified with another sexual orientation different from heterosexual (8.7% homosexuals [21.2% of men; 2.7% of women], 9.9% bisexuals [8.7% of men; 10.5% of women], and 3.1% other sexual orientations [2.6% of men; 3.3% of women]) ($\chi^2 = 139.36$; $p > 0.001$; $V = 0.310$). Finally, regarding relationship status, 43.8% maintained a stable relationship without being married (32.9% of men; 49% of women), while the percentage of people who were married or had a common-law partner was 20.6% (20.8% of men; 20.6% of women). The remaining percentage did not have a stable partner during the lockdown, the majority identified as single (31.6%; 41% of men; 27.1% of women), and a smaller percentage were separated/divorced (3.6%; 4.2% of men; 3.3% of women) or widowed (0.3%; 1.1% of men; 0% women) ($\chi^2 = 49.35$; $p > 0.001$; $V = 0.185$).

Procedure

Data acquisition was conducted from April 3, 2020, to May 2, 2020, time in which the Spanish population was confined under strict confinement. This confinement lasted approximately two months and entailed complete restrictions on mobility, with exceptions made for essential activities such as obtaining food. To explore participants' online sexuality before and during confinement, we conducted a cross-sectional study that captured information at a single point in time regarding participants' self-perception of their online sexual activities (OSAs) prior to and during the confinement period. This strict quarantine period began on March 16, 2020, and concluded on May 2 of the same year. Throughout this timeframe, we disseminated the study through different social networks (Instagram, Facebook, Twitter, Telegram, and WhatsApp).

Once individuals accessed the provided link, they were informed about the study's confidential, anonymous, and voluntary nature. The study's objectives were also clearly outlined, and participants who were over 18 years old willingly provided their informed consent before proceeding to the questionnaire. This study adhered to the ethical principles outlined in the Declaration of Helsinki and received approval from the Ethics Committee of the Universitat Jaume I in Castellón, Spain.

Measures

Due to the lack of antecedents of a similar situation of confinement, we do not have a validated instrument that allows us to explore a large number of variables involved in such a particular situation. Consequently, we developed an ad hoc questionnaire comprising 59 items, as part of the *INSIDE project*, aimed at examining the impact of COVID-19 on sexuality (Ballester-Arnal et al., 2020). The purpose of constructing this questionnaire and incorporating these variables was to encompass the various dimensions that existing

literature considers as constitutive or integral to sexual health. However, the nature of this questionnaire (questionnaire combining questions with different types of answers and assessing different constructs) prevents us from obtaining reliability data for the entire scale. This mainly evaluates different sexual behaviors developed during the COVID-19 confinement, through a subjective and sometimes retrospective report of the participants. The items that were included were a total of 23 items with different response formats. Through these items, the following areas were evaluated.

Sociodemographic Data

Different sociodemographic characteristics were explored through questions developed ad hoc. These characteristics include sexual orientation with the category's heterosexual, homosexual (gay/lesbian), bisexual, pansexual, asexual, or other (with an open-ended response); gender (I identify as male, female or transgender/non-binary person); age; country of residence; and relationship status (single, married, in a stable relationship but not married, widowed, separated, or divorced).

Physical and Social Environment in Which the Confinement Has Occurred (Four Items)

We assess whether people had been accompanied or not during the lockdown "*During the lockdown, have you been alone or in the company of other people? Alone/with other people"*, and, if they had been accompanied, we also evaluate other relevant aspects such as the number of people with whom they lived, if they were people that they used to live with before (*yes/no*), who were these people (*multiple choice question: father/mother, siblings, grandfather/grandmother, aunt/uncle, partner, son/daughter, father/mother in law, friend, roommate, other)* and if there was a possibility of having privacy at home with places where they can perform any sexual practice without being disturbed (*yes/no*).

Sexual Desire

To evaluate the intensity of the sexual impulse or desire during the lockdown, a seven-point Likert-type item was used. The response range ran from "Much less intense than before" to "Much more intense than before."

Type of Sexual Activity (One Item)

In order to explore the type of sexual activity carried out during confinement, we used a multiple choice item that included different types of sexual practices. For this paper, we have used only three of them: "I have had sex with my partner," "I have masturbated alone," and "I have had online sexual activity (viewing pornography, chats, webcam, sharing photos/videos of my own with sexual content, etc.)."

Satisfaction with Sexual Relationships (One Item)

If participants had had sex with their partner, they were asked how satisfactory their sexual encounters were during the lockdown, using a scale of seven response options ranging from "Much less satisfactory than before" to "Much more satisfactory than before."

Degree of Control over Sexual Urges (Two Items)

Using two items with four-point Likert response options ("Nothing," "Something," "Enough," or "A lot"), we evaluated the degree of perceived control over sexual behavior before (*How much control do you consider you had before confinement over your sexual activity?*) and during the lockdown (*During confinement, how much control have you had over your sexual activity?*).

Negative Mood (Five Items)

We assessed negative mood during the lockdown through five items with a four-point Likert scale ("Not at all," "Somewhat," "Mostly," and "A lot"). In these five items, we asked how depressed, anxious, or bored they felt during confinement and to what extent they considered that the lockdown was becoming unbearable.

Global Evaluation of the Confinement Impact (One Item)

To explore the impact of confinement on sexual life, we used an item that asked directly about the general evaluation that they made of the impact of the confinement on their sexual life. The answer options were as follows: "It has improved my sexual life," "It has not altered my sexual life," or "It has worsened my sexual life" *Online sexual activity (nine items).*

Online Sexual Activities (Eight Items)

Only those people who reported having engaged in some type of online sexual activity during confinement were evaluated on the characteristics of their online sexual behavior. First, the frequency of OSAs before and during confinement was explored through two items. The first item, with Likert-type response options, analyzed the frequency of sexual activity. These response options ranged from "never" to "more than once a day." The second item evaluated the difference in the duration of the OSAs during the quarantine compared to before it. The response options were a total of seven ranging from "Much less time than before" to "Much more time than before." Two other items evaluated how many minutes they

dedicated to each OSA before and during confinement. One of the most relevant items referred to the type of OSA they had performed during the confinement and they were also asked which of those they had performed previously (dichotomous yes/no response). The explored OSAs are detailed in Tables 3 and 5. In the case that a participant had seen pornographic images or videos, he/she was asked if the contents were the same as before the pandemic (Same or Something/Quite/Very different). And, if he/she had taken advantage of the offers of some websites like Pornhub to view pornographic material for free or if those offers had influenced their consumption. The answer to these questions was dichotomous.

Statistical Analysis

The statistical analyses were conducted using various software packages. Descriptive and comparative analyses were performed using the SPSS statistical package (version 25.0). The effect size was calculated using the G*Power 3.1 software. For the Structural Equation Model (SEM), we utilized the RStudio software.

For the categorical variables, we calculated the percentages of the total sample and based on gender and sexual orientation. The differences in percentage distributions based on gender and sexual orientation were analyzed using the Chi-square test. To calculate the effect size, we used the Cramer's *V* and Cohen's *f*. To compare the differences before and after quarantine, being repeated measures, we used the Wilcoxon test for percentages and Student's *t*-test for differences in means.

Furthermore, to explore the relationships between the frequency and time invested in online sexual activities (OSAs) and various variables, we conducted a path analysis model using the Lavaan package (Rosseel, 2012). This analysis included variables such as gender, sexual orientation, negative mood variables, and different variables related to sexuality, including sexual desire, degree of control, and various OSA-related variables. Given that the mood is evaluated with four variables, we created a factor with these variables, called *Negative Mood*. The results section only presents the final models to provide a concise summary of this section. Due to the presence of missing data, we implemented the Multiple Imputation (MI) method to address potential bias in the model, provided that it was the most suitable method for our missing data (Dong & Peng, 2013; Peng & Zhu, 2008; White et al., 2011).

Results

Physical, Social, Psychological, and General Sexual Variables During the Confinement

As detailed in Table 1, we first analyzed some physical, psychological, social, and sexual variables that occurred during confinement. The majority of participants (84.9% of men and 90.3% of women) lived with other people during the lockdown, being in half of the cases the partner, followed by 40.9% who lived with their father/mother or both. On the other hand, 23.3% lived with their siblings, while 20% of the participants lived with their children during confinement. To a lesser extent, people lived with flatmates (5.7%) or other relatives (6.8%) during confinement. Additionally, most people (79.8% men and 79.3% women) reported having privacy during the lockdown.

We identified gender differences in sexual desire and the types of sexual activities. Women exhibited a greater decline in sexual desire ($\chi^2 = 15.844$, $p = 0.015$), although this group report higher percentages for sex with partner ($\chi^2 = 25.774$, $p < 0.001$). On the other hand, men engaged in more online sexual activities (OSAs) (43.9% of men vs. 20.9% of women). The perceived level of control over sexual activity significantly decreased for both genders during confinement ($p < 0.001$), and nearly half of the participants reported some impact of the pandemic on their sexuality. Regarding the emotional impact, people have presented a high prevalence of negative moods during the lockdown with different frequency (between a little and a lot). These emotional effects differed based on gender, with anxiety being the most prevalent emotion among the four explored in women (85.5% vs. 78.1% in men), while boredom was more prominent in men (80.3% vs. 73.6% in women). These differences were statistically significant.

Frequency, Invested Time, Contents, and Type of Online Sexual Activities During the Lockdown by Gender

To test our first and second hypotheses, we analyzed the changes in Online Sexual Activities (OSAs) during the lockdown according to gender (see Tables 2 and 3).

In men, we observed an increase in both the frequency (between 4 and 7 times per week and more than once per day) and the time spent on OSAs (23.91 min/week before lockdown vs 35.25 min/week during the lockdown). Approximately 42.5% of men perceived an increase in the time invested in OSAs. There was also a shift in the pattern of pornography consumption, with 16% of men reporting viewing significantly different pornographic content compared to before the lockdown. Additionally, 31% of men utilized promotions available on various sex websites during the lockdown (see Table 2). In women, there was also an increase in the frequency (from 81.9% before the lockdown to 96.6% during that time) as well as the time spent on OSAs ($M = 18.85$ min/week before lockdown vs $M = 30.82$ min/week during the lockdown) The average time spent on OSAs moderately increased, with 50.9% of

Table 1 Physical and social environment and general sexual activity during the lockdown

	Total ($n=1448$) %	Men ($n=471$) %	Women ($n=977$) %	Inferential statistic	Effect size
Living with other people during the lockdown (yes)	88.5	84.9	90.3	$\chi^2=8.96$**	$V=.079$
Living the lockdown with your partner	50.2	40.8	54.5	$\chi^2=20.92$***	$V=.128$
Privacy during the lockdown (yes)	79.4	79.8	79.3	$\chi^2=.042$	$V=.006$
Sexual desire during the lockdown					
Less intense than before	34.9	29.1	37.8	$\chi^2=15.84$*	$V=.105$
Same intensity as before	29.1	31.4	27.9		
More than before	35.9	39.5	34.3		
Type of sexual activity					
Sex with partner	40	30.6	44.5	$\chi^2=25.77$***	$V=.133$
Traditional masturbation	61	80	51.9	$\chi^2=105.89$***	$V=.270$
Online sexual activity	28.4	43.9	20.9	$\chi^2=83.20$***	$V=.240$
Satisfaction with sexual relationships					
Less than before	20.1	22.8	19.1	$\chi^2=9.85$	$V=.125$
Same as before	59.1	54.4	60.6		
More than before	20.8	22.8	20.2		
Mood					
No anxiety	16.9	21.9	14.5	$\chi^2=15.36$**	$V=.103$
Something—a lot anxiety	83.1	78.1	85.5		
No depression	33.9	39.7	31.1	$\chi^2=10.52$*	$V=.085$
Something—a lot depression	66.1	60.3	68.9		
No boredom	24.2	19.7	26.4	$\chi^2=11.21$*	$V=.088$
Something—a lot boredom	75.8	80.3	73.6		
No stress	18.7	24.6	15.9	$\chi^2=24.03$***	$V=.129$
Something—a lot stress	81.3	75.4	84.1		
General evaluation of the confinement impact					

Table 1 (continued)

	Total ($n=1448$) %	Men ($n=471$) %			Women ($n=977$) %			Inferential statistic	Effect size
Sexual life has improved	14.4	10.4			16.3			$\chi^2=12.640$**	$V=.093$
Sexual life has not altered	47.7	53.3			45				
Sexual life has made worse	37.9	36.3			38.7				
Degree of control over sexual urges		Before %	During %	Inferential statistic	Before %	During %	Inferential statistic		
Nothing		3.6	8.9	$z=-6.05$***	3.3	7.9	$z=-8.19$***		
Some		19.7	29.1		16	23.1			
Quite		58.8	43.1		51.3	42			
A lot		5.8	18.9		19.9	27			

*$p<.05$; **$p<.01$; ***$p<.001$

Table 2 Gender differences in the characteristics of cybersex consumption before and during the lockdown

	Men ($n=471$)			Women ($n=977$)		
	Before % or *M (SD)*	During % or *M (SD)*	Inferential statistic Effect size	Before % or *M (SD)*	During % or *M (SD)*	Inferential statistic Effect size
Frequency of OSAs						
> 1 time per day	5.8	16.9	$z=-6.73$***	1.5	2.9	$z=-8.11$***
Between 4 and 7 times per week	25.1	31.9		8.3	20.6	
Between 2 and 3 times per week	32.4	30		14.7	23.5	
1 time per week	12.6	10.6		16.7	25.5	
Between 2 and 3 times per month	10.6	5.3		20.6	16.2	
< 1 time per month	7.2	3.4		20.1	7.8	
Never	6.3	1.9		18.1	3.4	
Time spent in OSAs (minutes/week)	23.81 (27.90)	35.25 (36.44)	$t=-5.04$*** $f=.347$	18.85 (23.46)	30.82 (43.05)	$t=-3.50$*** $f=.321$
Time spent in OSAs during the lockdown						
Less time than before	–[a]	18.2		–[a]	17.1	$\chi^2=8.33$[b] $V=142$
The same time as before	–[a]	36.2		–[a]	31.9	
More time than before	–[a]	42.5		–[a]	50.9	
Pornographic content during the lockdown				[a]		
Same as the ones I used to see	–[a]	84		–[a]	83	$\chi^2=.11$[b] $V=.018$
Something different as the ones I used to see	–[a]	14.5		–[a]	15.1	
Quite different as the ones I used to see	–[a]	1		–[a]	1.3	
Very different as the ones I used to see	–[a]	.5		–[a]	.6	
Use of promotions on sex pages during the lockdown (yes)	–[a]	31		–[a]	21.4	$\chi^2=4.18$*; $V=.108$[b]

*$p<.05$; **$p<.01$; ***$p<.001$

[a]Empty cells represent no data because we only analyze these variables during the lockdown

[b]Inferential statistic only for gender differences

Table 3 Gender differences in the frequency of OSAs before and during the lockdown

	Total ($n=1448$)	Men ($n=471$) %	Women ($n=977$) %	Inferential statistic χ^2	Effect size V
OSAs during the lockdown					
Buying sex products online	5.1	2.9	7.4	4.21*	.101
Searching for sexual information	33.8	26.6	41.4	9.79**	.154
Reading erotic material online	29.9	23.2	36.8	9.03**	.148
Viewing pornographic pictures and/or movies	86.9	96.6	77	34.78***	.291
Flirting with other users online	66.4	64.7	68.1	.53	.036
Sharing sexual fantasies online via text	51.1	43	59.3	10.95**	.163
Having sex online via webcam (cybersex)	34.1	33.3	34.8	.1	.016
Visiting contact sites	19	28.5	9.3	24.6***	.245
Replying to sex ads	3.4	3.4	0	14.28***	.186
Contacting sexual workers advertised online	1	.5	.5	.00	.001
Looking for romantic partners	18.0	22.2	13.7	5.02*	.111
Looking for sexual partners	26	30.9	21.1	5.17*	.112
Exchange of images, messages or videos	60.6	57	64.2	2.24	.074
Of those who did it during lockdown, how many did it before?					
Buying sex products online	95.2	100	93.3	.42	.141
Searching for sexual information	98.6	100	97.6	1.33	.098
Reading erotic material online	88.6	87.5	89.3	.09	.028
Viewing pornographic pictures and/or movies	98.3	99.5	96.8	3.84	.104
Flirting with other users online	94.1	95.5	92.8	.91	.058
Sharing sexual fantasies online via text	84.3	87.6	81.8	1.31	.079
Having sex online via webcam (cybersex)	69.3	82.6	56.3	11.35**	.285
Visiting contact sites	76.9	78	73.7	.15	.044
Replying to sex ads	64.3	64.3	0	–[a]	–[a]
Contacting sexual workers advertised online	5.5	3.2	8.3	.68	.112
Looking for romantic partners	86.5	84.8	89.3	.30	.064
Looking for sexual partners	85	85.9	83.7	.09	.030
Exchange of images, messages, or videos	85.1	93.2	77.9	11.57**	.216

*$p<.05$; **$p<.01$; ***$p<.001$

[a]Empty cells represent interaction terms not included in the statistics analysis because of limitations in sample size (typically, because we did not have data from women doing these activities)

women believing they spent more time on these activities than before. Furthermore, 17% of women reported varying the pornographic content they viewed, while only 21.4% used sexual page promotions during the lockdown (see Table 2).

As detailed in Table 3, we analyzed the different online sexual behaviors they had engaged in during the lockdown comparing them to their previous engagement in these activities. The most frequent OSAs during the lockdown for both genders included "*viewing pornographic pictures and/or movies*"*;* "*flirting with other users online*" and "*exchange of images, messages or videos.*" Some small-to-moderate gender differences emerged, with more women engaging in activities such as "*sharing sexual fantasies online* via *text*" or "*reading erotic material online*" ($V=0.163$ and $V=0.148$, respectively). On the other hand, men were more likely to engage in activities such as pornographic consumption or "*visiting contact sites*" ($V=0.291$ and $V=0.245$, respectively).

Most participants had engaged in some sexual behaviors such as viewing pornographic pictures and/or movies before the lockdown (99.5% of men and 96.8% of women who saw this material during the confinement). However, virtually all of the people who contacted with sex workers during the lockdown did so for the first time during confinement (96.8% of men and 91.7% of women). Nonetheless, these sexual behaviors were less frequent during this period of time (1%).

On the other hand, moderate gender differences were observed in activities involving the use of a webcam for sexual

contacts or the exchange of images, messages, or videos, with a lower percentage of women (56.3% and 77.9%, respectively) reporting previous engagement in these activities ($V=0.285$ and $V=0.216$, respectively).

Frequency, Invested Time, Contents, and Type of Online Sexual Activities During the Lockdown by Sexual Orientation

In Tables 4 and 5, we present the results of the previous variables according to sexual orientation, aiming to contrast part of our first and third hypotheses.

In men, there is an increase in the frequency of OSAs and the time invested in these activities regardless of sexual orientation. One of the most striking data is that all sexual minority men have performed some type of OSAs during the lockdown, although they had not done it before. Additionally, both heterosexual and sexual minority men spent more time on OSAs during the lockdown, with sexual minority men averaging 42.18 min/week, nearly double the time spent before. No statistically significant differences were found regarding the change in pornographic content during the lockdown or in the use of sexual page promotions, according to sexual orientation (see Table 4).

For women, the results are slightly different. Moderate differences emerged regardless of sexual orientation in the increase in time spent in OSAs during the lockdown ($f=0.294$ in heterosexuals and $f=0.358$ in sexual minority individuals), in addition to the increase in the frequency of OSAs. These differences in the increase in time spent in OSAs during the lockdown are perceived by 52.8% of heterosexual women and 49.2% of sexual minority women. However, no statistically differences were found based on sexual orientation in terms of changes in pornographic content during the lockdown or the use of sexual page promotions (see Table 4).

Regarding the different OSAs carried out during the lockdown, we found small or moderate differences based on sexual orientation in some of them. Sexual minority men engaged more frequently in activities such as flirting with other users online, sharing sexual fantasies online via text, and exchanging images, messages, or videos (V between 0.176 and 0.302) compared to heterosexual men. On the other hand, heterosexual women engaged in certain OSAs to a greater extent than sexual minority women, specifically having sex online via webcam and exchanging images, messages, or videos ($V=0.154$ and $V=0.187$, respectively).

Lastly, we examined whether these OSAs performed during the lockdown had been done previously and if they varied according to sexual orientation. We only found moderate differences in some of OSAs in men: specifically sexual minority men had performed more frequently than heterosexual men some OSAs before the lockdown, such as sharing sexual fantasies online via text and having sex online via webcam or exchange images, messages, or videos (V between 0.237 and 0.306). For women, although we did not find significant differences, both heterosexual and sexual minority women engaged in some OSAs for the first time during the lockdown, such as contacting sex workers advertised online (94.1% in heterosexual women; 85.7% in sexual minority women) or having sex online via webcam (44.6% and 40%, respectively) (Table 5).

Structural Equation Model with Multiple Imputation

Table 6 shows the non-standardized parameters for the final path model ($\chi^2=49.156$; 30 df; $p=0.015$), which has excellent values for the CFI (0.991), TLI (0.995), RMSEA (0.026 [90% CI = 0.009 to 0.031]), and SRMR (0.026), with a R^2 of 21.1%.

On the one hand, the frequency of OSAs could be predicted positively by the sexual desire, being a male and seeing pornographic material. On the other hand, the time that people spend in OSAs could be predicted positively by the sexual desire and the sexting practice. This model is represented in Fig. 1.

Discussion and Conclusions

The main purpose of this study was to explore OSAs during the lockdown in people who lived in Spain during confinement. In addition, we aimed to analyze the factors that may be associated with the change in OSAs. There was an overall increase in the use of OSA during quarantine, regardless of gender and sexual orientation. Some differences in these variables were also observed, although the characteristics of OSAs (types of activities and pornographic content) hardly changed. Additionally, we identified several variables that were associated with a higher frequency and greater time spent in OSAs.

As expected, both men and women showed an increase in the amount of time spent on and the frequency of OSAs during the lockdown, compared to their previous online sexual behavior. These findings align with the results of a meta-analysis conducted by Masoudi et al. (2022) where an increase in pornography viewing during the pandemic was observed among individuals from various countries. Ballester-Arnal et al. (2020) or Zattoni et al. (2020) also found an increase in this sexual activity during confinement. As these studies show, pornography use appears to be one of the most frequently performed activities during the pandemic, which is not surprising considering that it is the most common OSA under normal circumstances

Table 4 Differences in the characteristics of cybersex consumption before and during the lockdown by gender and sexual orientation

	Men ($n=471$)						Women ($n=977$)					
	Heterosexual ($n=318$) % or *M (SD)*			Sexual minority ($n=153$) % or *M (SD)*			Heterosexual ($n=816$) % or *M (SD)*			Sexual minority ($n=161$) % or *M (SD)*		
	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size
Frequency of OSAs												
>1 time per day	5.3	12.4	$z=-4.82$***	6.4	22.3	$z=-4.07$***	1.4	2.1	$z=-7.09$***	1.6	4.8	$z=-4.08$***
Between 4 and 7 times per week	21.2	33.6		29.8	29.8		7.8	20.6		9.5	20.6	
Between 2 and 3 times per week	38.1	30.1		25.5	29.8		13.5	24.1		17.5	22.2	
1 time per week	9.7	9.7		16	11.7		17.7	29.8		14.3	15.9	
Between 2 and 3 times per month	9.7	7.1		11.7	3.2		22	11.3		17.5	27	
<1 time per month	9.7	3.5		4.3	3.2		19.1	8.5		22.2	6.3	
Never	6.2	3.5		6.4	0		18.4	3.5		17.5	3.2	
Time spent in OSAs ($M_{minutes/week}$(SD)	20.99 (21.21)	29.51 (24.63)	$t=-2.96$** $f=.369$	27.22 (34.14)	42.18 (46.15)	$t=-4.17$*** $f=.361$	20.31 (26.80)	31.21 (42.39)	$t=-2.67$** $f=.294$	15.72 (13.52)	30 (44.85)	$t=-2.27$* $f=.358$
Time spent in OSAs during the lockdown												
Less time than before	–[a]	23		–[a]	19.1	$Chi^2=6.05$[b] $v=.171$	–[a]	16.3		–[a]	19	$Chi^2=11.03$[b] $v=.233$
The same time as before	–[a]	38.9		–[a]	33		–[a]	31.9		–[a]	31.7	
More time than before	–[a]	38		–[a]	47.9		–[a]	51.8		–[a]	49.2	
Pornographic content during the lockdown												

Table 4 (continued)

	Men ($n=471$)						Women ($n=977$)					
	Heterosexual ($n=318$) % or *M (SD)*			Sexual minority ($n=153$) % or *M (SD)*			Heterosexual ($n=816$) % or *M (SD)*			Sexual minority ($n=161$) % or *M (SD)*		
	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size	Before	During	Inferential statistic Effect size
Same as the ones I used to see	–[a]	85		–[a]	82.8	$Chi^2=1.23$[b] $v=.078$	–[a]	82.1		–[a]	84.9	$Chi^2=.97$[b] $v=.078$
Something different as the ones I used to see	–[a]	13.1		–[a]	16.1		–[a]	16		–[a]	13.2	
Quite different as the ones I used to see	–[a]	.9		–[a]	1.1		–[a]	.9		–[a]	1.9	
Very different as the ones I used to see	–[a]	.9		–[a]	0		–[a]	.9		–[a]	0	
Use of promotions on sex pages during the lockdown (yes)	–[a]	31.8		–[a]	30.1	$Chi^2=.065$[b] $v=.018$	–[a]	18.9		–[a]	26.4	$Chi^2=1.19$[b] $v=.087$

*$p<.05$; **$p<.01$; ***$p<.001$

[a]Empty cells represent no data because we only analyze these variables during the lockdown

[b]Inferential statistic only for differences based on sexual orientation

Table 5 Differences in the frequency of OSAs before and during the lockdown by gender and sexual orientation

	Men ($n=471$)				Women ($n=977$)			
	Heterosexual %	Sexual minority %	Inferential statistic χ^2	Effect size *V*	Heterosexual %	Sexual minority %	Inferential statistic χ^2	Effect size *V*
OSAs during the lockdown								
Buying sex products online	2.7	3.2	.05	.016	8.5	4.8	.89	.066
Searching for sexual information	23.9	29.8	.09	.066	37.6	49.2	2.43	.109
Reading erotic material online	20.4	26.6	1.12	.074	35.5	39.7	.334	.040
Viewing pornographic pictures and/or movies	94.7	98.9	2.83	.117	73.8	84.1	2.64	.114
Flirting with other users online	55.8	75.5	8.79**	.206	69.5	65.1	.393	.044
Sharing sexual fantasies online via text	32.7	55.3	10.67**	.227	61	55.6	.533	.051
Having sex online via webcam (cybersex)	25.7	42.6	6.59*	.178	39.7	23.8	4.86*	.154
Visiting contact sites	21.2	37.2	6.44*	.176	8.5	11.1	.35	.041
Replying to sex ads	4.4	9.6	2.16	.102	–[a]	–[a]	–[a]	–[a]
Contacting sexual workers advertised online	1.8	0	1.68	.090	1.4	0	.90	.067
Looking for romantic partners	21.2	23.4	.14	.026	12.1	17.5	1.07	.073
Looking for sexual partners	29.2	33	.34	.041	19.1	25.4	1.02	.071
Exchange of images, messages or videos	43.4	73.4	18.89***	.302	70.2	50.8	7.14*	.187
Of those who did it during lockdown, how many did it before?								
Buying sex products online	100	100	–[a]	–[a]	91.7	100	.27	.134
Searching for sexual information	100	100	–[a]	–[a]	98.1	96.8	.15	.042

Table 5 (continued)

	Men ($n=471$)				Women ($n=977$)			
	Heterosexual %	Sexual minority %	Inferential statistic χ^2	Effect size *V*	Heterosexual %	Sexual minority %	Inferential statistic χ^2	Effect size *V*
Reading erotic material online	87	88	.01	.016	92	84	1.12	.122
Viewing pornographic pictures and/or movies	100	98.9	1.16	.076	96.2	98.1	.44	.053
Flirting with other users online	93.7	97.2	.97	.085	91.8	95.1	.47	.058
Sharing sexual fantasies online via text	78.4	94.2	5.01*	.237	80.2	85.7	.50	.064
Having sex online via webcam (cybersex)	69	92.5	6.48*	.306	55.4	60.0	.10	.038
Visiting contact sites	70.8	82.9	1.19	.143	75	71.4	.03	.039
Replying to sex ads	40	77.8	1.99	.378	–[a]	–[a]	–[a]	–[a]
Contacting sexual workers advertised online	9.1	0	1.88	.246	5.9	14.3	.46	.138
Looking for romantic partners	79.2	90.9	1.23	.163	94.1	81.8	1.06	.194
Looking for sexual partners	81.8	90.3	.96	.122	81.5	87.5	.27	.079
Exchange of images, messages or videos	85.7	98.6	7.47**	.252	77.8	78.1	.002	.004

*$p<.05$; **$p<.01$; ***$p<.001$

[a]Empty cells represent interaction terms not included in the statistics analysis because of limitations in sample size (typically, because we did not have data from women doing these activities)

(Ballester-Arnal et al., 2021; Döring et al., 2017; Ibarra et al., 2020; Li et al., 2020).

Considering this evidence and the overall increase in OSAs, we also explored whether individuals had altered the type of pornographic content they consumed due to the lockdown. Our data reveals that during the lockdown, approximately 16% of both men and women reported consuming somewhat different pornographic content compared to their pre-lockdown habits. Furthermore, the utilization of free promotions offered by certain sex pages was more prevalent among men (31% in men compared to 21.4% in women). Platforms like Pornhub also reported an increase in access to their available online material during the promotion period, with a particularly notable rise in countries offering free premium access like Spain (Mestre-Bach et al., 2020). Although we do not have specific information on how the pandemic may have impacted changes in pornographic content, some indicators suggest a general increase in access to illegal pornography and other illicit OSAs (Parks et al., 2020; Som et al., 2020). This may explain why, even though the percentage is relatively small, there are individuals who have modified the pornographic content they consume,

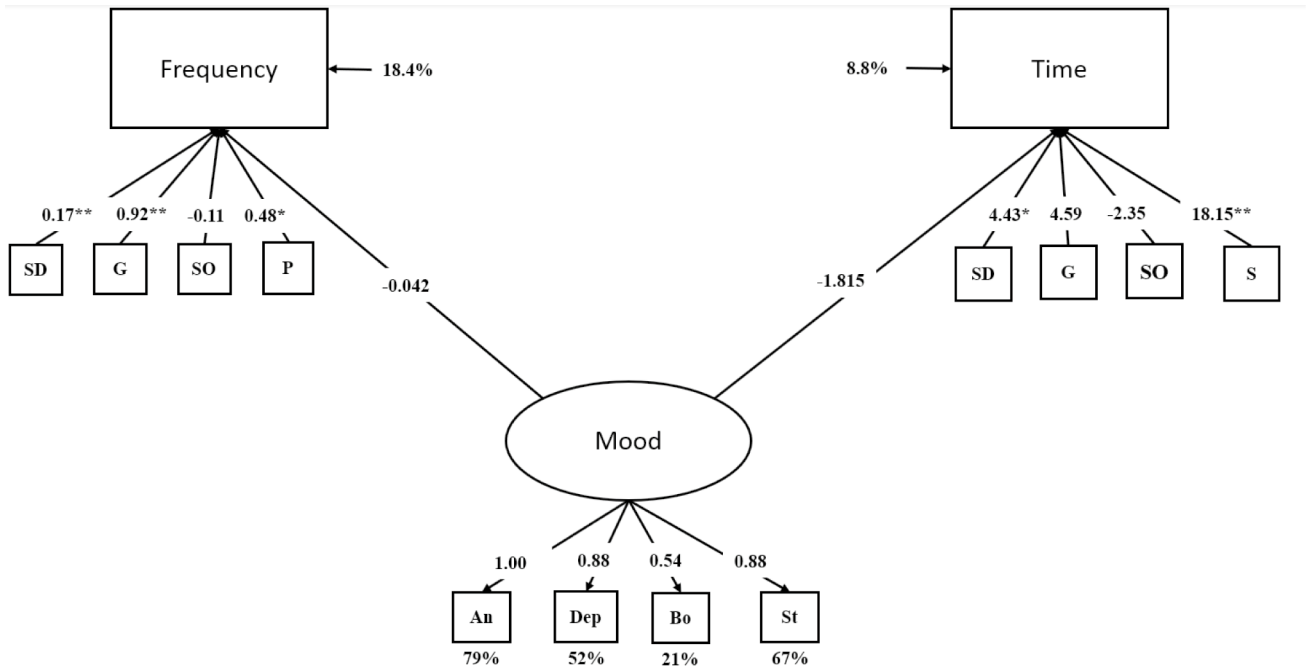
Table 6 Parameters for the frequency and the time invested in OSA models

		B	*SE*	*t*	*p*
Mood	Anxiety	1.000			
	Depression	.875	.043	20.336	.000
	Boredom	.535	.055	9.769	.000
	Stress	.875	.047	18.744	.000
Frequency	Intercept	3.021	.301	10.048	.000
	Sexual desire	.173	.043	4.033	.000
	Sex. orientation (Het)	−.112	.168	−.671	.506
	Gender (male)	.917	.149	6.159	.000
	See porno	.481	.209	2.305	.027
	Mood	−.042	.081	−.522	.607
Time	Intercept	4.289	9.182	0.467	.642
	Sexual desire	4.428	1.277	3.468	.002
	Sex. orientation (Het)	−2.352	4.791	−.491	.626
	Gender (male)	4.593	4.406	1.042	.308
	Sexting	18.146	4.363	4.159	.000
	Mood	−1.815	2.291	−.792	.438

Parameter values are not standardized

MI multiple imputation model

with some cases involving the consumption of illegal material. Surprisingly, these changes in pornographic content also include the increase in searches for content related to COVID-19 (Sex with masks, surgical gloves, and hazmat suits). This phenomenon may be attributed to the desire for sexual novelty or even the eroticization of fear (Zattoni et al., 2020). Additionally, the observed increase in the time and frequency invested in online sexual activities (OSAs) during the lockdown may be associated with a decrease in the perceived degree of control over sexual activities among respondents. Our findings indicate that respondents experienced a decrease in their sense of control during the lockdown. It is worth noting that previous studies have demonstrated that higher pornography use or engagement in other sexual activities, as well as moral incongruence, can predict perceived cybersex addiction (Grubbs et al., 2019; Lewczuk et al., 2021). Therefore, these factors may contribute to the observed decrease in perceived control over sexual activities during the lockdown. Despite this evidence, some studies did not find significant changes in pornography use (including problematic use) and only observed an increase in pornography consumption among a small number of participants (Bőthe et al., 2022; Grubbs et al., 2021). These data suggest that the increase in time and frequency is probably not so closely linked to pornography, but also to OSAs that require the interaction of other people, such as sexting or the use of sexual chats. In fact, some studies emphasize that engaging in these types of OSAs with others served as an adaptive coping strategy during the pandemic and especially during periods of confinement (Caponnetto et al., 2022; Eleuteri



Note. SD=Sexual desire; G=Gender; SO: Sexual Orientation; P=Pornography consumption; S=Sexting; An=Anxiety; Dep=Depression; Bo=Boredom; St= Stress. Parameter values are not-standardized.

Fig. 1 SEM model for the frequency and time spent in OSAs. SD, sexual desire; G, gender; SO: sexual orientation; P, pornography consumption; S, sexting; An, anxiety; Dep, depression; Bo, boredom; St, stress. Parameter values are not-standardized

& Terzita, 2021). Another possible explanation may be due to the high prevalence of pornography use under normal conditions. Given that pornography use is so widespread, it is likely that there cannot be a noticeable increase in pornography use, whereas other behaviors that are less prevalent under normal conditions have more room for increasing.

Considering that offline sexual activities have undergone changes during confinement (Lehmiller et al., 2021), our study aimed to explore whether other OSAs had also experienced changes. However, our findings indicate that there were not many alterations in the types of OSAs during the lockdown compared to what individuals were already engaging in prior to the pandemic. One notable innovation in online sexuality was the significant percentage of women who began participating in sexting (i.e., exchanging images, messages, or videos) during the lockdown. This activity appears to be one that many individuals incorporated into their sexual repertoire during the pandemic (Bianchi et al., 2021; Lehmiller et al., 2021).

Another aim of this study was to analyze the impact of the lockdown on the online sexuality of individuals belonging to sexual minorities. It is well-known that individuals with a minority sexual orientation often use the internet as a safe space to explore their sexuality and connect with others who share the same sexual orientation (Courtice & Shaughnessy, 2018; Daneback et al., 2005). Consequently, they tend to engage in greater use of the Internet for sexual purposes, especially in activities that involve interaction with other users, whether in a sexual or romantic context (Seal et al., 2015). In our study, while the overall trends in OSAs during the lockdown were similar regardless of sexual orientation, we noted some small differences, particularly in OSAs that involve interaction with others. For instance, sexual minority men engaged to a greater extent in activities such as *Sharing sexual fantasies online* via *text* or *exchange of images, messages or videos* compared to heterosexual men. Consistent with the findings of Green et al. (2012), which showed smaller differences in online sexual behaviors between homosexual and heterosexual women compared to other groups, our study also revealed fewer differences between these groups. In fact, it was heterosexual women who engaged to a greater extent in activities such as *having sex online* via *webcam* or *exchange of images*, *messages*, or *videos.* These minor variations in OSAs during the lockdown based on sexual orientation are not in line with findings from other cultural groups, as reported by Sharma and Subramanyam (2020) in an Indian sample. In that study, individuals belonging to sexual minorities were more likely to experience pornography addiction, as well as higher levels of stress and anxiety during the lockdown. These differences could be attributed to the cultural context, particularly variations in the acceptance of homosexuality and how it can influence the experience of confined sexuality in a hostile environment, where anxiety and stress may contribute to such sexual behaviors.

Finally, we aimed to investigate which variables could be associated with the increase in time and frequency of OSAs during the lockdown. Among all the variables examined, our data indicate that being male, having a high level of sexual desire, and engaging in pornography consumption during the confinement were associated with a higher frequency of engaging in OSAs. Similarly, high sexual desire and involvement in sexting (both during the confinement) were linked to increased time spent on these activities. These findings align with previous studies conducted during the pandemic, where being male was consistently associated with an increase in the frequency of OSAs, which were less prevalent among women, particularly in terms of pornography consumption (Ballester-Arnal et al., 2021; Karsiyakali et al., 2021; Wignall et al., 2021).

On the other hand, the increase in the frequency and time of pornography and cybersex consumption was influenced by the intensity of sexual desire. As demonstrated by previous studies, the increase in the use of cybersex is not solely linked to emotional factors but also to sexual and relational factors. These factors include seeking sexual pleasure, being single, and fulfilling other sexual desires or needs. This could explain why individuals with high sexual desire during the lockdown engaged in OSAs more frequently and dedicated more time to these activities (Bőthe et al., 2020; Studer et al., 2019). As shown by studies such as that of Cocci et al. (2020), although many individuals experienced an increase in sexual desire during the lockdown, it did not necessarily result in an increase in sexual intercourse. However, it did lead to an upsurge in pornography consumption and the use of sexting, indicating that the Internet serves as an alternative means of seeking sexual gratification, either through online interaction with others or through solitary masturbation (Eleuteri & Terzitta, 2021; Rodrigues, 2022).

As supported by the existing literature, the use of cybersex as an emotional regulator is a prominent motive associated with this activity and its problematic consumption (Wéry et al., 2018). Consequently, similar to previous studies such as that conducted by Bianchi et al. (2021), we also expected that the use of the Internet for sexual purposes was a coping mechanism during COVID-19 lockdown. However, our findings do not support this relationship. This inconsistency may be attributed to several factors. Firstly, the emotional variables that have negatively impacted offline sexual behavior during the lockdown (Ibarra et al., 2020; Lehmiller et al., 2021) may not be strongly associated with online sexual activity. For example, Ibarra et al. (2020) found in their review that sexual desire could decrease in couples living together due to these emotional factors, whereas it could increase in couples who did not cohabit during the lockdown. Consequently, the use of alternative means to fulfill this sexual desire, such as engaging in

OSAs, may increase, as demonstrated by our study. Additionally, it is plausible that the use of OSAs as an emotional regulator occurs primarily in more extreme cases where cybersex consumption is genuinely problematic, rather than among individuals who engage in moderate or recreational use (Castro-Calvo et al., 2018).

Although our findings provide information on online sexual behavior during COVID-19 lockdown in people who lived in Spain, this study has several limitations. First, although the sample used is very large, it does not necessarily show a representative reality due to the way the sample was obtained (conventional sampling). Specifically, the sample size of women is much larger than that of men, and the percentage of sexual minority individuals, based on the prevalence of these sexual orientations in the general population, is somewhat limited for generalizing the results. It would be desirable to carry out research on this topic specifically in this population to gain a more comprehensive understanding. Furthermore, because of the lack of antecedents of a similar situation, we were also unable to use standardized measures or other relevant variables (such as positive moods), which is another limitation of this study. Additionally, when comparing previous behaviors with those during the lockdown, participants relied on their memory and perception of their online sexual behaviors prior to the pandemic. This subjective recall may have introduced bias into the results. On the other hand, it would also be interesting to explore how other more specific variables might have influenced the experience of confinement and, consequently, sexuality during this period of time. For example, whether or not they lived with their children during confinement, or whether other socio-demographic factors such as place of origin, socioeconomic status or educational level may have influenced the experience of confinement. Or even whether having family and friends close to them may have influenced their well-being during confinement. However, this is one of the few studies in which sexual behavior was assessed during the confinement itself rather than retrospectively afterwards. It is also the only one that explored the perception of change with respect to the situation prior to confinement, as well as being the only one, as far as we know, carried out with these characteristics in Spain.

We consider that the findings of this study provide valuable insights into the changes in online sexual behaviors during the confinement in Spain. Furthermore, it is evident that the changes in online sexuality differ from those observed in offline sexuality (Ballester-Arnal et al., 2020), emphasizing the importance of analyzing them separately. Although more studies are still needed, the results of this research support the importance of considering these changes at a preventive level to mitigate potential negative consequences that may arise, including the risk of cybersex addiction or other problems; and also, when we evaluate sexuality in a clinical context during pandemic. And they also help us to understand how OSA work, and the benefits they can have, especially in crisis situations such as a pandemic-imposed confinement. These results are of great relevance as they have been obtained at an exceptional moment, which has allowed us to obtain information on sexual behavior in people during a period of extreme confinement. In particular, these data can be used at a preventive level in future situations of social confinement or social isolation (due to possible future pandemics or the increase of contagion of an existing disease that requires the limitation of social contacts) by developing programs that allow dealing with these situations in a healthy way. For example, increasing access and/or mental health resources, educating people to identify recreational versus problematic sexual behaviors, and even promoting the learning of coping strategies in situations of isolation. On the other hand, the use of the internet as a means of socializing is becoming more and more widespread, which can lead some people into a kind of offline social isolation. These people may be exposed to risks very similar to those found in pandemic lock-in. Therefore, learning how to manage the use of the internet for sexual and social purposes and, above all, identifying the factors that contribute to its increasing use can help us to avoid the occurrence of these negative consequences.

Author Contribution RBA and MDGL contributed to study design, obtaining funding, and/or study supervision. RBA, MGB, and JCC participated in recruiting participants and collecting data. MEM and MGB participated in analysis/interpretation of data. And RBA and MGB participated in writing of the paper.

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Availability of Data and Material Not applicable.

Code Availability Not applicable.

Declarations

Ethics Approval The study procedures were carried out in accordance with the Declaration of Helsinki. Jaume I University approved the study. All participants in the research were informed about the study and gave their consent.

Consent to Participate All participants in the research were informed about the objectives of the survey, completion times, as well as about the anonymity and confidentiality of the responses and the right to stop the survey in any point and for any reasons. After reading all information, participants had to give their consent to participate in the online survey by clicking on the bottom "I accept to take part in the survey."

Conflict of Interest The authors declare no competing interests.

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