



Sexual Coping Mechanisms During the COVID-19 Pandemic and Their Determinants of Use, Usefulness, and Effects on Sex Life

Liza Berdychevsky¹

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Abstract

Introduction The COVID-19 pandemic has taken a toll on many people's sex lives. The ways people cope with these adverse impacts are an urgent area that needs to be recognized by sexual health researchers, practitioners, and policymakers. Thus, this study investigated sexual coping mechanisms during the pandemic while clarifying their determinants of use and usefulness and examining their impacts on the quantity and quality of sex life.

Methods The cross-sectional data ($N=675$) were collected using an online survey methodology in February–May 2021. The data were analyzed with one-sample and independent-samples t -tests, one-way between-subjects ANOVA, and multivariate multiple regression.

Results This study identified eight sexual coping mechanisms during the pandemic, including creativity and pleasure, diversion, goal-setting, relational, educational, caution and logistical, online and technological, and innovation and experimentation strategies. All the coping mechanisms were used and rated significantly useful, albeit to different degrees. Gender, availability of a sex partner, the existence of children, and age served as determinants of different coping mechanisms' scope of use and degree of usefulness. The coping mechanisms predicted the frequency of sexual activity, sexual desire, and satisfaction with sex life during the pandemic.

Conclusions This study's results can help scholars and practitioners prevent or mitigate the deterioration of sex life during the pandemics and other crises and stressors. It is essential to train people concerning sexual coping resources and strategies to protect their sexual wellbeing and quality of life.

Policy Implications Health researchers, practitioners, and policymakers must consider maintaining sexual health as an essential service. Recognizing sexual health, rights, education, and counseling is a prerequisite for appropriate prevention measures during the pandemic. It is vital to ensure the availability of proper resources supporting people's sexual coping processes during and after the pandemic.

Keywords COVID-19 · Sexual coping · Sexual behavior · Sexual desire · Satisfaction with sex life

Introduction

With the emergence of the highly transmissible and breakthrough variants of the coronavirus and people's fatigue from the non-pharmaceutical mitigation measures (Dacosta

et al., 2021; Zhao et al., 2020), the COVID-19 pandemic presented real risks to people's health and wellbeing, including sexual health and relationships (Carvalho et al., 2021; Li et al., 2020; Pascoal et al., 2021). Governments across the globe have been adopting various restrictive social distancing measures for extended periods of time to mitigate the spread of the COVID-19 infection. Consequently, lockdown and quarantine-induced changes in lifestyle habits (including in the areas of relationships and sexuality) have altered people's routines and affected health and wellbeing. Many singles and non-cohabitating couples have temporarily lost physical access to their partners, and many cohabitating couples had to endure the scope of "forced togetherness" beyond their levels of comfort while also juggling increased

✉ Liza Berdychevsky
lizabk@illinois.edu

¹ Department of Recreation, Sport and Tourism, The Family Resiliency Center, Center for Social and Behavioral Science, Center on Health, Aging, and Disability, Health Care Engineering Systems Center, Discovery Partners Institute, The University of Illinois at Urbana-Champaign, (MC-584), 219 Huff Hall, 1206 South Fourth St., IL 61820 Champaign, USA

childcare responsibilities and escalated coronavirus-related relationship conflict (Ibarra et al., 2020; Luetke et al., 2020).

These changes affected people's sex lives and relationships in various ways and were moderated and mediated by multiple factors, including personal circumstances and psychosocial processes that may have been vectors of resilience or vulnerability. The studies have found that some people viewed no changes in their sex lives, others experienced improvements, but many people had to navigate decreases and deteriorations in their sex lives (Hensel et al., 2020; Panzeri et al., 2020; Rosenberg et al., 2021). Indeed, researchers urge the community of scholars and practitioners to expect increased relationship and sex life challenges due to increased rates and severity of anxiety and depression associated with continuing pandemic and its aftermath (Ibarra et al., 2020; Luetke et al., 2020). Hence, it is essential to learn how people coped with the impacts of the pandemic on their sex lives and whether their coping propensity and strategies could be responsible for explaining the differences between the people who experienced deterioration vs. improvement in their sex lives during the pandemic (Berdychevsky et al., 2021). Furthermore, it is essential to adopt a differential approach highlighting risk and vulnerability factors that serve as determinants of people's propensity to use and benefit from the sexual coping mechanisms.

Nevertheless, a thorough literature review revealed hardly any research done on coping with the impacts of the pandemic on sex life. A few examples of conceptual prescriptive articles for sexual health educators and practitioners were identified (Dewitte et al., 2020; Lopes et al., 2020; O'Reilly Treter et al., 2021). Also, some empirical papers have cursorily referred to specific coping strategies, typically relational (e.g., Luetke et al., 2020; Rosenberg et al., 2021), technological (e.g., porn consumption, sex toys use; Grubbs et al., 2021; Mestre-Bach et al., 2020; Rodrigues, 2021), or innovational (e.g., expanding sexual repertoire through new sex positions and sexual fantasies; Lehmillier et al., 2020). However, the review revealed no empirical study focusing specifically on the variety of coping strategies that people have been employing during the COVID-19 pandemic to cope with its impacts on their sex lives.

Hence, the purpose of this study was threefold. First, this study is aimed at examining the plethora of sexual coping strategies that people adopted and found useful to cope with the pandemic-induced adversity and to maintain or enhance their sex lives during the first year of the pandemic. Second, this research is aimed at investigating the roles of the key sociodemographic characteristics (i.e., gender, partnership status, the existence of children, and age) in determining the choice and perceived usefulness of adopted coping strategies. Third, this study is aimed at examining the effects of the employed coping mechanisms on sexual frequency,

desire, and satisfaction during the pandemic. Conducting this study about a year into the COVID-19 pandemic was an instrumental choice. This timeframe enables a more comprehensive and long-term perspective on coping during the pandemic after people have already had some time to process and adjust to the pandemic-related challenges. Moreover, this timeframe allows people to look back at their coping repertoires and assess the usefulness of various strategies, which is another gap that this study addressed.

Sex, Coping, and Health and Wellbeing

It is essential to recognize that “even in a society under survival mode, sexuality has space because it is a fundamental expression of human experience” (Ibarra et al., 2020, p. 107). Sex is crucial to human life, and sexual health is an essential aspect of general wellbeing and has meaningful implications for daily life at the individual, couple, and population levels (Ford et al., 2019; Panzeri et al., 2020). Frequent and rewarding sex life offers many physical and mental health benefits and improves the quality of life (Hensel et al., 2020; Jacob et al., 2020; Muise et al., 2016). Satisfactory sex life contributes to the quality and strength of relationships (McNulty et al., 2016; Meltzer et al., 2017). The increased sexual activity contributes to greater enjoyment of life (Smith et al., 2019). The frequency of sexual activity is related to sexual and relationship satisfaction and a sense of wellbeing (McNulty et al., 2016; Muise et al., 2016). However, a sense of intimacy and affection plays an essential role in mediating this relationship, emphasizing the importance of sex quality in addition to quantity (Debrot et al., 2017; Schmiedeberg et al., 2017).

Studies point to a bidirectional relationship between sexual wellbeing and stress (Schiavi et al., 2020). Nevertheless, on the one hand, traumas and stressors spill over into relationships and can negatively affect sex life (Dewitte et al., 2015; Randall & Bodenmann, 2017). Furthermore, decline in sexual activity contributes to the likelihood of depression and negatively affects the quality of life (Kennedy & Rizvi, 2009). On the other hand, sexual connections and intimacy can help cope with stressors and traumatic events (Meston et al., 2020).

Coping mechanisms can be defined as a mix of behavioral, affective, and cognitive strategies that help people navigate the internal and external demands viewed by them as exceeding their resources or stressful (Gillespie et al., 2021). Interestingly, “sexual coping [has not been] recognized as an adaptive response to negative feelings” (Gillespie et al., 2021, p. 52), since research tends to focus on the risks associated with sexual behavior (Berdychevsky & Carr, 2020). However, coping through gratifying sex can serve as a protective factor against stress and contribute to the quality of relationship,

health, wellbeing, and happiness (Mitchell et al., 2020; Pietromonaco & Beck, 2019), which emphasizes the rationale for this study focusing on the sexual coping mechanisms during the pandemic.

Sex Life and Sexual Coping During the Pandemic

The COVID-19 pandemic and related non-pharmaceutical prevention measures resulting in social isolation have shown to have divergent effects on people's sex lives, with many people experiencing decreases in their sexual functioning, desire, and satisfaction, whereas others reported improvements, increased sexual desire, and experimentation with sexual repertoires (Coombe et al., 2021; Ballester-Arnal et al., 2020; Hensel et al., 2020; Lehmillier et al., 2020; Mumm et al., 2021; Rodrigues, 2021). Nevertheless, meta-analyses and systematic literature reviews reveal an overall trend of worsening sexual functioning and decreased frequency of sexual activity during the pandemic (Delcea et al., 2021b). Hence, although early predictions around the globe expressed expectations for an increased fertility/baby boom following the COVID-related lockdowns and confinement measures (even coining the term “coronials” (as in millennials) on social media; Döring, 2020), more recent prognoses point to a baby bust following the COVID-19 pandemic due to various declines in people's sex lives during the pandemic (Cito et al., 2021; Coombe et al., 2021; de Oliveira & Carvalho, 2021; Ibarra et al., 2020).

For instance, the studies conducted in the USA at the break of the COVID-19 pandemic revealed a trend of decrease and decline in the quantity and quality of people's sex life (Hensel et al., 2020; Luetke et al., 2020). With Italy being at the forefront of the public health crisis at the break of the pandemic, their studies also revealed severe interruptions and deterioration in sex life and low levels of sexual satisfaction during the pandemic due to diminished household privacy and a lack of psychological stimuli (Cito et al., 2021; Cocci et al., 2020; De Rose et al., 2021; Mollaioli et al., 2021). Similar deteriorations in sex life, sexual satisfaction, and relationships during the pandemic were reported in the studies conducted in the UK (Mitchell et al., 2020; Wignall et al., 2021), China (Feng et al., 2021; Li et al., 2020), Germany (Hille et al., 2021), Turkey (Karagöz et al., 2020; Karsiyakali et al., 2021), and Kenya (Osor et al., 2021). Studies also show that pandemic-related stress led to conflicts and negative partner interactions and contributed to couple infidelity, domestic violence, and divorce (Bradbury-Jones & Isham, 2020; Ibarra et al., 2020; Luetke et al., 2020). Moreover, interruptions

and deteriorations in sexual activity during the pandemic have adversely affected people's sexual health and were associated with a significantly higher risk of developing anxiety and depression (Mollaioli et al., 2021).

Nevertheless, it was found that some people increased their use of sex toys/aids and dedicated more time to masturbation and masturbated more frequently during the pandemic compared to pre-pandemic (Ballester-Arnal et al., 2020; Coombe et al., 2021). Moreover, some people experimented with new sexual activities (e.g., trying new positions, sexting, sharing nude photos, enacting fantasies, watching pornography, and having cybersex) and expanded their sexual repertoires, suggesting no attempt to diversify sex life (Hille et al., 2021; Lehmillier et al., 2020). Studies also show that people who could maintain sex life during the pandemic reported better mental health outcomes, including lower anxiety and depression levels and higher resilience and health-related quality of life (Coronado et al., 2021; Mollaioli et al., 2021; Rosenberg et al., 2021).

It was argued that sex can help cope with the pandemic-related anxiety and depression by offering a means to stay connected, a calming effect of sexual release, and a tool for self-validation (Maretti et al., 2020). Indeed, a UK study reported that 30% in their sample have experienced increased coping using sex during the COVID-19 pandemic, although 29% have experienced decreased coping using sex, and 41% viewed no change in this respect (Gillespie et al., 2021). It is essential to understand these and other coping tendencies because decreased sexual wellbeing contributes to the deteriorating quality of life during and beyond the pandemic since sexual satisfaction is related to relationship satisfaction and life satisfaction (Fallis et al., 2016; Higgins et al., 2011; Osor et al., 2021).

To conclude, the COVID-19 pandemic and related non-pharmaceutical prevention measures have negatively affected many people's sex lives leading to increased discordance between what people want and what they are actually experiencing concerning sex frequency, quality, process, time, place, and atmosphere around sex (Osor et al., 2021). It is essential to improve awareness and minimize the negative impacts of the pandemic and related mitigation measures on people's sex lives globally (Berdychevsky et al., 2021). Extra care and consideration are crucial when navigating sexual and dating relationships in the shadow of the pandemic, yet more than ever, people need positive sexual engagement and effective coping strategies (Pennanen-Iire et al., 2021). Thus, it is essential to examine the coping mechanisms and transformations in sexual activity that shape people's sex lives in the pandemic and post-pandemic contexts (Berdychevsky et al., 2021; Döring, 2020; Giami, 2021).

This Study

Based on the presented literature, it is fair to say that there is no one universal scenario of change in sex life during the pandemic, but it is clear that the COVID-19 pandemic has taken a toll on the sex lives and relationships of many people across the globe. However, what is missing in the current literature is an understanding of what people did about these declines in their sex lives and what distinguished between the people who have experienced improvements instead of deteriorations. While some people might have surrendered to the COVID-imposed challenges, it is likely that many people have sought ways to maintain, adjust, enhance, or transform their sex lives in the shadow of the pandemic. Furthermore, some people might have used sexuality as a coping strategy with the pandemic-related crisis and stress.

Hence, it is essential to study the sexual creative, experimental, innovative, diversional, goal-setting, relational, educational, logistical, technological, and other strategies that people have implemented and found useful to cope with the impacts of the pandemic and to maintain a fulfilling sex life. Thus, this study sought to elucidate these processes to contribute to sexual health research and practice in the shadow of the COVID-19 pandemic and future public health crises. Also, since relationship status, gender, age, and the existence of children played various roles in how the pandemic affected people's sex lives, it is likely that these variables also affect the coping processes with the impacts of the pandemic on sex life. However, given the dearth of research on sexual coping during the pandemic, the answer to this assertion remains to be found, a task undertaken by this study.

Regrettably, scarce research and public attention have been focused on maintaining sexual health and wellbeing during the COVID-19 pandemic, despite its important effects on the overall quality of life (Ibarra et al., 2020). Available research has focused on representing changes in people's sex lives, but there is a dearth of research on how people have coped with these changes and what coping mechanisms they have found useful during the pandemic. Therefore, the impacts of the pandemic on sexual health and the ways people cope with these impacts are an urgent area that needs to be recognized and addressed by sexual health researchers and practitioners (Berdychevsky et al., 2021; Li et al., 2020). Therefore, this study addressed the following research questions (RQs):

RQ1: What strategies do people use to cope with the impacts of the COVID-19 pandemic and to maintain or enhance their sex lives, and how useful do they find these strategies?

RQ2: What are the differences by gender, availability of a regular sex partner, the existence of children, and

age in the scope of use and perceived usefulness of the coping mechanisms?

RQ3: What are the effects of the coping mechanisms on the frequency of intimate and sexual activities (i.e., kissing and hugging, sexual touching and caressing, sexual intercourse, oral sex, self-stimulation/masturbation, use of sex medicines, use of sex toys/aids), sexual desire, and satisfaction with sex life during the COVID-19 pandemic (while controlling for the sociodemographic variables, perceived overall health, pandemic-related stress, and adjustment to lockdown)?

Method

Procedure

The Institutional Review Board of the University of Illinois at Urbana-Champaign has approved this study (protocol number: 21574). The cross-sectional data were collected using an online survey methodology. For convenience, volunteer-based sampling was implemented. Participants received no compensation for contributing to this study, but they were offered a summary of its results. The participants were provided with an electronic informed consent form that presented research purpose and rationale, general instructions, inclusion criteria, expected duration, participants' rights, expected contributions of the study, and the researcher's contact information. The survey took about 20–25 min to complete. The inclusion criteria for this study were being 18+ years old, speaking English (however, there were no geographic limitations in this study), and being willing to share personal information regarding sex life during the pandemic. The study was anonymous, and no personal identifiers or IP addresses were collected. Overall, 1052 respondents clicked on the invitation link and completed at least a portion of the questionnaire. Among them, 675 (64.2%) participants have completed the survey, and they comprise the sample of this study. The data were collected between February and May 2021.

The author and four students recruited participants through word of mouth, social media (Twitter, Facebook, Instagram, LinkedIn), University and Research Center announcements to the community, and email and online announcements in public and registration-requiring forums, groups, listservs, and websites. The announcements in registration-requiring sources were made strictly with the administrator's approval. Among the others, announcements were posted on Reddit (both general and specific sub-Reddits devoted to coronavirus, sex, and relationships), in health and sex-oriented Facebook groups (e.g., Intimacy, Sex and Empowerment; Love, Sex, and Relationships; Wellness and Wellbeing; Positive Mind and Body), and topic-specific

and general chats, forums, and online communities (e.g., Loveshack, LetsChatLove, TalkHealth, Forumania, Nexopia). To encourage participation among mature audiences, tailored announcements were posted in forums and Facebook groups targeting older adults (e.g., Early Retirement Extreme Forums, SilverSurfer, 50-Plus Club, Funny Sarcastic Grandma Group, Seniors Club). The recruiting students have also utilized the platforms like Survey Exchange, Survey Tandem, and Survey Circle.

Measures

Considering the novelty of the studied topic, an ad hoc questionnaire had to be developed and attuned to the pandemic's context using available relevant literature (e.g., sexual motivations scale by Meston et al. [2020] and the study of sex and relationships among midlife and older adults by the American Association of Retired Persons/AARP, [2010]), cognitive interviewing, and consultations with experts. Specifically, the questionnaire was pretested via 15 cognitive, think-aloud interviews (9 women, 6 men; age range: 20–46 years old). Cognitive interviewing with think-aloud protocols captured participant thought processes while they were processing the questions and allowed calibrating the focus of the measurement's assessment. This strategy allowed identifying vague and complex questions that needed paraphrasing or deleting, and it helped establishing that the interviewees understand the questions correctly and answer them with ease. The instrument was also content validated through the panel of expert reviews with a multidisciplinary team of experts from sexuality, health, and leisure studies. These strategies helped identify and resolve content- and order-related issues in the instrument and contributed to its content validity.

Coping Strategies

The eight coping mechanisms with the impacts of the pandemic on sex life were measured with 59 items covering the domains of creativity and pleasure, diversion/distraction, goal-setting, relationships, education, caution and logistics, technology, and innovation and experimentation. The pool of items is presented in Table 2, in the “Results” section. Participants were asked to indicate whether they had experienced each coping strategy during the pandemic (59 nominal, dichotomous [yes/no] variables). Respondents who have experienced a given strategy were also asked to rate the degree of usefulness of that strategy on a 5-point scale where 1 = “extremely useless” and 5 = “extremely useful” (additional 59 usefulness ratings).

Frequency of Sexual Activity and Sexual Desire and Satisfaction

The participants were asked to state the frequency of seven intimate and sexual behaviors (i.e., kissing and hugging; sexual touching and caressing; sexual intercourse; oral sex; self-stimulation/masturbation; using sex medicines, hormones, or other treatments; and using sex toys/aids) during the pandemic, using an 8-point scale where 1 = “not at all” and 8 = “more than once a day.” Another question inquired about the levels of sexual desire during the pandemic, using a 5-point scale where 1 = “very low” and 5 = “very high.” An additional question inquired about satisfaction with sex life during the pandemic, using a 5-point scale where 1 = “extremely unsatisfactory” and 5 = “extremely satisfactory.”

Socio-Demographic and Pandemic-Related Variables

The participants shared information about their age (ratio), gender (nominal), availability of a regular sex partner (nominal, dichotomous), and children living in the same household (ordinal). The participants rated their overall present health on a 5-point scale where 1 = “terrible” and 5 = “excellent.” The participants also rated their average stress levels during the COVID-19 pandemic compared to the pre-pandemic stress levels using a 5-point scale where 1 = “much lower” and 5 = “much higher.” Last, perceived adjustment to lockdown conditions was measured using a 5-point scale, where 1 = “extremely poorly” and 5 = “extremely well.”

Sample

The final sample for the analysis ($N = 675$) had 445 (65.9%) women, 206 (30.5%) men, and 19 (2.8%) who self-identified differently. They ranged in age from 18 to 76 years old ($M = 31.66$, $SD = 12.74$). The majority (484, 71.7%) of the participants self-identified as White/Caucasian, 105 (15.4%) as Asian, 29 (4.3%) as Hispanic, and 23 (3.4%) as Black. In terms of education, 52 (7.7%) respondents were high school graduates, 21 (3.1%) were trade school graduates, 146 (21.6%) completed some college, 231 (32.4%) had a Bachelor's degree, 152 (22.5%) had a Master's degree, and 61 (9.0%) had a Ph.D., M.D., or equivalent degree.

Among the participants, 328 (48.6%) were never married, 218 (32.3%) were married, 94 (13.9%) were living with a partner, and 25 (3.7%) were divorced. Also, 480 (60.4%) respondents reported being in an exclusive relationship, 62 (9.2%) were casually dating but not in a relationship, and

Table 1 Sociodemographic composition of the sample and the impacts of the COVID-19 pandemic

Variable	Groups	<i>n</i>	%	Variable	Groups	<i>n</i>	%
Gender				Sexual identity			
	Men	206	30.5		Heterosexual	506	75.0
	Women	445	65.9		Gay/lesbian	27	4.0
	Other	19	2.8		Bisexual	114	16.9
					Other	19	2.8
Age ($M = 31.66$, $SD = 12.74$, $Min = 18$, $Max = 76$)				Children (living in the same household)			
	18–23 years old	252	37.3		None	505	74.8
	24–30 years old	155	23.0		1 child	59	8.7
	31–40 years old	139	20.6		2 children	55	8.1
	41–50 years old	65	9.6		3–4 children	46	6.8
	51–60 years old	31	4.6		More than 4	6	0.9
	61 + years old	33	4.9				
Education				Children (by age; can have children in different age categories)			
	Preschool through grade 12	8	1.1		Infant (under 1 yo)	56	8.3
	High school graduate	52	7.7		Toddler (1–2 yo)	45	6.7
	Trade school graduate	21	3.1		Preschooler (3–5 yo)	56	8.3
	Some college	146	21.6		Elementary school (6–10 yo)	60	8.9
	Bachelor's degree	231	34.2		Middle school (11–14 yo)	38	5.6
	Master's degree	152	22.5		High school (15–18 yo)	32	4.7
	Ph.D., M.D., or equivalent degree	61	9.0		19–26 yo	27	4.0
Racial and ethnic background^a				Employment status			
	White/Caucasian, not of Hispanic origin	484	71.7		Employed full-time	280	41.5
	Black, not of Hispanic origin	23	3.4		Employed part-time	148	21.9
	Hispanic	29	4.3		Self-employed	22	3.3
	Asian	104	15.4		Retired	15	2.2
	Other	30	4.4		Unemployed	105	15.6
					Other	96	14.2
Marital status				Impacts of the pandemic^b			
	Never married	328	48.6		Decreased workload (self)	154	22.8
	Married	218	32.3		Decreased workload (partner)	77	11.4
	Divorced/separated	29	4.3		Employment/business loss (self)	69	10.2
	Living with a partner	94	13.9		Employment/business loss (partner)	39	5.8
					Increased workload (self)	283	41.9
Dating status					Increased workload (partner)	116	17.2
	Exclusive relationship	408	60.4		Essential worker (self)	157	23.3
	Open relationship (can see other people)	13	1.9		Essential worker (partner)	103	15.3
	Casually dating, but not in a relationship	62	9.2		Working from home (self)	370	54.8
	Not dating and not in a relationship	146	21.6		Working from home (partner)	148	21.9
	Other	25	3.7		Switching children to online or home schooling	87	12.9
Regular sexual partner					Withdrawing children from daycare services	20	3.0
	Yes	463	68.6		Losing place of residence	9	1.3
	No	208	30.8		None of the above	60	8.9

^aSome race/ethnicity groups were collapsed into the “other” category due to very low frequencies^bIn the questionnaire, the “partner” was consistently described as “spouse/cohabitating partner”

146 (21.6%) were not dating and not in a relationship. The majority (506, 75.0%) of the sample self-identified as heterosexual, 114 (16.9%) as bisexual, and 27 (4.0%) as gay/lesbian. In the sample, 505 (74.8%) respondents had no children living in the same household, 59 (8.7) had one child, 55 (8.1%) had two children, and 46 (6.8%) had 3–4 children. The most frequently reported country of residence was the USA (442, 65.5%), followed by the UK (97, 14.4%) and Canada (31, 4.6%).

On average, the participants in this study self-identified as healthy ($M=3.86$, $SD=0.817$). Among them, 131 (19.4%) respondents viewed their health as excellent, 360 (533%) as good, and 142 (21.0%) as fair. In terms of adjustment to the lockdown conditions, 88 (13.0%) participants felt that they were adjusting extremely well, 335 (49.6%) somewhat well, 140 (20.7%) neither well nor poorly, 94 (13.9%) somewhat poorly, and 16 (2.4%) extremely poorly ($M=3.57$, $SD=0.964$). See Table 1 for more information regarding the sample.

Analytic Plan

The data were analyzed in IBM SPSS 27 software. The data met the parameters of normality (skew <|1|, kurtosis <|3|, and missing values <5% on any variable). The missing values were treated with a full information maximum likelihood estimation method. To address RQ1, the strategies that people employ for coping with the impacts of the pandemic on sex life and their perceived usefulness were examined first at the individual item level and then combined into thematic indices. At the individual item level, frequencies were calculated to assess the scope of use of the coping strategy, and one-sample *t*-tests were conducted to establish the degree of its usefulness by determining whether the variable mean is statistically different from the midpoint of the scale (i.e., 3 = “neither useful nor useless”).

Then, the composition of the coping indices was established using the principal component factor analysis. Each index had a use score (i.e., the sum index of the use items reflecting the average number of the strategies used by the participants within the index) and a usefulness score (i.e., the mean index of the usefulness ratings by the participants who have tried the given coping mechanism). The use scores were also converted to percentages and served as a basis for creating the groups of non-users, light(er) users, and heavy(er) users. The internal consistency of the usefulness scores for each index was assessed with Cronbach’s α , which was high for each index and ranged from 0.820 to 0.977 (see Table 3 in the “Results” section).

The RQ2 focusing on the socio-demographic differences in the use and usefulness of the coping mechanisms/indices was assessed with independent-samples *t*-tests (for the nominal dichotomous variables: gender, availability of a regular

sex partner, and the existence of children) and a one-way between-subjects ANOVA with post hoc Tukey HSD testing (for the continuous age variable that was converted into an ordinal variable with five levels for the analysis). Finally, RQ3 (i.e., examining the effects of the coping mechanisms on the frequency of sexual activities, sexual desire, and satisfaction with sex life during the COVID-19 pandemic) was addressed using multivariate multiple regression (i.e., General Linear Model [GLM] Multivariate Analysis in SPSS). In this analysis, the coping indices served as predictors/independent variables and sex frequencies and properties as the outcomes/dependent variables. The complete set of control variables included the socio-demographic variables (i.e., gender, availability of a regular sex partner, the existence of children, and age), perceived overall health, pandemic-related stress, and adjustment to lockdown. Control variables that had no significant effect were dropped from the model.

Results

Coping Mechanisms with the Impacts of the Pandemic on Sex Life and Their Usefulness

Table 2 presents the 59 coping strategies that the participants assessed in terms of use and usefulness. The most frequently used sexual strategies to cope with the pandemic and to maintain fulfilling sex life were using sex as a source of pleasure (69.0%), having sex for relational purposes (e.g., to increase intimacy (62.4%), to bond with a partner (62.2%), to please a partner (59.0%), to express care (58.7%), and to strengthen the relationship (52.4%)), to feel satisfied (57.0%), to relieve stress (55.6%), and to relax (54.2%). Also, 59% reported watching porn, 56.6% communicated openly about sex with their partner, 55.1% focused on the quality of sex rather than its quantity, and 52.7% treated sex as a leisure activity. Although some coping strategies did not have high frequencies, people who tried them found them useful. Overall, except for one item (i.e., sex with multiple partners), the usefulness of all the coping strategies was rated as significantly higher than the midpoint of the measurement scale (i.e., 3 = “neither useful nor useless”). Moreover, using the guidelines for interpreting Cohen’s *d* effect sizes (i.e., 0.2—small, 0.5—medium, 0.8+—large), most of the effect sizes were large or very large, with a few medium-plus effects, and only one smaller effect (on the use of the geo-social networking applications).

To get a better sense of the coping mechanisms, the items were organized into eight thematic indices (see Table 3). The number of items per index ranged from three to ten. For each index, the groups of non-users, light(er) users, and heavy(er) users were created. The non-users were a

Table 2 Use and usefulness of the coping strategies with the impacts of the COVID-19 pandemic on sex life

Coping strategies (59 strategies organized under 8 categories)	Use		Usefulness		One-sample <i>T</i> -test ^b		
	<i>n</i>	%	<i>M</i> ^a	<i>SD</i> ^a	<i>t</i>		
							Cohen's <i>d</i> ^c
Creativity and pleasure strategies							
I have become more creative in sex	225	33.3	3.76	.890	12.697	****	.854
I have become more playful in sex	215	31.9	3.83	.859	14.178	****	.965
I view sex as leisure activity	356	52.7	3.62	.888	12.975	****	.699
I use sex as a source of pleasure	466	69.0	3.77	.891	18.504	****	.869
I am more spontaneous in sex	240	35.6	3.83	.855	14.902	****	.974
Diversion strategies							
I use sex as a source of comfort	321	47.6	3.89	.901	17.447	****	.986
I have sex to relax	366	54.2	3.84	.936	16.982	****	.900
I have sex to relieve stress	375	55.6	3.91	.931	18.731	****	.980
I use sex as a distraction from the pandemic	168	24.9	3.81	.916	11.491	****	.889
I have sex to fill the extra time I have now	134	19.9	3.85	.921	10.626	****	.928
I use sex to divert my anger and frustration	100	14.8	3.78	1.073	7.194	****	.730
Goal-setting strategies							
I prioritize sex among other activities	146	21.6	3.72	.952	8.877	****	.758
I have sex to feel desirable	278	41.2	3.67	.932	11.767	****	.721
I have sex to feel satisfied	385	57.0	3.73	.905	15.514	****	.810
I am being more aware of my sexual needs	337	49.9	3.78	.982	14.314	****	.795
I concentrate my energy on sex	116	17.2	3.61	1.035	6.335	****	.593
I consider exactly what is important for me in sex	285	42.2	3.74	.960	12.752	****	.773
I work on being content with my present sex life	354	52.4	3.67	.949	12.976	****	.707
I focus on the quality of sex rather than its quantity	372	55.1	3.74	.941	14.742	****	.784
I focus less on my physical sexual difficulties	209	31.0	3.58	.939	8.846	****	.622
I do not let physical sexual difficulties affect how I feel about myself sexually	258	38.2	3.55	.961	9.074	****	.577
Relational strategies							
I have sex to express care for my partner	396	58.7	4.02	.855	23.291	****	1.196
I have sex to bond with my partner	420	62.2	4.04	.870	23.998	****	1.201
I have sex to support my partner emotionally	322	47.7	3.99	.887	19.391	****	1.116
I have sex to increase intimacy	421	62.4	3.99	.894	22.014	****	1.102
I focus on emotional closeness in sex	357	52.9	3.94	.870	19.973	****	1.085
I have sex to strengthen relationship	354	52.4	3.97	.874	20.439	****	1.113
I have sex to please my partner	399	59.1	3.91	.945	18.898	****	.967
I am being more sensitive to my partner's sexual needs	339	50.2	3.98	.890	19.653	****	1.099
I am communicating openly about sex with my partner	382	56.6	3.99	.972	19.494	****	1.023
Educational strategies							
I have sought professional help for addressing my sexual difficulties	40	5.9	3.62	.979	4.038	****	.638
I have spent time educating myself to enhance my sex life	247	36.6	3.91	9.17	15.345	****	.995
I have attended a seminar/class to enhance my sex life	25	3.7	3.57	1.069	2.828	**	.535
Caution and logistical strategies							
I have been making arrangements to have privacy for sex	196	29.0	3.80	.972	11.350	****	.823
I have been scheduling sex	152	22.5	3.71	1.058	8.159	****	.671
I have been more careful with dating	168	24.9	3.77	.972	9.903	****	.788
I have been more careful with choosing sexual partners	152	22.5	3.83	.978	10.332	****	.849
I have been more consistent with using sexual protection	161	23.9	3.85	.938	11.270	****	.902
I have switched from partnered sex to self-stimulation/masturbation	140	20.7	3.83	.981	9.821	****	.845
I have had sex in a public place	89	13.2	3.39	.892	4.037	****	.440
I have combined sex with alcohol	220	32.6	3.51	.898	8.054	****	.565

Table 2 (continued)

Coping strategies (59 strategies organized under 8 categories)	Use		Usefulness		One-sample <i>T</i> -test ^b		
	<i>n</i>	%	<i>M</i> ^a	<i>SD</i> ^a	<i>t</i>	Cohen's <i>d</i> ^c	
I have combined sex with drugs	115	17.0	3.60	.944	6.595	****	.632
Online and technology strategies							
I have watched porn alone	398	59.0	3.66	1.053	12.042	****	.629
I have watched porn with my partner	117	17.3	3.76	.980	8.109	****	.777
I have exchanged erotic notes or emails	168	24.9	3.94	.914	13.152	****	1.033
I have taken erotic photos/videos	208	30.8	3.79	.988	11.120	****	.798
I have had phone or webcam sex	93	13.8	3.89	1.090	7.643	****	.806
I have used geo-social networking applications (such as Tinder, Grindr) for dating	141	20.9	3.34	1.235	3.206	***	.276
Innovation and experimentation strategies							
I have fulfilled sexual fantasies that were suppressed before	139	20.6	4.12	.784	16.223	****	1.423
I have tried new sexual activities	246	36.4	4.05	.809	19.457	****	1.297
I have tried new sexual positions	276	40.9	3.94	.879	16.977	****	1.069
I have tried new sex aids/toys	179	26.5	4.10	.877	16.310	****	1.255
I have tried new sex medicines, hormones, or treatments	29	4.3	4.07	.781	7.148	****	1.376
I have engaged in sexual role playing	87	12.9	3.74	.829	7.925	****	.897
I have engaged in bondage and domination	123	18.2	3.91	.826	11.602	****	1.101
I have had sex with two partners—ménage a trois	27	4.0	3.61	.988	2.954	**	.616
I have had sex with multiple partners—orgy/group sex	12	1.8	3.55	.934	–	–	–
I have engaged in swinging/partner switching	16	2.4	3.63	1.025	2.440	*	.610
I have used the services of professional sex worker	13	1.9	3.91	.701	4.303	***	1.297

^aMeans (*M*) and standard deviations (*SD*) are calculated based on the ratings of the participants who have used that particular strategy

^bOne-sample *t*-test was used to determine whether the variable mean is statistically different from 3 = neither useful nor useless

^cFor interpreting Cohen's *d* effect sizes: .2—small, .5—medium, .8 or higher—large

**** $p < .001$; *** $p < .005$; ** $p < .01$; * $p < .05$; –, not statistically significant

proportion of the participants in the sample who have not used any of the strategies in the given index. A threshold of 50% of the number of activities within each index was used to distinguish between the light(er) and heavy(er) users (i.e., below 50% = light(er) user; above 50% = heavy(er) user; while arbitrary, the threshold helps to illustrate the use patterns). Namely, this group classification is based on the participant's diversity of use of the coping strategies per index rather than the frequency of use of these strategies. The average use of strategies per index, measured in percentages, ranged from 15.3 to 55.8%. The coping indices with the highest proportions of use were relational strategies (heavy users = 60.7%), creativities and pleasure strategies (heavy users = 43.1%), goal-setting strategies (heavy users = 33.6%), and diversion strategies (heavy users = 24.6%). The usefulness and internal consistency of each coping index are also presented in Table 3. The Cronbach's α varied from 0.820 to 0.977, indicating high reliability. The indices with the highest usefulness ratings were innovation and experimentation strategies ($M = 3.95$, $SD = 0.822$), relational strategies

($M = 3.90$, $SD = 0.812$), educational strategies ($M = 3.88$, $SD = 0.903$), and diversion strategies ($M = 3.80$, $SD = 0.876$).

Socio-Demographic Differences in the Use and Usefulness of the Coping Mechanisms

The results showed that the use and perceived usefulness of the coping mechanisms varied by the socio-demographic variables (see Table 4). In terms of gender, women were significantly higher users of the goal-setting strategies, relational strategies, and caution and logistical strategies compared to men. Women also had significantly higher usefulness ratings for the creativity and pleasure strategies, diversion strategies, and educational strategies. Concerning the availability of a regular sex partner, people with a partner were significantly higher users of the innovation and experimentation strategies, creativity and pleasure strategies, diversion strategies, goal-setting strategies, and relational strategies. Moreover, people with a partner had significantly higher usefulness ratings for the creativity and pleasure

Table 3 Coping indices and their properties

Index ^a	Use						Usefulness			
	#	Items in index		Σ index average use ^b		Heavy(er) users ^d	Σ index ≥ % index ^c	M	SD	Cronbach's α
		M	SD	%	%					
Creativity and pleasure strategies	5	2.23	1.750	25.3	31.6	43.1	44.6	3.64	.826	.943
Diversion strategies	6	2.17	1.860	30.4	45.0	24.6	36.2	3.80	.876	.919
Goal-setting strategies	10	4.06	2.952	20.4	45.9	33.6	40.6	3.62	.836	.957
Relational strategies	9	5.02	3.655	26.5	12.7	60.7	55.8	3.90	.812	.967
Educational strategies	3	.46	.644	60.9	33.2	5.9	15.3	3.88	.903	.836
Caution and logistical strategies	9	2.06	2.032	31.4	55.3	13.3	22.9	3.70	.860	.977
Online and technology strategies	6	1.67	1.561	27.3	57.9	14.7	27.8	3.61	.983	.820
Innovation and experimentation strategies	7 ^f	1.60	1.843	44.7	37.5	17.8	22.9	3.95	.822	.963

^aThe items in each coping category were summed to create a Sum (Σ) index

^bThe average number of strategies used by the participants in each index and their standard deviations

^cProportion of the participants in the sample who have not used any of the strategies in the given index

^dA threshold of 50% of the number of activities within each index was used to distinguish between the light(er) and heavy(er) users (i.e., below 50% = light(er) user; above 50% = heavy(er) user; while arbitrary, the threshold helps to illustrate the use patterns); these figures represent the participant's diversity of use of the coping strategies per index, rather than the frequency of use of these strategies

^eTo facilitate the comparison of the use patterns across the indices, the Sum index (i.e., Σ index average use) was converted into percentages (%)

^fOut of the total of 11 items, four items (i.e., ménage a trois, orgy/group sex, swinging/partner switching, and professional sex worker services) had to be excluded from the index due very low frequencies (in the Use section) and detrimental contributions to Cronbach's α (in the Usefulness section)

Table 4 Differences in use and perceived usefulness of the coping strategies by the socio-demographic variables

	Differences by gender						
	Use			Usefulness			
	Women	Men	Independent samples <i>T</i> -test	Women	Men	Independent samples <i>T</i> -test	
Coping strategies (Σ indices)	<i>M</i>	<i>M</i>	<i>t</i>	<i>M</i>	<i>M</i>	<i>t</i>	Cohen's <i>d</i>
Goal-setting strategies	4.25	3.67	2.331*				
Relational strategies	5.27	4.66	1.994*				
Caution and logistical strategies	2.19	1.85	1.992*				
Creativity and pleasure strategies				3.72	3.47	3.015***	.301
Diversion strategies				3.90	3.65	2.612**	.286
Educational strategies				3.96	3.64	2.490*	.352
Differences by the availability of a regular sex partner							
	Use			Usefulness			
Yes	No	No	Independent samples <i>T</i> -test	Yes	No	Independent samples <i>T</i> -test	
<i>M</i>	<i>M</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>M</i>	<i>t</i>	Cohen's <i>d</i>
Innovation and experimentation strategies	1.88	1.00	6.331****	.488			
Creativity and pleasure strategies	2.50	1.65	5.968****	.498	3.48	2.538*	.264
Diversion strategies	2.33	1.84	3.059****	.266	3.49	4.295****	.470
Goal-setting strategies	4.61	2.88	7.292****	.609	3.42	3.015****	.307
Relational strategies	6.38	2.08	16.818****	1.404	3.70	2.488*	.308
Online and technology strategies				3.73	3.37	3.711****	.368
Differences by the existence of children							
	Use			Usefulness ^b			
Yes	No	No	Independent samples <i>T</i> -test	Yes	No	Independent samples <i>T</i> -test	
<i>M</i>	<i>M</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>M</i>	<i>t</i>	Cohen's <i>d</i>
Relational strategies	5.86	4.74	3.664****	.311			
Caution and logistical strategies	1.68	2.19	-3.249****	.252			
Online and technology strategies	1.22	1.82	-4.622****	.390			

Table 4 (continued)

	Differences by age (Use) ^c						<i>F</i>	η^2
	Sig comparison			Sig comparison				
	Higher scores	Lower scores	Higher scores	Lower scores	Higher scores	Lower scores		
Relational strategies	18–23 yo >	31–40 yo					4.251***	.025
Creativity and pleasure strategies	18–23 yo >	31–40 yo	18–23 yo >	41–50 yo			3.667**	.021
Caution and logistical strategies	18–23 yo >	51 + yo	24–30 yo >	51 + yo			6.288****	.036
Educational strategies	18–23 yo >	41–50 yo	31–40 yo >	41–50 yo			5.067****	.029
Online and technology strategies	18–23 yo >	51 + yo	31–40 yo >	51 + yo				
	18–23 yo >	31–40 yo	18–23 yo >	51 + yo	24–30 yo >	51 + yo	11.571****	.065
	18–23 yo >	41–50 yo	24–30 yo >	41–50 yo	31–40 yo >	51 + yo		
Innovation and experimentation strategies	18–23 yo >	41–50 yo	18–23 yo >	51 + yo	24–30 yo >	51 + yo	5.926****	.034

^aFor interpreting Cohen's *d* effect sizes: .2—small, .5—medium, .8 or higher—large; however, these arbitrary values should not be interpreted rigidly (Lakens, 2013)

^bThere were no significant differences in perceived usefulness of the coping strategies between the participants who had vs. had not children

^cThere were no perceived differences by age in the perceived usefulness of the coping strategies

^dFor interpreting Eta-squared (η^2) effect sizes: .01—small, .06—medium, .14 or higher—large ; however, these arbitrary values should not be interpreted rigidly (Lakens, 2013) **** $p < .001$; *** $p < .005$; ** $p < .01$; * $p < .05$

strategies, diversion strategies, goal-setting strategies, relational strategies, and online and technology strategies.

People with children reported significantly higher use of relational strategies and significantly lower use of caution and logistical strategies and online and technology strategies compared to people without children. However, there were no significant differences in the perceived usefulness of any of the coping mechanisms between the participants with and without children. Finally, there were significant differences between the people of different ages in their use of relational strategies, creativity and pleasure strategies, caution and logistical strategies, educational strategies, online and technology strategies, and innovation and experimentation strategies, with younger people consistently having higher use scores (Table 4). Nevertheless, there were no differences by age in the perceived usefulness of any of the coping mechanisms.

Coping Mechanisms as Predictors of Sex Frequencies and Qualities During the Pandemic

Multivariate multiple regression was calculated (see Table 5) to predict the frequencies of sexual activities during the pandemic (i.e., outcomes/dependent variables) based on the coping use indices (i.e., predictors/independent variables). The complete set of control variables included the socio-demographic variables (i.e., availability of regular sex partner, gender, age, and the existence of children), perceived overall health, pandemic-related stress, and adjustment to lockdown. Control variables that had no significant effect were removed from the final model.

The frequencies of sexual activities during the pandemic were significantly predicted by six (out of eight) coping mechanisms/indices: creativity and pleasure strategies, diversion strategies, relational strategies, educational strategies, online and technology strategies, and innovation and experimentation strategies. Goal-setting strategies and caution and logistical strategies were not significant predictors of sex frequencies. Among the control variables, having a regular sex partner, gender, age, and having children had significant effects on sexual frequencies.

The frequency of kissing and hugging during the pandemic was significantly predicted by the use of diversion strategies, relational strategies, online and technology strategies, and innovation and experimentation strategies and by having a regular sex partner and children. Collectively, these variables predicted 48.6% ($R^2 = 0.486$) of variability in the frequency of kissing and hugging during the pandemic. Creativity and pleasure strategies, relational strategies, and innovation and experimentation strategies as well as having a regular sex partner and children predicted the frequency of sexual touching and caressing during the pandemic ($R^2 = 0.462$).

The frequency of sexual intercourse was significantly explained by the use of creativity and pleasure strategies, relational strategies, and innovation and experimentation strategies and by having a regular sex partner and children ($R^2=0.491$). The use of creativity and pleasure strategies, relational strategies, educational strategies, and innovation and experimentation strategies and having a regular sex and age (with a negative effect) predicted the frequency of oral sex during the pandemic ($R^2=0.405$). In turn, the use of diversion strategies, relational strategies, and online and technology strategies affected the frequency of self-stimulation/masturbation, along with age and having children (both negative effects) and gender, with higher predicted frequency of masturbation for men ($R^2=0.258$). Finally, the frequency of the sex toys/aids use during the pandemic was significantly predicted by relational strategies, online and technology strategies, and innovation and experimentation strategies as well as age, having a regular sex partner, and gender (with higher predicted frequency of sex toys/aids use for women) ($R^2=0.203$).

Another multivariate multiple regression was calculated (see Table 6) to predict the non-quantitative properties of sex life during the pandemic (i.e., sexual desire and satisfaction with sex life serving as outcomes/dependent variables) based on the coping use indices (i.e., predictors/independent variables). The complete set of control variables was identical to the model focusing on the frequencies of sexual activities. Control variables that had no significant effect were removed from the model. Sexual desire and satisfaction with sex life during the pandemic were significantly predicted by the same six coping mechanisms/indices that predicted sexual frequencies. Among the control variables, having a regular sex partner, gender, perceived overall health, changes in stress levels because of the pandemic, and adjustment to lockdown had significant effects on sexual desire and satisfaction with sex life.

Sexual desire during the pandemic was significantly predicted by the use of creativity and pleasure strategies, diversion strategies, relational strategies, online and technology strategies, and innovation and experimentation strategies as well as gender (with higher predicted sexual desire for men) ($R^2=0.283$). In turn, the use of creativity and pleasure strategies, relational strategies, educational strategies, online and technology strategies, and innovation and experimentation strategies explained people's satisfaction with sex life during the pandemic. Among the control variables, having a regular sex partner, better overall health, and better adjustment to lockdown had positive effects on satisfaction with sex life while increased stress levels due to the pandemic had a negative effect. In combination, these variables predicted 36.5% ($R^2=0.365$) of variability in satisfaction with sex life during the pandemic.

Discussion

The negative impacts of the COVID-19 pandemic and related mitigation measures on people's sexual function and quality of life emphasize the acute need for psychological and sexual support to prevent and mitigate disturbances of sexual and overall health during and after the pandemic (Döring, 2020; Hille et al., 2021; Pennanen-Iire et al., 2021; Schiavi et al., 2020). This study's results offer an understanding of sexual coping mechanisms (with a focus on both sexuality in coping with the pandemic's adversity and sexual strategies to maintain fulfilling sex life) and clarify their determinants of use and usefulness and their impacts on the quantity and quality of sex life. These results can guide sexual health practitioners in assessing, educating, and intervening in sexual health and relationships by addressing relevant issues of clinical interest in the shadow of the COVID-19 pandemic and its aftermath as well as the future public health crises. By understanding the factors related to sexual coping and improvement, sexual health scholars and practitioners can provide relevant solutions and support mechanisms in emergency situations (Berdychevsky et al., 2021; Delcea et al., 2021a, b).

Coping Mechanisms

This study examined eight sexual coping mechanisms, including creativity and pleasure, diversion, goal-setting, relational, educational, caution and logistical, online and technological, and innovation and experimentation strategies. All the coping mechanisms were rated significantly useful, albeit to different degrees. The results show that the *relational coping mechanism* was both most commonly used and viewed as the most useful. The importance of relational coping strategies is supported by existing research showing that positive relational experiences are critical to intimacy and sexual connection (Dewitte et al., 2015), while the conflict in a relationship is detrimental to sex life (Luetke et al., 2020). The quality of sex life is related to the psychological variables underlying the quality of relationships, including communication, sexual compatibility, and emotional support (Delcea et al., 2021a; O'Reilly Tretter et al., 2021; Lopes et al., 2020).

This study's findings indicate that people used and appreciated the beneficial capacity of relational coping. At the beginning of the pandemic, media were speculating whether COVID-19 and related mitigation measures would lead to a baby boom or a divorce tsunami (Dvorak, 2020). However, scholars argued that the goal should not be playing these effects against each other; instead, it is essential to identify

Table 5 Coping indices as predictors of the frequencies of sexual activities during the COVID-19 pandemic

Frequencies of sexual activities variables and estimates	Predictors-coping indices ^d							Controls-demographic variables					Adj. R ^{2b}
	CPS	DS	RS	ES	OTS	IES	Reg. sex partner	Gender	Age	Children			
Wilks' lambda (A)^a	.952	.953	.914	.974	.922	.899	.737	.872	.928	.955			
<i>F</i>	4.219****	4.085****	7.874****	2.247*	7.016****	9.375****	29.672****	12.192****	6.480****	3.903****			
<i>η^{2c}</i>	.048	.047	.086	.026	.078	.101	.263	.128	.072	.045			.486
<i>Kissing and hugging</i>													.477
<i>F</i>	–	3.673*	25.905****	–	11.832****	5.166*	170.310****	–	–	5.347*			
<i>B</i>	–	.096	.146	–	–.210	.134	2.756	–	–	.470			
<i>SE</i>	–	.050	.029	–	.061	.059	.211	–	–	.203			
<i>t</i>	–	1.999*	5.090****	–	–3.440****	2.273*	13.050****	–	–	2.312*			
<i>Sexual touching and caressing</i>													.462
<i>F</i>	9.705***	–	18.421****	–	–	8.176***	145.071****	–	–	6.916**			
<i>B</i>	.174	–	.118	–	–	.161	2.426	–	–	.510			
<i>SE</i>	.056	–	.027	–	–	.056	.201	–	–	.194			
<i>t</i>	3.115***	–	4.292****	–	–	2.859***	12.045****	–	–	2.630**			.491
<i>Sexual intercourse</i>													.483
<i>F</i>	21.012****	–	18.035****	–	–	14.917****	150.638****	–	3.841*	3.849*			
<i>B</i>	.216	–	.098	–	–	.183	2.081	–	–.011	.320			
<i>SE</i>	.047	–	.023	–	–	.047	.170	–	.006	.163			
<i>t</i>	4.584****	–	4.247****	–	–	3.862****	12.273****	–	–1.990*	1.992*			.405
<i>Oral sex</i>													.395
<i>F</i>	10.594***	–	5.837*	5.093*	–	22.486****	101.165****	–	8.871***	–			
<i>B</i>	.159	–	.058	–.258	–	.233	1.769	–	–.018	–			
<i>SE</i>	.049	–	.024	.114	–	.049	.176	–	.006	–			
<i>t</i>	3.255***	–	2.416*	–2.257*	–	4.742****	10.058****	–	–2.978***	–			.258
<i>Self-stimulation/masturbation</i>													.245
<i>F</i>	–	21.281****	18.152****	–	22.463****	–	–	47.154****	7.943****	7.492****			
<i>B</i>	–	.236	–.125	–	.295	–	–	1.210	–.021	–.566			
<i>SE</i>	–	.051	.029	–	.062	–	–	.176	.007	.207			
<i>t</i>	–	4.613****	–4.260****	–	4.740****	–	–	6.867****	–2.818****	–2.737***			
<i>Sex medicines, hormones, and treatments</i>													.048
<i>F</i>	–	–	–	8.304***	–	8.338***	–	–	9.883***	–			
<i>B</i>	–	–	–	.272	–	.117	–	–	.016	–			
<i>SE</i>	–	–	–	.094	–	.040	–	–	.005	–			
<i>t</i>	–	–	–	2.882***	–	2.888***	–	–	3.144***	–			

Table 5 (continued)

Frequencies of sexual activities variables and estimates	Predictors-coping indices ^d					Controls-demographic variables					Adj. R ^{2b}	.190	
	CPS	DS	RS	ES	OTS	IES	Reg. sex partner	Gender	Age	Children			
<i>Sex toys/aids</i>	–	–	11.049****	–	8.239****	48.562****	5.495*	9.448****	7.299**	–		.203	
<i>F</i>	–	–	–.073	–	.134	.313	.377	–.406	.015	–			
<i>B</i>	–	–	.022	–	.047	.045	.161	.132	.006	–			
<i>SE</i>	–	–	–.3324****	–	2.870****	3.969****	2.344*	–3.074****	2.698**	–			
<i>t</i>	–	–	–	–	–	–	–	–	–	–			

^aWilks' lambda (λ) is reported for each predictor/independent variable in the model

^bR squared and adjusted R squared (the values in bold) are reported for each outcome/dependent variable in the model; R squared reflects the predicted % of variability in the dependent variable

^cFor interpreting the partial eta-squared (η_p^2) effect sizes: .01—small, .06—medium, .14 or higher—large; however, these arbitrary values should not be interpreted rigidly (Lakens, 2013)

^dCoping indices acronyms: CPS, creativity and pleasure strategies; DS, diversion strategies; RS, relational strategies; ES, educational strategies; OTS, online and technology strategies; IES, innovation and experimentation strategies

**** $p < .001$; *** $p < .005$; ** $p < .01$; * $p < .05$; –, not statistically significant

the determinants of successful coping and resilience that distinguish between couples that become closer during the pandemic rather than grow apart (Döring, 2020). This study suggests that the capacity for relational coping could be one of such determinants. Therefore, clinical interventions focusing on relational aspects and amplifying positive interactions can most effectively maintain and enhance sexual health among partnered people during the pandemic (Balzarini et al., 2020; Jacob et al., 2020; Luetke et al., 2020).

Following relational coping strategies, *creativity and pleasure* and *goal-setting coping mechanisms* were more commonly used than other strategies. Nevertheless, while still perceived as significantly and substantially useful, their usefulness ratings were among the lowest compared to other coping mechanisms. Conversely, *innovation and experimentation coping mechanism* was less commonly used than creativity and pleasure and goal-setting coping mechanisms, but its usefulness rating was the highest in the sample. These differences present a conundrum because, intuitively, creativity and pleasure strategies share a common core with innovation and experimentation strategies. Hence, it is reasonable to expect that their patterns of use and usefulness would converge rather than diverge, which contradicts the results of this study. One possible explanation could stem from the differences between cognitive and behavioral coping strategies. Based on the item composition of the indices/mechanisms, it is fair to say that creativity and pleasure strategies and diversion strategies are attitudinal in nature, while innovation and experimentation strategies are all behavioral. Following this reasoning, the results of this study suggest that attitudinal coping strategies were more commonly used, but the behavioral translation of these attitudes into practice was viewed as more beneficial.

This distinction between attitudinal and behavioral sexual coping in terms of use and usefulness is critical because it emphasizes the role of experiential sexual coping. Sexual health practitioners and educators should encourage experiential innovation in general and during times of crises because sexual experimentation and making new additions to sexual repertoire during the pandemic may “reflect a coping mechanism for warding off further sexual declines” (Lehmiller et al., 2020, p. 7). Indeed, sexual experimentation was linked to positive trends in people's sex life during the pandemic, including higher levels of sexual desire and reduced loneliness and stress (Lehmiller et al., 2020). This study's results align with previous research showing that some people used the disruption of their routine during the pandemic to broaden their sexual scripts, discover new sexual preferences, create novel fantasies, cultivate eroticism, initiate open sex-related communication, and reinvent their intimacy (Ballester-Arnal et al., 2020; Eleuteri & Terzitta, 2021; Lehmiller et al., 2020; Lopes et al., 2020).

Table 6 Coping indices as predictors of the non-quantitative qualities of sex life during the COVID-19 pandemic

Sex life qualities Variables and estimates	Predictors-coping indices ^d						R^{2b}	Adj. R^{2b}
	CPS	DS	RS	ES	OTS	IES		
Wilks' Lambda (A)	.894	.973	.975	.982	.982	.953		
<i>F</i>	37.438****	8.809****	8.124****	5.905****	5.710****	15.688****		
η_p^2	.106	.027	.025	.018	.018	.047		
<i>Sexual desire</i>								
<i>F</i>	51.935****	16.337****	5.929**		3.905*	6.164**		
<i>B</i>	.212	.100	-.035		.059	.071		
SE	.029	.025	.014		.030	.029		
<i>t</i>	7.207****	4.042****	-2.435**		1.976*	2.483**		
<i>Satisfaction with sex life</i>								
<i>F</i>	32.143****	--	7.838***	10.239****	6.125**	28.071****		
<i>B</i>	.165	--	.041	-.210	-.073	.150		
SE	.029	--	.014	.066	.030	.028		
<i>t</i>	5.669****	--	2.885***	-3.200****	-2.475**	5.298****		
	Control variables							
	Demographic variables			Pandemic's impacts				
	Regular sex partner	Gender	Health	Stress changes	Adjustment to lock-down			
Wilks' lambda (A)	.946	.955	.990	.983	.980			
<i>F</i>	17.934****	14.930****	3.348*	5.623***	6.425****			
η_p^2	.054	.045	.010	.017	.020			
<i>Sexual desire</i>						.283	.271	
<i>F</i>	--	26.109****	--	--	--			
<i>B</i>	--	.433	--	--	--			
SE	--	.085	--	--	--			
<i>t</i>	--	5.110****	--	--	--			
<i>Satisfaction with sex life</i>						.365	.354	
<i>F</i>	30.978****	--	6.565**	10.784****	11.736****			
<i>B</i>	.561	--	.127	-.156	.153			
SE	.101	--	.050	.048	.045			
<i>t</i>	5.566****	--	2.562**	-3.284****	3.426****			

^aWilks' lambda (A) is reported for each predictor/independent variable in the model

^bR squared and adjusted R squared (the values in bold) are reported for each outcome/dependent variable in the model; R squared reflects the predicted % of variability in the dependent variable

^cFor interpreting the partial eta-squared (η_p^2) effect sizes: .01—small, .06—medium, .14 or higher—large; however, these arbitrary values should not be interpreted rigidly (Lakens, 2013)

^dCoping indices acronyms: CPS, creativity and pleasure strategies; DS, diversion strategies; RS, relational strategies; ES, educational strategies; OTS, online and technology strategies; IES, innovation and experimentation strategies

**** $p < .001$; *** $p < .005$; ** $p < .01$; * $p < .05$; --, not statistically significant

The diversion coping mechanism was rather commonly used (although less so than relational, creativity, and goal-setting coping mechanisms), and its usefulness rating was among the higher in the sample. This might be explained by some people's tendency to use solo and partnered sex to manage boredom and overfamiliarity during the pandemic (de Oliveira & Cravalho, 2020). For some individuals

feeling trapped and bored in isolation, sex was a positive distraction (de Olivera & Cravalho, 2021). Specifically, cohabitating couples during the pandemic (especially during the periods of lockdown) have to balance between connectedness for emotional support and sufficient separation from each other for self-differentiation and combating overfamiliarity (Luetke et al., 2020). This study shows that

people have adopted a mix of coping strategies to maintain this balance, with the relational coping index supporting healthy relationships and connectedness and diversion and innovation and creativity indices addressing habituation and overfamiliarity.

Online and technology strategies are another coping mechanism that presents food for thought. While these strategies were rather commonly used (although less so than the previously discussed coping mechanisms), their usefulness rating was among the lowest in the sample (albeit still rated as significantly and substantially useful). This warrants further unpacking. A US nationally representative survey found that frequent in-person intimate and sexual activity (i.e., hugging, kissing, and partnered sex) during the COVID-19 pandemic and associated restrictions were related to a lower prevalence of loneliness and depression, but this protective effect was not found for remote sexual connections (e.g., sexting or sex over the phone or video chat) (Rosenberg et al., 2021). Similarly, another US study found that sexual experimentation with partnered activities improved sex life while technology-based activities did not show such an effect (Lehmiller et al., 2020). A UK study also found that virtual sexual activities were insufficient substitutes for intimacy generated by physical sexual activity (Mercer et al., 2020).

Some scholars argue that sexual experience does not necessarily require physical contact because it is a complex interplay of physical, psychological, visual, and auditory stimuli (Lopes et al., 2020). Nevertheless, it appears that the benefits of the physical touch available in the in-person sexual connection, such as the lower levels of cortisol and higher levels of oxytocin (Field, 2010), cannot be recreated through the remote sexual connections (Giami, 2021; Lehmiller et al., 2020; Mercer et al., 2020; Rosenberg et al., 2021). However, it is important to continue seeking innovative ways of improving the quality of remote sexual connections to approximate the benefits of in-person sexual connections. A study with clinical sexologists emphasized the necessity to reframe technology use (what they called tech sex) as it serves as a coping means with sexual urges and expression during the pandemic and beyond through the use of apps and consumption of sexually explicit materials (Pascoal et al., 2021).

Caution and logistical coping mechanism was used less commonly than most other coping mechanisms examined in this study, but their usefulness was still rated as significant (albeit not among the highest in the sample). This coping mechanism included strategies enabling both partnered and non-partnered individuals to maintain some level of sexual expression despite isolation and separation from the dating scene (for single people and non-cohabitating couples) and intense togetherness and lack of privacy (for cohabitating couples, especially parents). However, the fact that the caution and logistical coping mechanism was among the least

used potentially indicates that many people navigating constraints imposed by the quarantines and physical confinement viewed them as insurmountable barriers rather than negotiable obstacles.

Finally, it is essential to discuss some missed opportunities revealed by this study's results. Namely, *educational* and *innovation and experimentation coping mechanisms* were the least commonly used, but their usefulness ratings were the highest in the sample. This means that the minority who actually tried educating themselves and/or innovating in their sex lives found these coping mechanisms the most beneficial. The modest use of the educational coping mechanism can be explained by the fact that the COVID-19 pandemic and related confinement measures have reduced health-seeking behaviors, including sexual health services and education (Thompson-Glover et al., 2020). Nevertheless, this discrepancy between the use and appreciation patterns suggests that the coping capacity of the educational and innovation and experimentation coping mechanisms remained underleveraged during the pandemic because people shied away from these strategies. As previously mentioned, sexual health practitioners should encourage people to experiment and innovatively expand their sexual repertoires to navigate the impacts of the pandemic on their sex lives. Sexual health counseling and education might play a crucial role in achieving this and other beneficial goals. It is essential to promote and educate people to communicate effectively about sexual needs, desires, and health (in general and during public health crises) to improve intimacy, reduce conflict, combat sexual boredom and overfamiliarity, and develop a good sex life (Balzarini et al., 2020; Feng et al., 2021; Luetke et al., 2020).

Differences in Coping Mechanisms' Use and Usefulness by the Socio-Demographic Variables

On average, women were more commonly using relational, goal-setting, and caution and logistical strategies than men. This difference might be at least partially explained by women's higher propensity (compared to men) to engage in "maintenance sex" (i.e., obligatory sex to maintain relationships) in general and during the pandemic (Luetke et al., 2020, p. 12; Traeen & Skogerbo, 2009). However, there were no gender differences in the usefulness ratings of these mechanisms. In addition, on average, women had a higher appreciation of creativity and pleasure, diversion, and education strategies. Nevertheless, the scope of use of these coping mechanisms was similar across genders. Some studies show exacerbating gender disparities in sexual health and expression during the pandemic, with women faring worse than men in sexual functioning, desire, and satisfaction, pointing to a growing pleasure gap between men and women (de Oliveira & Carvalho, 2021; Jacob et al., 2020;

Karsiyakali et al., 2021; Omar et al., 2021; Wignall et al., 2021). This tendency might explain women's higher capacity to benefit from various coping mechanisms because they have a more significant pleasure gap to close.

People with a regular sex partner had higher use and appreciation of creativity and pleasure, diversion, goal-setting, and relational strategies than people without a regular sex partner. Also, partnered people had higher use of innovation and experimentation strategies and higher appreciation of online and technology strategies than people without a regular sex partner. These results suggest that, on average, singles and non-cohabitating couples invested less effort in (or had less or no access to) various sexual coping mechanisms and also had a lower capacity to benefit from multiple mechanisms, including those that do not necessarily require a partner (e.g., diversion and online and technology strategies). This lower tendency to seek coping and diminished capacity to benefit from it among people without a regular sex partner is worrisome because research shows that their sex lives sustained heavier losses or were obliterated during the period of physical confinement (Ballester-Arnal et al., 2020; Coombe et al., 2021; Pascoal et al., 2021). Prompted by these unfortunate tendencies, media and research speculations regarding singles' sexual behavior and intimate relationships in the post-COVID world vary from predicting a temporary orgiastic "fuckfest" as people are catching up on the lost time and opportunities to a sense of disconnection and anxiety of forming new sexual relationships (Döring, 2020; Wignall et al., 2021).

On average, people with children relied more on relational coping than those without children. Conversely, people without children relied more on caution and logistical strategies and online and technology strategies. These tendencies make sense in light of the challenges facing the parents in physical confinement as children's constant presence at home, online/homeschooling, and increased caregiving responsibilities likely diminish logistical flexibility to make room for in-person and online sexual expression (Hensel et al., 2020; Panzeri et al., 2020; Schiavi et al., 2020). However, there were no significant differences in the perceived usefulness of the coping mechanisms between the people with and without children, suggesting that when constraints are successfully maneuvered, people with and without children can equally benefit from all the coping mechanisms investigated in this study.

Finally, on average, younger people had a higher tendency to use relational, creativity and pleasure, caution and logistical, educational, online and technology, and innovation and experimentation coping mechanisms than their older counterparts. Existing literature on the nexus of age and sex in the shadow of the pandemic offers clues for an explanation. Studies found that being younger was

positively associated with sexual activity and explained the propensity to experiment with sex life during the self-isolation/confinement periods (Jacob et al., 2020; Lehmillier et al., 2020). Studies also found that younger people were far more likely to perceive declines in their sex lives than their older counterparts, and younger age was a significant predictor of sexual dissatisfaction during the lockdown (Cocci et al., 2020; Mercer et al., 2020). These tendencies explain why, on average, younger people are more eager to actively cope with the adverse impacts of the pandemic on their sex lives. Notably, however, there were no significant differences in the perceived usefulness of the coping mechanisms between the people of various ages in this study, suggesting that when constraints are successfully navigated, everyone, regardless of age, can equally benefit from all the examined coping mechanisms.

Coping Mechanisms as Predictors of Sexual Frequency, Desire, and Satisfaction During the Pandemic

Creativity and pleasure coping mechanism had significant positive effects on the frequency of sexual touching and caressing, sexual intercourse, and oral sex, as well as on sexual desire and satisfaction. As a behavioral implementation of creativity and pleasure mechanism, innovation and experimentation strategies had significant positive effects on the frequency of kissing and hugging, sexual touching and caressing, sexual intercourse, oral sex, use of sex medicines, and sex toys/aids use as well as on sexual desire and satisfaction. Notably, behavioral innovation and experimentation mechanism had a stronger statistical effect on the frequencies of sexual behaviors and affected a wider variety of sexual activities and tools. Conversely, attitudinal/cognitive creativity and pleasure coping mechanism had a stronger effect on sexual desire, while the effects on satisfaction were comparable across attitudinal and behavioral coping indices. These results underscore behavioral coping practices and emphasize the importance of a contextual mindset to sexual desire. A favorable mindset for sexual desire and satisfaction are heavily affected by the psycho-socio-cultural context (McCann et al., 2019; Rokach, 2019), and, as this study shows, so is the coping capacity. In turn, effective creative coping contributes to positive sexuality attitudes that highlight sexual expression, pleasure, and creativity as essential to life-long health and wellbeing (Berdychevsky & Carr, 2020; Williams et al., 2020).

The diversion mechanism had significant positive effects on the frequency of self-stimulation/masturbation and sexual desire. Previous studies have found that people engaged in sexual fantasizing and masturbation to manage stress, distract themselves, cope with boredom, fill the increased free time during the lockdown, and sometimes as a replacement

for and even avoidance of partnered sex (Cascalheira et al., 2021; Karagöz et al., 2020; Mercer et al., 2020). All these motives for autoeroticism are congruent with the purposes of the diversion coping mechanism during the pandemic.

The relational coping mechanism had significant positive effects on the frequency of kissing and hugging, sexual touching and caressing, sexual intercourse, and oral sex, and satisfaction with sex life. These results suggest that vulnerability and mortality salience during the pandemic motivated some couples to seek support and solace in their relationships (Pennanen-Iire et al., 2021; Rodrigues & Lehmler, 2021), while sexual activity is a relationship maintenance mechanism (Birnbaum & Reis, 2019). Conversely, relational coping had significant negative effects on self-stimulation/masturbation, sex toys/aids use, and sexual desire. The negative effect of relational coping on self-stimulation might be explained by the view of autoeroticism as avoidance of partnered sex (Karagöz et al., 2020). As for sex toys/aids, while some evidence suggests increased use of these tools for both partnered and solo sex during the pandemic (Coombe et al., 2021; Döring, 2020), the negative effect of relational coping on the use of sex toys/aids suggests that many couples see them as incompatible with their relational bonding. Last, the negative effect of relational coping mechanism on sexual desire could be explained by habituation and overfamiliarity, which are known to be detrimental to sexual desire and were magnified for many couples confined to their homes in (for some forced) intense togetherness under the stay-at-home orders (Luetke et al., 2020; O'Reilly Treter et al., 2021; Panzeri et al., 2020).

Educational strategies had a significant positive effect on the frequency of using sex medicines, hormones, and treatments. Notably, the frequency of using sex medicines was only affected by educational and innovation and experimentation strategies, with an overall modest predicted variability. However, this might be because the use of sex medicines in the sample was infrequent, which can be attributed to the fact that the sample was relatively young. Also, educational strategies had significant negative effects on the frequency of oral sex and satisfaction with sex life. Notably, this coping mechanism encompassed professional help and education. Hence, these results are worrisome as appropriate sexual health help and education should not lead to reduced sexual satisfaction and frequency.

Some explanation might be gleaned from the fact that sexual health counseling and education resources had to move swiftly to the virtual environment and, being in a triage mode, adapt their content and approaches to the pandemic environment without sufficient research evidence. Hence, people's sexual health issues in the shadow of the pandemic were exacerbated by the limited or altered access to counseling and therapy (e.g., move to teletherapy instead of in-person meetings) and/or its suboptimal content that

has not been tailored effectively to their needs (Ibarra et al., 2020; Luetke et al., 2020). This study offers actionable strategies for effectively targeting and tailoring sexual health education and counseling resources in the shadow of the pandemic and its aftermath. Some people's willingness to seek help and educate themselves online during the pandemic, as well as the adverse effects of inadequate sexual education and professional help, suggests that it is crucial to offer accurate, effective, targeted, and pandemic-tailored sexual health education using both in-person and digital delivery formats, such as online platforms, mobile apps, and virtual counseling services and therapy (de Oliveira & Cravalho, 2021; Döring, 2020; Pennanen-Iire et al., 2021; Roller Insignares et al., 2021).

Online and technology coping mechanism had significant positive effects on the frequency of self-stimulation/masturbation and using sex toys/aids and sexual desire. These results are intuitive. Virtual sexual experiences, such as sexting and sharing videos and photographs, have the capacity to enrich sex life and bolster sexual imagination (Lopes et al., 2020). Also, this coping mechanism includes two items on pornography consumption. Pornography is frequently used to facilitate and intensify pleasure associated with masturbation and involves sex toys/aids (Eleuteri & Terzitta, 2021; Perry, 2019), which aligns with the effects discovered in this study. Indeed, one of the most common motivations for pornography use is pleasure—satisfying sexual desire and obtaining sexual pleasure (Brown et al., 2017; Grubbs et al., 2019).

Beyond pleasure, pornography is often used as a coping mechanism to reduce negative affect (Bóthe et al., 2021; Esplin et al., 2021; Grubbs et al., 2019). The use of pornography during the pandemic and associated lockdowns can serve as a coping strategy facilitating stress management and psychological adjustments to abrupt changes and isolation and a short-term compensation strategy temporarily relieving a sense of loneliness (Lehmler et al., 2020; Mestre-Bach et al., 2020; Uzieblo & Prescott, 2020). Although, as mentioned earlier, studies show that virtual sexual activities could not serve as a substitute for physical sexual activities during the lockdown (Lehmler et al., 2020; Mercer et al., 2020; Rosenberg et al., 2021), this study shows that they can nonetheless serve as coping mechanisms in complementary and compensatory roles. Looking into the future, expanding sexual repertoires during the pandemic, including the trial and potential adoption of virtual sexual activities, can fuel the increased societal acceptance of the technologically-mediated modes of sexual intimacy (Mercer et al., 2020).

However, online and technology coping mechanism had significant negative effects on the frequency of kissing and hugging and satisfaction with sex life. This also warrants further discussion. A Portuguese study of online pornography use during the pandemic found that partnered participants

who increased their solitary pornography use experienced decreased sex life quality while increased joint (i.e., with a partner) pornography use led to increased sex life quality (Rodrigues, 2021). A similar tendency was also reported in pre-pandemic studies of partnered individuals, pointing to the benefits of joint pornography use (e.g., increased sexual intimacy and satisfaction) and detrimental effects of solitary pornography use (e.g., extradyadic behaviors and break-ups) on the relationship quality (Huntington et al., 2021; Perry & Schleifer, 2018).

This study's results point to a higher frequency of consuming pornography alone rather than with a partner. Considering the above research evidence, this tendency might be responsible for the negative impact of online and technology strategies on intimate behaviors and satisfaction with sex life. In general, given the negative effects of online and technology strategies (and poorly conceived educational resources, as discussed above) on satisfaction with sex life, it is plausible that some of the implemented coping mechanisms during the pandemic were maladaptive. Sexual health scholars, educators, and clinicians must identify adaptive and maladaptive sexual coping mechanisms that lead to predominantly positive, negative, ambivalent, and even no effects to help people navigate the impacts of COVID-19 and related mitigation measures on their sex lives.

Notably, changes in stress levels during the pandemic and perceived adjustment to lockdown did not significantly affect the frequencies of sexual activities and sexual desire. However, increased stress levels had a negative effect on satisfaction with sex life during the pandemic, while better adjustment to lockdown had a positive effect on satisfaction. It is well-known that distress affects and typically impairs sexuality (Panzeri et al., 2020; Rokach, 2019). There is considerable and consistent research evidence pointing to the adverse effects of stress on sex life in general and during the pandemic, because stress interferes with sexual function through emotional and cognitive avenues by distracting the person from focusing on sexual needs and cues (Dewitte et al., 2015; McNullty et al., 2016; Schiavi et al., 2020). This study's results also contribute to understanding the role that psychological adjustment during COVID-19 plays in people's sexual functioning and coping processes. It was previously found that poor psychological predicted lower sexual functioning during the pandemic (Carvalho et al., 2021). This study shows that (mal)adjustment is also related to people's satisfaction with sex life.

This study's results can help scholars and practitioners learn how to prevent or mitigate the deterioration of sex life during potential future lockdowns/confinement measures caused by this or other pandemics. It is essential to train people concerning sexual coping resources and strategies to minimize the impacts of the pandemic and protect people's sexual wellbeing and quality of life (Ballester-Arnal et al.,

2020; Berdychevsky et al., 2021). Allocating resources to this type of prevention/intervention would contribute to people's sexual health and wellbeing, help regulate the emotional, relational, and physical impacts of the pandemic on their lives, and reduce the long(er)-term burden on the healthcare system by decreasing demand for future sexual and mental health services (Ballester-Arnal et al., 2020; Pennanen-Iire et al., 2021).

Limitations

Despite the study's contributions to knowledge and practice, the results should be interpreted with caution for several reasons. First, the study's cross-sectional design prevents the estimation of causal inferences. However, it was not realistic to predict the pandemic's occurrence and to plan for a longitudinal pre- and post-pandemic design. Second, a reliance on a convenience-based sample is also a limitation. However, convenience sampling is very prevalent in social science research, and despite complications with generalizing, such samples are still viewed as useful for making advances in applied research. The third limitation is the fact that the sample was recruited, and the study was conducted online. Face-to-face methodologies could have contributed additional or different insights, but they would mean non-compliance. This study was conducted when the US universities have stopped all the non-essential in-person research activities, and online data collection was the only available option. Moreover, an electronic survey is a frequently used data collection method for studies dealing with sensitive topics (such as sexual attitudes, behavior, and lifestyles) that offers convenience and anonymity and helps mitigate social desirability and recall bias.

It is also important to note that the sample in this study was predominantly White/Caucasian and heterosexual. Hence, the results might not be reflective of minorities' experiences. Furthermore, this study is based on a non-clinical sample, and no data were collected on whether or not the participants had any pre-existing sex-related conditions or any issues with the quality of intimate relationships pre-pandemic. Thus, this study's results inform public health approaches and knowledge translation, but the actual recommendations for clinical practice would only be possible after investigating these coping mechanisms with the clinical samples. In addition, this study has focused exclusively on sexual coping while non-sexual coping strategies have not been investigated. Finally, this study has focused on the inter-individual variability in the use and the capacity to benefit from the sexual coping mechanisms while dispositional factors (such as personality traits and attachment styles) could also play a role that was not captured in this study. Future research should address these limitations and continue elucidating the use, effectiveness, and the

determinants of sexual coping mechanisms during the times of crisis and beyond. It is important to continue investigating sexual behavior and coping in the future to assess the long(er)-term trends that will probably last for years after the return to the new “normal” (Mumm et al., 2021).

Conclusions

Health researchers, practitioners, and policymakers must consider maintaining sexual health as an essential service. A critical prerequisite for appropriate prevention measures during the pandemic is the recognition of sexual health, sexual rights, and sexual education and counseling (Döring, 2020; Eleuteri & Terzitta, 2021). The human need for intimacy and sexual rights must be balanced with safety and pandemic control, and it is an important duty for policymakers and healthcare providers to help people maintain their sexual health in addition to flattening the pandemic’s curve (Giami, 2021; Karagöz et al., 2020). Sexuality is central to health and wellbeing even during the pandemic, and thus, a critical piece of public health prevention and management responses should be available to ensure the availability of proper resources and services supporting people’s positive sexual decision-making and coping processes with the impacts of the pandemic on their sex lives (Hensel et al., 2020; Jacob et al., 2020; Mercer et al., 2020).

This study identifies another collateral health implication of the COVID-19 pandemic—i.e., sexual health and wellbeing—and points to coping mechanisms that people used and found helpful. Such studies are essential as they point to a need for providing relevant interventions to the population (Berdychevsky et al., 2021; Hille et al., 2021; Li et al., 2020). Overall, this study offers crucial implications for sexual health practitioners in the era of COVID-19 and its aftermath. Current and future assessments of patients’ sexual functioning must include changes in their life circumstances triggered by the public health crisis (Döring, 2020; Osur et al., 2021) and the coping mechanisms that patients implemented (or could adopt) to maintain or improve their sex lives. It is vital to provide effective ad hoc targeted and tailored interventions during and after these unprecedented times of crisis (Berdychevsky et al., 2021; Panzeri et al., 2020). Thus, sexual health scholars and practitioners need to consider the results of this study, reflecting people’s experiences with and appreciation of the sexual coping mechanisms during the pandemic, their socio-demographic determinants, and their significant impacts on the quantity and quality of sex life.

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Availability of Data and Material Not applicable.

Code Availability Not applicable.

Declarations

Ethics Approval and Consent to Participate The Institutional Review Board of the University has approved this study (protocol number: 21574). Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The author declares no competing interests.

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