



“Until COVID-19 Do Us Part”: A Qualitative Study on Perceived Sexual Intimacy and Mental Health in Heterosexual Older Couples During The Covid-19 Pandemic

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Abstract

This study aims to explore the influence of the COVID-19 pandemic on heterosexual older couples' sexual intimacy and in relation to their mental health. A content analysis of the ideas and insights shared by 391 older persons (between 65 and 87 years of age) from three different countries was most instructive. The most frequent themes were less sexual satisfaction (68%) and less sexual desire (67%). In terms of mental health, the most frequent themes included less anxiety and distress (78%) and greater attention to negative emotional states (55%) Cultural differences emerged, with Brazilian and Portuguese participants more frequently reporting negative themes compared to British participants, who emphasized stronger emotional bonds. As the COVID-19 pandemic continues to unfold, ongoing research and interventions should prioritize understanding and addressing the implications of reduced physical contact and heightened emotional stress on sexual intimacy.

Keywords Covid-19 pandemic · Mental health · Older adults · Heterosexual older couples · Sexual intimacy · Sexual well-being

Introduction

Aging is a complex and unique process that interacts with gender, ethical, and cultural differences. Sexuality, love, and sexual intimacy significantly influence life expectancy, well-being, health, and quality of life for older adults (von Humboldt & Leal, 2015, 2017).

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Although the older population is very heterogeneous, this group is likely to experience associated stressors with the COVID-19 pandemic due to unembellished experiences related to the pandemic, including the associated restrictions, confinement, social isolation, and worries about the future. Positive experiences on the other hand, i.e., those related to joy, are mainly linked to relationships, resources, or activities prior to the pandemic (Whitehead & Torossian, 2021).

Older adults experienced high social risks related to the COVID-19 pandemic, most of whom reported reducing close physical contact with others (e.g., social distancing) and were concerned about the adverse effects on social and economic structures (Kivi et al., 2021). Over the past 2 years, older people struggled to staying connected. Older adults used social networking sites a lot to stay in touch with people they care about, albeit with few remedial effects on felt loneliness (Krendl & Perry, 2021; von Humboldt, et al., 2013a, 2013b, 2013c, 2014). In relation to this, the mental health of older adults was negatively affected by the pandemic, due to loneliness, fear, and anxiety experienced during the pandemic (Krendl & Perry, 2021). Furthermore, mental health care changed to telemedicine during the pandemic, with older adults seemingly more affected by limited access to or a lack ability to use online services, and transport restrictions and quarantines (Yang et al., 2020).

Moreover, the COVID-19 pandemic negatively impacted people's physical health, and mental health, such as through depressive symptoms, sleep problems, and posttraumatic stress (Holmes et al., 2020; Pfefferbaum & North, 2020). Older adults have also been the target of negative age stereotypes, social stigma, and age-based discrimination, with more isolation, violations to their right to health and life, and all the while with added psychological distress for them and their family and caregivers (PAHO, 2020).

Age is a factor that can influence sexual well-being on an individual, cultural, and interpersonal level (Træen et al., 2017). Research reiterates that older people commonly report sexual satisfaction during intimate sexual activity (Field et al., 2013; Træen et al., 2017, 2019; Wang et al., 2014). Another factor considered important in sexual satisfaction is relationship status. Women with an intimate partner were 3 to 5 times more likely to experience sexual satisfaction (compared to older women without a partner). Men were 2 to 7.5 times more likely to experience higher levels of sexual satisfaction (compared to older men without an intimate partner) (Træen et al., 2019). Furthermore, having a spouse or partner and therefore, intimacy and support, are related to less depressive symptoms among older adults (Mohd et al., 2019; von Humboldt et al., 2014, 2018). In line with this, having an intimate partner is an important positive predictor of sexual activity and sexual satisfaction in later life (Træen et al., 2019). Literature shows that a large proportion of the older population is sexually active, with their frequency of sexual activity increasing slightly until the COVID-19 pandemic hit (Træen et al., 2019).

The COVID-19 pandemic indirectly affected the sexual function of older people and had implications on their overall health. Despite severe prevention measures, COVID-19 intensified to pandemic stages, triggering tiredness and frustration, and negative implications for sexual well-being and mental health over the long term

(Pennanen-Iire et al., 2021). The stress and potential conflicts among older couples arising during the COVID-19 pandemic may have had more immediate ramifications for their engagement in intimate and sexual behaviors (Luetke et al., 2020). Moreover, economic difficulties and stress may also have augmented conflicts between intimate partners (Luetke et al., 2020). Previous research indicates that stress and conflict have a negative effect on the sexual functioning and relationship intimacy and satisfaction (Archuleta et al., 2011; McCabe & Connaughton, 2017).

Interestingly, literature also draws attention to the potential benefits of increased sexual activity during periods of forced isolation, indicating that those who maintained frequent in-person, social, and sexual connections experienced better mental health (Rosenberg et al., 2020). Research also reiterated the relevance of meaning of life, meaningful relations, rewarding activities, spirituality, health and safety-related support, self-growth, and physical activity in later life, during COVID-19 (von Humboldt & Leal, 2014, 2015; von Humboldt, Ribeiro-Gonçalves, Costa, Low, & Leal, 2020).

Augmented responsiveness among health-care providers toward the negative sexual health implications of the COVID-19 pandemic is necessary. As COVID-19 is an unprecedented global situation, little is known about sexual intimacy during this pandemic. Researchers have already begun to address the sexuality-related effects of the COVID-19; however, more original research is needed on the topic of sexual intimacy (Döring, 2020; Pennanen-Iire et al., 2021).

Cultural factors play a significant role in shaping individuals' experiences of sexual intimacy and mental health. Research indicates that cultural norms and values can influence attitudes towards sexuality and sexual expression, particularly among older adults (von Humboldt et al., 2020a, 2020b, 2022a, 2022b). Exploring these cultural differences is crucial for interpreting how global crises, such as the COVID-19 pandemic, may influence sexual and mental well-being. Indeed, culturally-diverse populations may experience and respond to pandemic-related challenges differently, which highlights the need for culturally sensitive research and interventions (von Humboldt et al., 2020a, 2020b, 2022a, 2022b).

This study addresses a significant gap in the literature by qualitatively examining the impact of the COVID-19 pandemic on heterosexual older couples' sexual intimacy. Qualitative research on intimacy and its relation to mental health during health crises has been limited (Döring, 2020; Pennanen-Iire et al., 2021). Given the complex and deeply subjective nature of sexual intimacy among older adults, a qualitative approach is essential for uncovering nuanced insights that quantitative methods alone might overlook. Hence, this study employs qualitative methods to explore the experiences of heterosexual older couples across different cultural contexts, such as Brazil, Portugal, and United Kingdom. By using qualitative methods, this study aims to explore the experiences of heterosexual older couples, highlighting the intricate ways, in which the pandemic has affected their sexual intimacy and mental health. Such an approach allows for a richer, more detailed understanding of these dynamics, which is crucial for developing tailored interventions and support mechanisms for older adults facing pandemic-related challenges.

To date, research specifically addressing sexual intimacy among heterosexual older adults during the COVID-19 pandemic, and its relationship to mental health,

is scarce. While some studies have explored general effects of the pandemic on mental health and intimacy (Döring, 2020; Pennanen-Iire et al., 2021), there is a notable absence of research that focuses specifically on older adults and their unique experiences. This study fills this critical gap by providing a detailed examination of how reduced physical contact and heightened emotional stress during the pandemic have influenced sexual intimacy among heterosexual older couples, and how these changes are interrelated with their mental health. In this context, the present study comprises two main objectives: 1) To explore the influence of COVID-19 pandemic on heterosexual older couples' sexual intimacy; and 2) To assess how heterosexual older couples' sexual intimacy during the COVID-19 pandemic influences mental health.

Method

Recruitment and Sampling

Four hundred heterosexual older people were contacted for this study; however, nine were excluded due to either not having time to participate or providing incomplete data. The final studied sample consisted of 391 older people. All participants were between 65 and 86 years of age ($M = 71.3 \pm 5.76$). Everyone had a romantic partner; however, only 88.2% of the couples were living together. A significant proportion of people in our studied sample were women (62.4%) and 16.9% had a high school education. Participants were recruited in Portugal, the United Kingdom, and Brazil (see Table 1). Participants had to: (a) be age 65 years or older; (2) have a clear notion of the decision to participate in the study; (3) report no history of problems with cognitive deficit functions owing to psychiatric or neurological diseases, or drug or alcohol abuse, among others; and (4) have a romantic partner.

The sample was intentionally selected to encompass a diverse range of cultural and linguistic backgrounds, and to ensure a comprehensive understanding of how the COVID-19 pandemic impacted sexual intimacy among older adults in different cultural contexts. This selection was based on the aim to capture a broad spectrum of experiences and perspectives. Recruiting methods included senior universities, message boards, personal emails, community center list-serves, and social networks advertisements. Through semi-structured interviews with heterosexual older people, it was possible to understand the influence that the COVID-19 pandemic had on the sexual intimacy and mental health of this population. This qualitative approach was selected for its suitability in exploring nuanced individual experiences and perceptions. Interviews were conducted in participants' native languages to minimize misunderstandings and to respect cultural nuances. Given the diverse cultural backgrounds of participants, the interview questions were carefully crafted to ensure cultural sensitivity and relevance. This approach ensured that the participants' responses were captured accurately and reflected their true experiences.

Participants were informed about the purpose of the study, and that all interview data would be used for this study alone and would remain anonymous. With their consent, individuals responded to an online interview (Skype, Survey Monkey,

Table 1 Sample of sociodemographic and health characteristics

<i>Characteristics</i>	Portuguese 184 (47.1)	Brazilian 115 (29.4)	English 92 (23.5)	Total 391 (100.0)
Age, Average ± SD				71.3 ± 5.76
Biological Sex, n (%)				
Female	112 (60.9)	79 (68.7)	53 (57.6)	244 (62.4)
Male	72 (39.1)	36 (31.3)	39 (42.4)	147 (37.6)
Education, n (%)				
Primary school	108 (58.7)	56 (48.7)	57 (62.0)	221 (56.5)
Middle school	49 (26.6)	36 (31.3)	19 (20.7)	104 (26.6)
≥ High school	27 (14.7)	23 (20.0)	16 (17.3)	66 (16.9)
Household				
Live with someone	167 (90.8)	96 (83.5)	82 (89.1)	345 (88.2)
Live alone	17 (9.2)	19 (16.5)	10 (10.9)	46 (11.8)
Family Annual Income, n (%)				
≤ 25,000 €	99 (53.8)	63 (54.8)	51 (55.4)	213 (54.5)
> 25,000 €	85 (46.2)	52 (45.2)	41 (44.6)	178 (45.5)
Perceived Health, n (%)				
Good	116 (63.0)	76 (66.1)	72 (78.3)	264 (67.5)
Poor	68 (37.0)	39 (33.9)	20 (21.7)	127 (32.5)

Zoom, and WhatsApp), and telephone or online support was available for any issue. The two main questions of the interview were: “In which way do you feel that the COVID-19 pandemic influence the sexual intimacy with your romantic partner?”; and “In which way do you feel that the sexual intimacy with your romantic partner during the COVID-19 pandemic influenced your mental health?”.

To ensure accuracy and validity, member checking was conducted informally in the interviews. Interviewers summarized and confirmed their understanding of the participants’ narratives. This approach facilitated the validation of our interpretations and helped maintain the trustworthiness and authenticity of the perspectives shared by the older participants, throughout the analysis process.

After analyzing the availability and eligibility of participants and interviewers, interviews of about 30 min were scheduled. Interviews were carried out between June and August 2021. The interviews were transcribed verbatim in their original languages. Following this, the full transcription and translation of the interviews were carried out for a deeper analysis. The translations were performed by researchers fluent in both the source and target languages, who also had an understanding of the cultural contexts. This process included converting the interview content into the target languages and then translating it back to ensure consistency and accuracy. Researchers reviewed the translations to ensure that the nuances and meanings were preserved and culturally appropriate.

All procedures were approved by the Research Ethics Committee of the William James Center, ISPA—Instituto Universitário, and were in accordance with the

ethical standards of the Declaration of Helsinki of 1964 and its subsequent amendments or comparable ethical standards.

Data analysis

The data analysis process involved several key steps to ensure a thorough and reliable examination of the interview data. The data transcription process involved meticulous attention to detail to ensure accuracy and fidelity. After transcribing all data verbatim, a thorough and complete analysis was performed manually, using content analysis. No software application or custom code was used for the coding process (Erlingsson & Brysiewicz, 2017).

First, three researchers independently coded the data. To create an organized analysis, each significant topic from the narratives was assigned an alpha-numeric code, thus creating a code list (Erlingsson & Brysiewicz, 2017). To ensure consistency and rigor in the coding process, each researcher followed a standardized coding framework. This involved familiarizing themselves with the data verbatim, identifying initial codes, and categorizing these codes into broader themes. The researchers worked separately to minimize bias and to capture a range of perspectives. The analysis systematically organized the data into categories, themes, and sub-themes. Categories were high-level classifications based on shared characteristics across themes (e.g., Less sexual satisfaction). Themes grouped related sub-themes (e.g., Pandemic-related restrictions on their intimate lives), while sub-themes highlighted specific aspects within the broader themes (e.g., Physical distancing). This hierarchical approach facilitated a comprehensive understanding of the participants' experiences and insights.

Subsequently, consensus meetings were held among the researchers to reconcile any coding discrepancies and to finalize themes. This approach enhances the trustworthiness and validity of findings and facilitates a comprehensive understanding of themes emerging from participant experiences (Erlingsson & Brysiewicz, 2017). All three researchers agreed that after identifying the main themes and sub-themes, both would be grouped into clear, independent categories with short intuitive names. All three researchers highly agreed ($0.85 < k < 0.93$, $p < 0.01$) with all category groups.

Furthermore, this study employed rigorous trustworthiness measures throughout the different phases of the analysis process, including the preparation, organization, and reporting of results. These included the data collection method, the continuous categorization process to facilitate theoretical saturation, how to systematically and logically report findings without overlap, and what constitutes a clear description of the analysis process and detailed peer debriefing. These measures enhance the credibility, transferability, authenticity, and dependability of our findings (see Erlingsson & Brysiewicz, 2017).

For the construction of a reliable and valid system, general principles concerning the classification and categorization of qualitative data were not neglected, such as: (a) homogeneity: organization, taking into account common elements; (b) relevance:

importance of categories; (c) objectivity and fidelity: objective and reliable categories. These principles were maintained throughout the process.

Finally, for the theoretical and empirical discussion of the data, a matrix for the interpretation of results was created through 2 steps: descriptive analysis and qualitative analysis of the categories which emerged.

Results

We analyzed five non-mutually exclusive themes from older Brazilian, English, and Portuguese participants when exploring their sexual intimacy during the COVID-19 pandemic. Key quotes representing the diversity of narratives of older people were selected. All names are pseudonyms. Although participants did not always use the term "sexual intimacy", their narratives drew attention to contexts clearly related to their perceptions of sexual intimacy.

Study Objective 1:

In this context, the following main themes emerged in this study for the first objective: (1) Less sexual satisfaction; (2) Less sexual desire; (3) Stronger affective relationships; (4) Fear of contracting physical illness; and (5) Less attractiveness (see Table 2).

Theme 1: Less Sexual Satisfaction

A large percentage (68%) of respondents reported that their satisfaction was reduced during COVID-19. This decline in satisfaction was particularly notable among Brazilian participants ($n_{Braz} = 134$; $n_{Port} = 78$; $n_{Engl} = 54$), who highlighted the impact of pandemic-related restrictions on their intimate lives. The necessity for physical distancing and heightened health precautions led to a more cautious approach to physical contact with partners, including sexual intimacy. Hugo explains, "sexual satisfaction comes through sexual intimacy and for that, there needs to exist physical contact. What would sex be without touching a person? But because of the pandemic, we must be careful about everything. Being in bed with someone is not care-free anymore" (Hugo, male, 78 years-old). This perspective underscores how the pandemic has altered perceptions of physical intimacy, emphasizing the heightened awareness of health risks associated with close contact.

Moreover, the pandemic led some individuals to reconsider their intimate practices, with masturbation emerging as a safer alternative. Sophie told us that "the pandemic has made us rethink everything, even our intimate moments. It's not just about the physical act anymore; it's about safety and protection. Masturbation is now a safer option." (Sophie, female, 67 years-old). This reflects a shift in how individuals navigate sexual satisfaction and safety during the pandemic, highlighting a preference for solitary sexual activities as a means to mitigate health risks.

Table 2 Key Findings Summary

Theme	%	Verbatim example
<i>First objective</i>		
Theme 1: Less sexual satisfaction	68%	“We’ve all heard the story of social distancing and to be careful. This is not over yet and right now, health should come before sex. This was not satisfactory for us in bed” (Rachel, female, 66 years-old)
Theme 2: Less sexual desire	67%	“The fear of getting sick has naturally dampened our sexual desire. We prioritize staying healthy.” (Philip, male, 76 years old)
Theme 3: Stronger affective relationships	34%	“With the pandemic limiting our activities, we found joy in simple things like cooking together, sharing stories, and just being there for each other. These moments brought us closer emotionally (William, male, 69 years old)
Theme 4: Fear of contracting physical illness	29%	“The risk of getting sick right now is too high. If one of us falls ill, it means hospital visits and a higher chance of exposure” (Lily, female, 73 years old)
Theme 5: Less attractiveness	23%	“I do not go outside, so I’ve neglected my appearance. Instead, I’ve been focusing on cooking, eating, and watching TV.” (Helen, female, 68 years old)
<i>Second objective</i>		
Theme 1: Less anxiety and distress	78%	“COVID helped us taking time for ourselves and do things together, including being more intimate. Surprisingly, my mental health has improved” (John, male, 72 years old)
Theme 2: Greater attention to negative emotional states	55%	“I was having negative thought during the pandemic, but my partner has supported me throughout. This brought us closer and helped us become more intimate” (Karen, female, 67 years old)
Theme 3: Less emotional outbursts	41%	“Being intimate with my partner helped me manage those feelings. I don’t feel the need to explode anymore.” (Thomas, male, 65 years old)

Theme 2: Less Sexual Desire

The second most indicated theme by these heterosexual participants (67%) was lower sexual desire. This theme was reported mainly by Brazilian participants ($n_{Braz}=153$; $n_{Port}=81$; $n_{Engl}=28$), reflecting a significant impact of the pandemic on sexual motivation. The persistent fear of contracting the virus has notably influenced sexual desire among older adults, contributing to a reduction in their intimate activities.

Sara said, "During a health crisis, where one of the main groups affected is us, older adults, the fear of contracting the virus is greater and automatically the sexual desire is less" (Sara, female, 77 years old). Filipa also explained: "We have to make choices in life. Right now, the desire to have sex decreased because that implied a lot of physical contact with my partner. I am not going to take unnecessary risks." (Filipa, female, 80 years-old). These perspectives underscore how the pandemic has shifted priorities, with individuals choosing to minimize physical contact to avoid potential health risks, thereby diminishing their sexual desire.

Theme 3: Stronger Affective Relationships

34% of older adults identified that they had the opportunity to strengthen their affective relationship during the COVID-19 pandemic. Due to the longer time at home that the pandemic provided some heterosexual older couples with opportunities to reconnect. This theme was reported mainly by English participants ($n_{Engl}=76$; $n_{Braz}=34$; $n_{Port}=23$).

Caroline shared her experience, emphasizing that the pandemic fostered opportunities for couples to deepen their emotional connection, which, in turn, enhanced their sexual closeness: "Life is not just sex and when we cannot get laid, there are other options, like talking, cuddling, cooking, and all that, strengthens our relationship. And that made our moments so much better, I think I can speak for both of them when I say that we are now much more sexually close and expressly" (Caroline, female, 69 years-old). Adrian also mentioned that "we spend more time together now and because of that, we were able to connect again, we became close again. This only positively influenced our sex life" (Adrian, male, 71 years-old). This data illustrates how the pandemic, despite its challenges, facilitated relational growth for some older couples by providing more time to nurture their emotional connections, which in turn contributed to an improved sexual relationship.

Theme 4: Fear of Contracting Physical Illness

Only 113 participants (29%) mentioned fear of contracting physical illness as a theme that influenced their sexual intimacy during COVID-19. This theme was reported mainly by Portuguese participants ($n_{Port}=76$; $n_{Braz}=34$; $n_{Engl}=3$), highlighting a concern specifically related to the increased risk of disease transmission

through intimate activities. Sexual activity is characterized by the physical contact of two people and therefore contracting diseases is more favorable when carrying out intimate activities.

Lara explained, “This is definitely not the best time to get sick. This means having to go to a hospital and being even more exposed to the virus. So, my sex life decreased, as did the intimacy that my partner and I share” (Lara, female, 70 years-old). This underscores the fear of illness as a significant factor in reducing sexual activity, as concerns about health risks and potential exposure to the virus led to decreased intimacy. Erika also reflected an intensified fear of contracting the virus, which has led her to limit physical contact with her partner, thereby impacting their sexual intimacy: “I avoid my partner physically because I am afraid to get COVID-19. I was already afraid of getting sick and now I’m even more!” (Erika, female, 68 years-old). The fear of illness during the pandemic has influenced intimate relationships, particularly among those who are concerned about the risks associated with physical contact and disease transmission.

Theme 5: Less Attractiveness

The last theme indicated by 90 participants, was feeling less attractive. The last theme was reported mainly by English and Brazilian participants ($n_{Eng}=56$; $n_{Braz}=33$; $n_{Port}=1$). This theme was particularly evident among older women (76 participants), who described how the pandemic and associated social isolation negatively impacted their self-image. The extended time spent at home, coupled with a lack of purposeful activities and limited physical contact with friends and family, contributed to a diminished sense of self-worth.

“With social isolation, we are restricted from going out and doing our day-to-day activities. So, I stopped doing so many outdoor walks, and that made me care less about myself, distancing me from my partner, leading I started feeling less interested in how I looked”, said Kate (female, 75 years-old). Reducing physical activity and social interactions during the pandemic led to a decline in self-care and self-perception, impacting her relationship with her partner. In the same line, Diana explained that “COVID has been in our lives for a long time and I haven’t taken much care of my appearance. My looks are not my priority now. I’ve been focusing more on cooking, eating and watching television shows, unfortunately. I don’t feel pretty and my husband understands it.” (Diana, female, 79 years-old). This statement emphasizes how shifting priorities during the pandemic – focusing on daily survival and comfort – has led to a neglect of personal appearance, affecting her self-esteem and how she perceives her attractiveness.

Study Objective 2:

For the second objective, three main themes were reported by these heterosexual participants: (1) Less anxiety and distress; (2) Greater attention to negative emotional states; and (3) Less emotional outbursts.

Theme 1: Less Anxiety and Distress

The first theme explored by the participants (78%) was less anxiety and distress. Older adults reported that sexual intimacy during the pandemic strongly contributed to lowering their anxiety and distress. This theme was reported mainly by English participants ($n_{Eng}=212$; $n_{Port}=78$; $n_{Braz}=14$), indicating a strong connection between intimate relationships and mental well-being during the pandemic.

Sarah revealed that increased time spent together during the pandemic not only reduced her anxiety but also enhanced her intimacy and satisfaction with her partner: "spending more time with him at home helped me decrease my anxiety levels. Interestingly, now that my mental health has improved, this opens the door to more intimacy and sexual satisfaction with my husband" (Sarah, female, 66 years-old). Anabel reported how physical closeness and emotional support from her partner contributed to a sense of safety and relaxation, countering the anxiety induced by the pandemic and fostering a deeper emotional connection: "when he is with me in bed, I feel safe and sound. I feel loved and really helps me relaxing and not stressing so much. Before I felt a lot of anxiety with all the problems caused by COVID-19 and it affected me psychologically. I couldn't even think of positive things like love, intimacy, and other activities that made me happy. COVID-19 made us closer than ever." (Anabel, female, 76 years-old).

Theme 2: Greater Attention to Negative Emotional States

A good number of participants ($n=215$) indicated that greater concern with negative emotional states was a factor influencing their mental health during COVID-19. Feelings of sadness, fear, and loneliness were prevalent among older adults, and managing these negative emotions within a partnership contributed positively to their mental well-being. This theme was only noted by English and Portuguese participants ($n_{Eng}=145$; $n_{Port}=70$; $n_{Braz}=0$), highlighting the role of mutual emotional support during the pandemic.

Brian underscores how shared experiences of fear and restriction led to mutual support and a stronger emotional connection with his partner. He pointed out that "the fact of having to stay at home and having to obey the safety rules took away some freedom and that made me sad and fearful. But then I noticed that my wife was feeling the same way. Now we support each other and create a stronger intimate bond." (Brian, male, 78 years-old). Moreover, Jana reported, "I've had phases associated with depression and anxiety before, but my partner has been by my side the whole time. We got closer and that helped us to be more intimate" (Jana, female, 87 years-old). These comments reflect how ongoing support from her partner during times of emotional difficulty not only alleviated feelings of depression and anxiety but also strengthened their intimate relationship.

Theme 3: Less Emotional Outbursts

‘Less emotional outbursts’ was a benefit reported by 41% of the participants, with this benefit most frequently observed among Portuguese participants ($n_{Port}=89$; $n_{Braz}=46$; $n_{Eng}=25$). This theme highlights how intimacy and partnership have contributed to emotional stability during the pandemic.

“COVID, was a new reality, that fell in front of us unexpectedly. And it is ok to have some emotional outbursts. But being with my partner in intimacy helped me with those. I don’t feel the need to explode anymore”, verbalized Zayn (male, 73 years-old). His statement reflects how the emotional support and closeness experienced with his partner have alleviated the intensity of his emotional reactions, providing a sense of calm. Similarly, Thomas’s remarks illustrate how intimacy and mutual support during the pandemic have not only helped manage emotional outbursts but have also contributed positively to his overall sense of well-being. “First we had to know how to deal with the COVID situation, because it caused a lot of problems, including emotional problems. I remember I went over the top with not being able to go out. Then we get on with our lives, including intimacy and now I feel calm. My wife makes me feel loved and relaxed. COVID is not only bad. It has been good to us.” (Thomas, male, 68 years-old).

Discussion

This study offers evidence of cultural diversity through drawing attention to differences in the frequency of key themes among older heterosexual Portuguese, British, and Brazilian participants. Apart from ‘greater attention to negative emotional states’, all themes were reported among older people across all three nationalities. Although cultural studies are still lacking in the sexual intimacy area, some studies reveal rich and diverse results (Fischer et al., 2020).

Study Objective 1:

The first objective of this study was to explore the influence of COVID-19 pandemic on heterosexual older couples’ sexual intimacy. Brazilian and Portuguese older adults reported ‘less sexual satisfaction’ and ‘less sexual desire’ more frequently, which may reflect concerns possibly shaped by cultural norms or specific societal contexts. In contrast, English participants verbalized ‘stronger affective relationships’ and ‘less attractiveness’ as the main themes, suggesting different priorities or societal pressures related to aging and intimacy. Brazilian and Portuguese participants reported a greater decline in sexual satisfaction and desire, likely due to their cultural emphasis on physical contact as a key component of intimacy. In contrast, English participants experienced improved emotional closeness and alternative forms of intimacy, reflecting cultural adaptability, in response to pandemic restrictions. These differences indicate that cultural values and norms significantly

influence how sexual intimacy is impacted by global crises, suggesting the need for culturally sensitive approaches in addressing these issues.

These findings underscore the importance of considering cultural distinctions when exploring the impact of global events like the pandemic on older adults' intimate lives and emotional well-being. The COVID-19 pandemic has had a complex effect on heterosexual older couples' sexual intimacy, leading to both challenges such as reduced satisfaction and desire, and unexpected positive aspects, like strengthened emotional bonds, which highlights the subtle ways in which physical and emotional health intersect during crises.

With respect to how COVID-19 influenced sexual intimacy with a romantic partner, most participants reported 'less sexual satisfaction' during this pandemic. Sub-themes such as 'having less partnered sex opportunities' and 'masturbation' were indicated by these participants. Sexual satisfaction has been associated with higher levels of importance of sexuality and intimacy (Buczak-Stec et al., 2021) and has been significantly related to the frequency of partnered sexual activity and other factors such as oral sex, more frequent hugging and kissing, and vaginal intercourse (DeLamater, 2012; DeLamater & Moorman, 2007; von Humboldt et al., 2020a, 2020b). In older age, sexual activity represents not only a significant source of pleasure and intimacy, it also contributes to a healthy long-term relationship. Sexual satisfaction in older age is broadly characterized as occurring when sexual function (including the ability to reach orgasm) remains unchanged and partners desire sex. Considering that older adults find preserving the link between pleasure and sex challenging, this period has uniquely influenced their sexual satisfaction (Ševčíková & Sedláková, 2020). The constraints imposed by social distancing and health concerns have further complicated their ability to derive satisfaction from sexual intimacy, reflecting a broader shift in their sexual experiences during this unprecedented time (Ševčíková & Sedláková, 2020). As one of participant verbalized: "Being in bed with someone is not carefree anymore". Indeed, the pandemic's disruption of social and physical interactions underscores the need for targeted interventions to support sexual well-being among older adults during such crises.

Moreover, during the pandemic, sexual activity (whether with a partner or through masturbation) can be linked to psychological and emotional benefits. In addition, masturbation is seen as a safer option to prevent the transmission of COVID-19 (Pennanen-Iire et al., 2021). Higher levels of masturbation are also associated with lower satisfaction with one's partner and higher levels of generalized anxiety and/or depression (Rowland et al., 2020).

'Less sexual desire' was the second most verbalized theme, as one participant explicitly verbalized: "Right now, the desire to have sex decreased". Furthermore, sub-themes such as 'not feeling sexually close' and 'focusing on daily instrumental activities' were indicated by these participants. A divergence in sexual interest likely inhibits feeling emotionally close to the partner and consequently reduces sexual satisfaction, weakening the sexual response cycle. A discrepancy in sexual desire, on the one hand, negatively affects the quality and frequency of sexual interaction and, on the other hand, decreases sexual satisfaction on a personal level (Fischer et al., 2020). Results have shown that in older age, the connection between sex and pleasure can become fragile, and can become an affliction due to difficulties in

performing sexual acts and persistent sexual desire (Ševčíková & Sedláková, 2020). This observation prompts our reflection on whether changing physical and psychological factors in later life can influence sexual experiences and desire.

The literature on how global crises affect sexual desire is limited, and our findings highlight the role of heightened stress, anxiety, and depressed mood in altering intimacy desires. Previous research indicates that elevated stress and anxiety can both diminish and intensify sexual desire, depending on individual responses and coping mechanisms (Pennanen-Iire et al., 2021). For instance, heightened anxiety about mortality during the pandemic has been linked to increased sexual desire and interest in some individuals, reflecting a complex interplay between emotional states and intimacy needs (Pennanen-Iire et al., 2021). This suggests that the pandemic may have multifaceted effects on sexual desire, influenced by both psychological distress and adaptive responses.

Interestingly, heterosexual participants in this study drew attention to ‘having stronger affective relationships’ with their partner during the pandemic, or as one participant described, “we spend more time together now and because of that, we were able to connect again, we became close again.”

Sub-themes such as ‘feeling emotionally understood’ and ‘feeling protected’ were designated by these participants. Social distancing and other stressful circumstances of the pandemic can increase the need for emotional bonding. Both individuals in a relationship and those who are not feel a vital need to express intimacy through virtual and physically distant means to sustain positive coping and psychological well-being (Pennanen-Iire et al., 2021). Remarkably, older adults faced unique challenges in maintaining close relationships due to physical distancing and isolation measures, during the COVID-19 pandemic. There is some evidence indicating that older adults feel more closeness and positive emotions toward their partners, family, and friends in comparison to younger adults during this pandemic (Cavallini et al., 2021). Interestingly, this inclination underscored their resilience and determination to preserve meaningful connections despite the constraints imposed by the pandemic, highlighting the importance of adaptability and creativity in maintaining relationships during times of crisis.

Older participants in this study were concerned with the ‘fear of contracting physical illness’. As one participant indicated, “I avoid my partner physically because I am afraid to get COVID-19”. Sub-themes such as ‘having less immunity’ and ‘online sex’ were indicated by these participants. There are studies indicating that higher sexual satisfaction is associated with a reduced number of physical illnesses (Buczak-Stec et al., 2021). Nevertheless, sexual activity is also believed to contribute as a whole to quality of life and overall physical health (Flynn et al., 2016). Maintaining sexual activity can enhance immunity, and cognitive and cardiovascular function during a pandemic, which indicates that sexual intimacy and sexual satisfaction may increase quality of life and physical health (Pennanen-Iire et al., 2021). Particularly in relation to sexual transmitted diseases, although sexual abstinence is the safest practice to prevent transmission, older adults may consider risk-reduction counseling, sex with quarantined partners, and online sex (Banerjee & Rao, 2020). Moreover, the imposition of self-isolation during the COVID-19 pandemic can significantly hinder sexual intimacy, as individuals may rely solely on

remote forms of intimacy, due to fears of contracting physical illnesses (Mori et al., 2020; von Humboldt et al., 2020a, 2020b, 2022a, 2022b). This shift may underscore the evolving nature of intimate relationships in response to unprecedented public health measures.

Lastly, older participants pointed out feeling 'less attractiveness' during the pandemic, as one participant reported, "I started feeling less interested in how I looked". Sub-themes such as 'feeling less relevant emotionally' and 'feeling less looked-for by the partner' were reported by these participants. Physical attractiveness seems to be lower in times of stress. Moreover, other partner qualities such as companionship and support may facilitate coping with the lack of attractiveness. Interestingly, social isolation during the COVID-19 pandemic has provided a unique opportunity for self-exploration and re-evaluation of personal pleasure. Research indicates that stressful situations can shift preferences and behaviors, such as men showing a preference for kind over attractive partners in times of stress (Alexopoulos et al., 2021). The pandemic has also facilitated new ways for individuals to explore pleasure and to develop a better relationship with their own bodies, as seen in the increased focus on self-care and self-discovery during periods of isolation (Lopes et al., 2020). This period of social isolation has highlighted the potential for personal growth and self-awareness regarding sexual pleasure, emphasizing the need for further research into how individuals adapt their sexual behaviors and preferences in response to prolonged isolation.

Literature highlights that people may be more willing to less value a partner's physical attractiveness over other attributes that signal companionship and stability. Physical attractiveness and social status may become less important in stressful situations, with both perhaps activating feelings of mortality such in the case of the COVID-19 pandemic (Alexopoulos et al., 2021).

Study Objective 2:

The second objective was to assess how heterosexual older couples' sexual intimacy during the COVID-19 pandemic influenced their mental health. English participants mostly reported 'less anxiety and stress' and 'greater attention to negative emotional states', which may suggest a nuanced introspective approach to emotional well-being. Portuguese older adults mostly indicated 'less emotional outbursts' and 'less anxiety and stress', which may indicate a cultural emphasis on emotional restraint and coping mechanisms. Older Brazilians mostly verbalized 'less emotional outbursts', which may point out a pragmatic approach to managing emotional responses amidst challenging circumstances. These findings emphasize that cultural factors play a crucial role in shaping mental health responses to global events, underscoring the importance of considering cultural contexts when developing mental health support strategies.

These divergent responses underscore the need for culturally sensitive approaches in understanding and supporting emotional health during global crises. The influence of the pandemic on sexual intimacy among heterosexual older couples also appears to have played a crucial role in mental health outcomes, suggesting that

intimate relationships may serve as a buffer against anxiety and emotional distress while simultaneously necessitating greater emotional awareness and stability.

Concerning how sexual intimacy with a romantic partner during COVID-19 influences mental health, most older adults in this study reported feeling ‘less anxiety and distress.’ One participant indicated that “when he is with me in bed, I feel safe and sound”.

Sub-themes such as ‘feeling the partner more available’ and ‘feeling of belonging’ were indicated by these participants. The COVID-19 pandemic has disrupted people’s routines, leading to increased anxiety, absence of physical activity, reduced physical contact and social outings, and lack of access to non-essential clinical care, and can consequently lead to increased conflict between heterosexual couples. Stress and anxiety at both psychological and relational levels are known to significantly impact sexual function and desire. The findings of this study align with previous research indicating that coping with everyday stress and relationship-related problems can lead to dissatisfaction and even dissolution of romantic and sexual relationships (Luetke et al., 2020). Our study revealed that older adults experienced lower levels of psychological anxiety and distress during the pandemic, which may suggest a greater capacity for adaptation to stressful events compared to younger individuals. This is consistent with Röhr et al. (2020), who found that older individuals often exhibit better stress resilience and emotional regulation, which may contribute to their relative stability in intimate relationships despite the pandemic’s challenges.

Older adults in this study verbalized that they were concerned with negative emotional states. One participant indicated that “my partner has been by my side the whole time”. Sub-themes such as ‘focus on positive emotional states’ and ‘feeling the relationship as a shield’ were pointed out by these participants. This finding resonates with Cavallini et al. (2021) and von Humboldt et al., (2022a, 2022b), who observed that older adults often engage in activities that foster positivity as a coping mechanism during stressful situations like the COVID-19 pandemic. The notion of viewing one’s relationship as a protective buffer aligns with the idea that maintaining or increasing social and emotional connections can serve as a significant coping strategy (Cavallini et al., 2021). Furthermore, the perception of increased closeness to partners and family during the pandemic may have enhanced participants’ focus on positive emotional states, highlighting the protective role of intimate relationships in mitigating the effects of stress (Cavallini et al., 2021).

Finally, older participants indicated ‘less emotional outbursts.’ One participant explicitly explained that “I don’t feel the need to explode anymore”. Sub-themes such as ‘ability to manage strong emotions’ and ‘feeling in peace’ were indicated by these participants. Interestingly, the agitated context of the pandemic did not influence more emotional explosions among these participants. Our study supports the existing literature that older adults tend to experience fewer negative emotional states and exhibit better emotional regulation compared to younger individuals, even amidst a pandemic, a time associated with heightened mortality risks (Gross et al., 1997; Lithander et al., 2020). This also aligns with findings by Cavallini et al. (2021), who noted that older adults are generally more adept at managing their emotions. Additionally, the literature suggests that physical activity plays a crucial role in reducing negative mental health symptoms among older adults (Callow et al.,

2020; Kontoangelos et al., 2020). This supports our findings that increased engagement in physical activity could contribute to maintaining emotional well-being and mitigating stress, further emphasizing the importance of physical health in overall mental health during challenging times.

The present study shows a number of limitations. The characteristics of the sample likely influenced the reported sexual experiences. Qualitative analysis is not associated with a level of generalizability; hence, a study that captures a more diverse sample of older adults may identify different experiences on this pandemic-related topic.

Another important limitation is the fact that we only have a small proportion of adults from sexual minorities (4%), which precludes any exploration of specific factors of sexual orientation associated with sexual activity and satisfaction. Furthermore, participants' responses may have been biased due to social expectations. Moreover, we cannot rule out the possibility that some of our findings also apply to younger adults, as no comparison group of younger adults was available. Additionally, the use of different platforms could have influenced the quality and consistency of the responses; however, no significant differences in the responses were observed.

Notwithstanding the above limitations, this cross-cultural study shows a number of contributions to the literature, such as the fact that this study is looking at a large and diverse sample of older adults from different cultural backgrounds. In addition, it explores the relationship between the COVID-19 pandemic and sexual intimacy, and among people in later life. Indeed, it is still a less explored topic (Pennanen-Iire et al., 2021), and even less during the pandemic. Moreover, sexual intimacy is considered a sensitive topic, as it portrays personal and intimate experiences, and therefore makes it difficult to obtain responses. Additionally, this study brings light to the relevance of intimacy between romantic partners as a protective element against the negative psychological impacts of the COVID-19 pandemic among older adults.

Indeed, self-isolation and social distancing at the beginning of the COVID-19 pandemic changed people's lifestyles (Di Renzo et al., 2020). In line with this, sexual activity was influenced by social distancing and forced coexistence (Hussein, 2020). Higher general anxiety during COVID-19 has been shown to have a negative impact on people's sex lives, such as through the frequency of sexual intercourse and sexual activity, and felt satisfaction with one's sex life (Ko et al., 2020). Hence, it is essential to study changes in sexual activity throughout the COVID-19 pandemic.

In sum, this study indicated that heterosexual older adults mostly felt less sexual satisfaction and less sexual desire. Interestingly these participants also felt stronger affective relationships. Cultural differences were also evident. While Brazilian and Portuguese older adults reported more negative themes, such as less sexual satisfaction and desire, English participants verbalized more frequently stronger affective relationships. Moreover, participants related their sexual intimacy to less anxiety and distress, greater attention to negative emotional states, and less emotional outbursts during the COVID-19 pandemic.

Sexual health during the pandemic has received little attention and therefore a special approach to this topic should be taken, especially in later life, as it portrays a sensitive theme. We will still be dealing with the COVID-19 pandemic for some time, but it is still too early to see the consequences in relation to sexuality. Contact

and physical closeness are discouraged, while touch is seen as a major discomfort (Lopes et al., 2020). Future research and interventions with health care professionals should include greater awareness of sexual health implications during a pandemic. Considering that currently, we are living an unprecedented global situation, little is still known on sexuality related to pandemics and therefore, more research is needed on the topic to increase the understanding of the effects of the COVID-19 pandemic on sexual intimacy.

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Data Availability The data that support the findings of this study are available from the corresponding author, [SVH], upon reasonable request.

Code Availability No software application or custom code was used for the coding process.

Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose. The authors have no conflicts of interest to declare that are relevant to the content of this article. The authors alone are responsible for the content and writing of the paper.

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References

- Alexopoulos, C., Timmermans, E., Sharabi, L. L., Roaché, D. J., Croft, A., Hall, E. D., & Uhlich, M. (2021). Settling down without settling: Perceived changes in partner preferences in response to COVID-19. *Journal of Social and Personal Relationships*, 38(6), 1901–1919. <https://doi.org/10.1177/02654075211011527>
- Archuleta, K. L., Britt, S. L., Tonn, T. J., & Grable, J. E. (2011). Financial satisfaction and financial stressors in marital satisfaction. *Psychological Reports*, 108(2), 563–576. <https://doi.org/10.2466/07.21.PR0.108.2.563-576>
- Banerjee, D., & Rao, T. S. (2020). Sexuality, sexual well being, and intimacy during COVID-19 pandemic: An advocacy perspective. *Indian Journal of Psychiatry*, 62(4), 418. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_484_20
- Buczak-Stec, E., König, H. H., & Hajek, A. (2021). Sexual satisfaction of middle-aged and older adults: Longitudinal findings from a nationally representative sample. *Age and Ageing*, 50(2), 559–564. <https://doi.org/10.1093/ageing/afaa161>

- Callow, D. D., Arnold-Nedimala, N. A., Jordan, L. S., Pena, G. S., Won, J., Woodard, J. L., & Smith, J. C. (2020). The mental health benefits of physical activity in older adults survive the COVID-19 pandemic. *The American Journal of Geriatric Psychiatry*, 28(10), 1046–1057. <https://doi.org/10.1016/j.jagp.2020.06.024>
- Cavallini, E., Rosi, A., van Vugt, F. T., Ceccato, I., Rapisarda, F., Vallarino, M., & Lecce, S. (2021). Closeness to friends explains age differences in positive emotional experience during the lockdown period of COVID-19 pandemic. *Ageing Clinical and Experimental Research*, 33(9), 2623–2631. <https://doi.org/10.1007/s40520-021-01927-7>
- DeLamater, J. (2012). Sexual expression in later life: A review and synthesis. *Journal of Sex Research*, 49(2–3), 125–141. <https://doi.org/10.1080/00224499.2011.603168>
- DeLamater, J., & Moorman, S. M. (2007). Sexual behavior in later life. *Journal of Aging and Health*, 19(6), 921–945. <https://doi.org/10.1177/0898264307308342>
- Di Renzo, L., Gualtieri, P., Pivari, F., Soldati, L., Attinà, A., Cinelli, G., & De Lorenzo, A. (2020). Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey. *Journal of translational medicine*, 18(1), 1–15. <https://doi.org/10.1186/s12967-020-02399-5>
- Döring, N. (2020). How is the COVID-19 pandemic affecting our sexualities? An overview of the current media narratives and research hypotheses. *Archives of Sexual Behavior*, 49(8), 2765–2778. <https://doi.org/10.1007/s10508-020-01790-z>
- Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, 7(3), 93–99. <https://doi.org/10.1016/j.afjem.2017.08.001>
- Field, N., Mercer, C. H., Sonnenberg, P., Tanton, C., Clifton, S., Mitchell, K. R., & Johnson, A. M. (2013). Associations between health and sexual lifestyles in Britain: Findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *The Lancet*, 382, 1830–1844. [https://doi.org/10.1016/S0140-6736\(13\)62222-9](https://doi.org/10.1016/S0140-6736(13)62222-9)
- Fischer, N., Træen, B., Stulhofer, A., & Hald, G. M. (2020). Mechanisms underlying the association between perceived discrepancy in sexual interest and sexual satisfaction among partnered older adults in four European countries. *European Journal of Ageing*, 17(2), 151–162. <https://doi.org/10.1007/s10433-019-00541-x>
- Flynn, K. E., Lin, L., Bruner, D. W., Cyranowski, J. M., Hahn, E. A., Jeffery, D. D., & Weinfurt, K. P. (2016). Sexual satisfaction and the importance of sexual health to quality of life throughout the life course of US adults. *The journal of sexual medicine*, 13(11), 1642–1650. <https://doi.org/10.1016/j.jsxm.2016.08.011>
- Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Göttestam Skorpen, C., & Hsu, A. Y. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging*, 12(4), 590. <https://doi.org/10.1037/0882-7974.12.4.590>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., & Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, 7(6), 547–560. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Hussein, J. (2020). COVID-19: What implications for sexual and reproductive health and rights globally? *Sexual and Reproductive Health Matters*, 28(1), 1746065. <https://doi.org/10.1080/26410397.2020.1746065>
- Kivi, M., Hansson, I., & Bjälkebring, P. (2021). Up and about: Older adults' well-being during the COVID-19 pandemic in a Swedish longitudinal study. *The Journals of Gerontology: Series B*, 76(2), e4–e9. <https://doi.org/10.1093/geronb/gbaa084>
- Ko, N. Y., Lu, W. H., Chen, Y. L., Li, D. J., Chang, Y. P., Wu, C. F., & Yen, C. F. (2020). Changes in sex life among people in Taiwan during the COVID-19 pandemic: the roles of risk perception, general anxiety, and demographic characteristics. *International journal of environmental research and public health*, 17(16), 5822. <https://doi.org/10.3390/ijerph17165822>
- Kontoangelos, K., Economou, M., & Papageorgiou, C. (2020). Mental health effects of COVID-19 pandemic: A review of clinical and psychological traits. *Psychiatry Investigation*, 17(6), 491. <https://doi.org/10.30773/pi.2020.0161>
- Krendl, A. C., & Perry, B. L. (2021). The impact of sheltering in place during the COVID-19 pandemic on older adults' social and mental well-being. *The Journals of Gerontology: Series B*, 76(2), e53–e58. <https://doi.org/10.1093/geronb/gbaa110>
- Lithander, F. E., Neumann, S., Tenison, E., Lloyd, K., Welsh, T. J., Rodrigues, J. C., & Henderson, E. J. (2020). COVID-19 in older people: a rapid clinical review. *Age and ageing*, 49(4), 501–515. <https://doi.org/10.1093/ageing/afaa093>

- Lopes, G. P., Vale, F. B. C., Vieira, I., da Silva Filho, A. L., Abuhid, C., & Geber, S. (2020). COVID-19 and sexuality: Reinventing intimacy. *Archives of Sexual Behavior*, 49(8), 2735–2738. <https://doi.org/10.1007/s10508-020-01796-7>
- Luetke, M., Hensel, D., Herbenick, D., & Rosenberg, M. (2020). Romantic relationship conflict due to the COVID-19 pandemic and changes in intimate and sexual behaviors in a nationally representative sample of American adults. *Journal of Sex & Marital Therapy*, 46(8), 747–762. <https://doi.org/10.1080/0092623X.2020.1810185>
- Pan American Health Organization [PAHO]. (2020, May 1). *Policy Brief: The Impact of COVID-19 on older persons*. United Nations. Retrieved December 20, 2021, from
- McCabe, M. P., & Connaughton, C. (2017). Sexual dysfunction and relationship stress: How does this association vary for men and women? *Current Opinion in Psychology*, 13, 81–84. <https://doi.org/10.1016/j.copsyc.2016.05.007>
- Mohd, T. A. M. T., Yunus, R. M., Hairi, F., Hairi, N. N., & Choo, W. Y. (2019). Social support and depression among community dwelling older adults in Asia: A systematic review. *British Medical Journal Open*, 9(7), e026667. <https://doi.org/10.1136/bmjopen-2018-026667>
- Mori, C., Cooke, J. E., Temple, J. R., Ly, A., Lu, Y., Anderson, N., & Madigan, S. (2020). The prevalence of sexting behaviors among emerging adults: A meta-analysis. *Archives of sexual behavior*, 49(4), 1103–1119. <https://doi.org/10.1007/s10508-020-01656-4>
- Pennanen-Iire, C., Prereira-Lourenço, M., Padoa, A., Ribeirinho, A., Samico, A., Gressler, M., & Girard, A. (2021). Sexual health implications of COVID-19 pandemic. *Sexual medicine reviews*, 9(1), 3. <https://doi.org/10.1016/j.sxmr.2020.10.004>
- Pfefferbaum, B., & North, C. S. (2020). Mental health and the Covid-19 pandemic. *New England Journal of Medicine*, 383(6), 510–512. <https://doi.org/10.1056/NEJMp2008017>
- Röhr, S., Reininghaus, U., & Riedel-Heller, S. G. (2020). Mental wellbeing in the German old age population largely unaltered during COVID-19 lockdown: Results of a representative survey. *BMC Geriatrics*, 20(1), 1–12. <https://doi.org/10.1186/s12877-020-01889-x>
- Rosenberg, M., Luetke, M., Hensel, D., Kianersi, S., Fu, T. C., & Herbenick, D. (2020). Depression and loneliness during COVID-19 restrictions in the United States, and their associations with frequency of social and sexual connections. *MedRxiv*. <https://doi.org/10.1101/2020.05.18.20101840>
- Rowland, D. L., Kolba, T. N., McNabney, S. M., Uribe, D., & Hevesi, K. (2020). Why and how women masturbate, and the relationship to orgasmic response. *Journal of Sex & Marital Therapy*, 46(4), 361–376. <https://doi.org/10.1080/0092623X.2020.1717700>
- Ševčíková, A., & Sedláková, T. (2020). The role of sexual activity from the perspective of older adults: A qualitative study. *Archives of Sexual Behavior*, 49(3), 969–981. <https://doi.org/10.1007/s10508-019-01617-6>
- Træen, B., Carvalheira, A., Kvaalem, I. L., Štulhofer, A., Janssen, E., Graham, C. A., & Enzlin, P. (2017). Sexuality in older adults (65+)—an overview of the recent literature, part 2: body image and sexual satisfaction. *International Journal of Sexual Health*, 29(1), 11–21. <https://doi.org/10.1080/19317611.2016.1227012>
- Træen, B., Štulhofer, A., Janssen, E., Carvalheira, A. A., Hald, G. M., Lange, T., & Graham, C. (2019). Sexual activity and sexual satisfaction among older adults in four European countries. *Archives of Sexual Behavior*, 48(3), 815–829. <https://doi.org/10.1007/s10508-018-1256-x>
- von Humboldt, S., & Leal, I. (2014). What influences older adults' subjective well-being: A systematic review. *Revista Argentina De Clínica Psicológica*, 23, 219–230.
- von Humboldt, S., & Leal, I. (2015). The Orientation to Life Questionnaire: Validation of a measure to assess older adults' sense of coherence. *Educational Gerontology*, 41(6), 451–465. <https://doi.org/10.1080/03601277.2014.983373>
- von Humboldt, S., & Leal, I. (2017). Correlates of adjustment to aging among the young-old and the oldest-old: A comparative analysis. *Educational Gerontology*, 43(4), 175–185. <https://doi.org/10.1080/03601277.2016.1272355>
- von Humboldt, S., Leal, I., Laneiro, T., & Tavares, P. (2013c). Examining occupational stress, sources of stress and stress management strategies through the eyes of Consultants: A multiple correspondence analysis for latent constructs. *Stress & Health*, 29, 410–420. <https://doi.org/10.1002/smi.2487>
- von Humboldt, S., Leal, I., & Pimenta, F. (2013a). Analyzing adjustment to aging and subjective age from Angolan and Portuguese community-dwelling older adults' perspectives. *International Journal of Gerontology*, 27, 209. <https://doi.org/10.1016/j.ijge.2013.05.001>

- von Humboldt, S., Leal, I., Pimenta, F., & Maroco, J. (2014). Assessing adjustment to aging: A validation study for the Adjustment to Aging Scale (AtAS). *Social Indicators Research*, *119*(1), 455–472. <https://doi.org/10.1007/s11205-013-0482-9>
- von Humboldt, S., Leal, I., Pimenta, F., & Niculescu, G. (2013b). In the eyes of older adults: Self-reported age and adjustment in African and European older adults. *Health SA Gesondheid*, *18*(1), 712–722. <https://doi.org/10.4102/hsag.v18i1.712>
- von Humboldt, S., Low, G., & Leal, I. (2022a). Health service accessibility, mental health, and changes in behavior during the COVID-19 pandemic: A qualitative study of older adults. *International Journal Environmental Research and Public Health*, *19*(7), 4277. <https://doi.org/10.3390/ijerph19074277>
- von Humboldt, S., Low, L., & Leal, I. (2020a). Are older adults satisfied with their sexuality? Outcomes from a cross-cultural study. *Educational Gerontology*, *46*, 284–293. <https://doi.org/10.1080/03601277.2020.1744805>
- von Humboldt, S., Mendoza-Ruvalcaba, N., Arias-Merino, E., Ribeiro-Gonçalves, J. A., Cabras, E., Low, G., & Leal, I. P. (2022b). The upside of negative emotions: How do older adults from different cultures challenge their self-growth during the COVID-19 pandemic? *Frontiers in Psychology*, *13*, 648078. <https://doi.org/10.3389/fpsyg.2022.648078>
- von Humboldt, S., Monteiro, A., & Leal, I. (2018). How do older adults experience intergenerational relationships? Different cultures, ambivalent feelings. *Educational Gerontology*, *44*(8), 501–513. <https://doi.org/10.1080/03601277.2018.1520528>
- von Humboldt, S., Ribeiro-Gonçalves, J. A., Costa, A., Low, G., & Leal, I. (2020). *Sexual expression in old age: How older adults from different cultures express sexually*. Sexuality Research and Social Policy: Advanced online. <https://doi.org/10.1007/s13178-020-00453-x>
- Wang, V., Depp, C. A., Ceglowski, J., Thompson, W. K., Rock, D., & Jeste, D. V. (2014). Sexual health and function in later life: A population-based study of 606 older adults with a partner. *American Journal of Geriatric Psychiatry*, *23*, 227–233. <https://doi.org/10.1016/j.jagp.2014.03.006>
- Whitehead, B. R., & Torossian, E. (2021). Older adults' experience of the COVID-19 pandemic: A mixed-methods analysis of stresses and joys. *The Gerontologist*, *61*(1), 36–47. <https://doi.org/10.1093/geront/gnaa126>
- Yang, Y., Li, W., Zhang, Q., Zhang, L., Cheung, T., & Xiang, Y. T. (2020). Mental health services for older adults in China during the COVID-19 outbreak. *The Lancet Psychiatry*, *7*(4), e19. [https://doi.org/10.1016/S2215-0366\(20\)30079-1](https://doi.org/10.1016/S2215-0366(20)30079-1)

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