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Quality of life and emotional well-being during COVID-19 as mediators in the relationship between sexual functioning and satisfaction in Portuguese women

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Quality of life and emotional well-being during COVID-19 as mediators in the relationship between sexual functioning and satisfaction in Portuguese women

Women's quality of life, emotional well-being, sexual functioning and satisfaction are associated, and little is known about this relationship during COVID-19 pandemic. This study examines the mediating role of quality of life and emotional well-being in the relationship between sexual functioning and sexual satisfaction in women during COVID-19 outbreak in Portugal. A sample of 301 women was recruited in May 2020, and women answered to a sociodemographic questionnaire, the Female Sexual Functioning Index, the Sexual Satisfaction Scale for Women, the brief WHOQOL, and the Positive Affect – Negative Affect Scale (emotional well-being). Results indicated that quality of life was the only significant mediator for the relationship between sexual functioning and sexual satisfaction. Overall, the results emphasize the role of perceived quality of life in women's sexuality, by extending previous knowledge to a crisis context (COVID-19 pandemic), enhancing quality of life promotion during adverse moments to improve women's sexual satisfaction.

Keywords: COVID-19; emotional well-being; quality of life; sexual functioning; sexual satisfaction; women

Introduction

Recently, on January 30, 2020, the World Health Organization [WHO] declared the pandemic crisis associated with COVID-19 an international public health emergency (WHO, 2020). The immediate impact of the COVID-19 pandemic crisis on psychological dimensions is currently under investigation, with preliminary findings suggesting negative effects on

psychological adjustment, emotional well-being, and quality of life (e.g., Morgado et al., 2021; Paulino et al., 2021; Wang et al., 2020).

According to the WHO, "quality of life is defined as an individual's perception of his or her position in life in the context of the culture and value systems in which he or she lives and in relation to his or her goals, expectations, standards, and concerns." (WHO, 1996, p.5). Quality of life, then, is a self-perceived experience and a multidimensional construct. It includes subjective positive evaluations of one's physical and psychological state, as well as subjective positive perceptions of the social relationships and environment surrounding the individual (WHO, 1996; 1998).

Emotional well-being, or happiness, describes a combination of the presence of positive emotions, feelings and affects, along with the absence of negative emotions, feelings and affects (Ryan & Deci, 2001). As a subjective and individual experience, it balances positive and negative emotions (Galinha, Pereira, & Esteves, 2014). Emotional well-being is also an idiosyncratic experience that enhances the instants of joy, satisfaction, enthusiasm, and happiness (Kahneman et al., 2003), with a focus on emotional moments.

Sexual satisfaction can be understood as a multidimensional construct, which involves (inter)personal and dyadic factors (Pascoal et al., 2014), and according to Meston and Trapnell (2005), sexual satisfaction in women is defined as experiencing satisfaction and pleasure during sexual intercourse and relationship, simultaneously with not experiencing sexual distress and sexual difficulties. These authors developed a sexual satisfaction conceptualization for women addressing compatibility in sexual relationship, assertiveness in sexual communication, feelings of contentment in sexual encounters, and lack of sexual distress and relationship distress (Meston & Trapnell, 2005). Moreover, sexual satisfaction in women is associated with emotional well-

being, and overall quality of life (Laan et al., 2021).

Women's quality of life and emotional well-being are considered relevant health indicators, and are known to interact with sexual functioning and sexual satisfaction (e.g., Davidson et al., 2009; Haavio-Mannila & Kontula, 1997; Laumann, Paik, & Rosen, 1999; Rosen & Bachmann, 2008). The relationship between sexual satisfaction, sexual functioning, quality of life, and emotional well-being has been previously studied in women with health problems (e.g., Fernández-Rouco & Haya, 2021; Giuliani et al, 2016; Hahn, et al, 2005; Masoumi et al, 2016; Tripoli et al, 2011). Thus, women with infertility problems reported a significant decline in sexual functioning levels, their sexual satisfaction, and quality of life compared to fertile women (Masoumi et al., 2016). Poor sexual satisfaction and poor quality of life have also been noted in women with polycystic ovary syndrome (Hahn, et al., 2005) and in women with chronic pelvic pain due to multiple gynaecological factors (Tripoli et al., 2011). In addition, women with endometriosis have been found to have impaired sexual function and a significant decrease in quality of life (Giuliani et al., 2016). In terms of emotional well-being, results showed that women living with HIV have lower emotional well-being associated with various difficulties in sexual functioning and meeting their sexual needs, as well as low sexual satisfaction (Fernández-Rouco & Haya, 2021). In contrast, in women with polycystic ovary syndrome, lack of sexual satisfaction has no significant impact on emotional well-being (Hahn, et al., 2005), suggesting that emotional well-being and sexual dissatisfaction in women with polycystic ovary syndrome is dependent on other psychosocial dimensions.

The COVID-19 pandemic has negative effects on mental and sexual health (e.g., Cito et al., 2021; Karsiyakali et al., 2021; Omar et al., 2021; Paulino et al., 2021). During the onset of COVID-19, early studies reported changes in sexual behavior due to the contextual crisis (Cito et

al., 2021; Karsiyakali et al., 2021), with a decrease in sexual functioning (Karsiyakali et al., 2021), decreased frequency of sexual activity (Cito et al., 2021), and a significant decrease in sexual satisfaction (Omar et al., 2021). Research has shown that women experienced significantly more sexual difficulties (Omar et al., 2021) and lower sexual desire (Wignall et al., 2021) than men, during the current outbreak. In addition, young women in China reported a decline in sexual activity and higher levels of sexual dissatisfaction (Li et al., 2020). In contrast to these findings, other studies found an increase in sexual desire (Cocci et al., 2020; Yuksel & Ozgor, 2020) and frequency of sexual intercourse (Yuksel & Ozgor, 2020), proposing that more frequent sexual activity may act as a protective factor for mental health problems and relationship satisfaction (Mollaioli et al. 2021). However, despite the increase in sexual desire or frequency of intercourse, lower levels of sexual satisfaction were reported (Cocci et al., 2020; Yuksel & Ozgor, 2020). In summary, a review of the literature on women's sexual health during the pandemic COVID-19 found a global deterioration in women's sexual function, particularly in relation to sexual desire (Oliveira & Carvalho, 2021).

In Portugal, following the confirmation of the first cases of COVID-19, a state of emergency was declared on March 18, 2020 by Portuguese Government, implying a blackout period until May. Strict social distancing measures were taken: Home-based work became compulsory, schools were closed and offered only home education, and all services remained closed, except for public hospitals and drug and grocery stores. Several empirical studies were conducted in the first months of the lockdown due to the COVID-19 outbreak, and the main findings highlight the negative effects of the lockdown and insecurity on psychological adjustment (Ferreira et al., 2020; Mendes-Santos et al. 2020; Paulino et al., 2021; Silva-Moreira et al., 2021) and quality of life (Morgado et al., 2021). Poorer mood, feelings of restlessness,

anxiety, or sadness due to forced isolation and social distancing were observed in the first weeks of confinement (Mendes-Santos et al., 2020), with higher levels of stress, anxiety, depression (Paulino et al., 2021), panic and health-related anxiety (Ferreira et al., 2020), and lower health-related quality of life and emotional well-being (Ferreira et al., 2020) over time.

Relationship dynamics and sexual encounters are associated with contextual changes due to the period of confinement, isolation demands and social constraints associated with the COVID-19 pandemic (Carvalho & Pascoal, 2020; Rao & Andrade, 2020). In addition, psychological distress during this catastrophic event also negatively affects sexual functioning and satisfaction (Carvalho & Pascoal, 2020). Despite recent studies on the impact of the COVID-19 pandemic on women's sexuality, more research is still needed (Pennanen-Iire, et al., 2021). During the pandemic outbreak, several organizations focused on quality of life and emotional well-being promotion, emphasizing the role of self-care (Portuguese Board of Psychology, 2021; Portuguese Directorate-General Health, 2020; WHO, 2020). In addition, empirical studies on quality of life and emotional well-being during the pandemic revealed that women are more negatively affect when compared to men (Ferreira et al., 2020; Morgado, Cruz, & Peixoto, 2021). Thus, it is of paramount relevancy to explore the mediator role of quality of life and emotional well-being during the COVID-19 outbreak in the relationship between sexual functioning and sexual satisfaction in women.

Considering the relationship between happiness dimensions, as quality of life and emotional well-being, and female sexuality factors, as sexual functioning and sexual satisfaction (Davidson et al., 2009; Haavio-Mannila & Kontula, 1997; Laumann, Paik, & Rosen, 1999; Rosen & Bachmann, 2008) and the decline in women's sexual functioning during the COVID-19 pandemic, which affects the experience of sexual satisfaction and sexual pleasure (Oliveira &

Carvalho, 2021), this study aims to investigate the mediating role of quality of life and emotional well-being in the relationship between sexual functioning and sexual satisfaction in a sample of Portuguese women recruited during the COVID-19 pandemic crisis.

Material and Methods

Participants and Procedures

The present study was initially designed and submitted to University Ethics Committee. After ethical approval and permission to use the Portuguese versions of the self-report measures selected for the study purposes, an online survey was developed. The study was advertised through social networks (e.g., Facebook) in May 2020 (the time of the state of emergency in Portugal). Participants received the link with a detailed explanation about the purpose of the study. After reading the participant information sheet, participants received information about the current study. After providing informed consent, participants were asked to answer a series of self-report questionnaires, which took about 10 to 12 minutes to complete. To protect participant privacy and anonymity, data were collected and archived, and no IP addresses were recorded. Participants received no monetary compensation or other incentives. The inclusion criteria for the current study was being female and over 18 years old, and being sexually active. Of the 314 women who participated in the study, 13 had never had a sexual experience and were excluded. The final sample consisted of 301 women.

Measures

Sociodemographic Screening.

A sociodemographic screening was developed for the study purpose to record personal information, i.e., age, sexual orientation, educational level, marital status, and job status.

The World Health Organization Quality of Life Instrument – Bref (WHOQOL-BREF; WHO, 1998; Portuguese version from Vaz-Serra et al., 2006).

The WHOQOL-BREF is an easy-to-use self-report questionnaire with 26 items answered on a 5-point Likert scale that measures a general health and quality of life factor and 4 subdomains: physical, psychological, social relationships, and environment. Scores can be calculated for each subdomain, with higher scores indicating better quality of life for the domain. The Portuguese version showed good psychometric properties, with Cronbach alpha values ranging from .64 to .87 for the domains and .92 for the total scale (Vaz-Serra et al., 2006). The level of internal consistency for the current study was .92.

The Positive and Negative Affect Scale (PANAS; Watson & Clark, 1994; Portuguese version from Galinha & Pais-Ribeiro, 2005).

The PANAS includes 20 items, which are words that describe different emotions and feelings, divided in two scales – the Positive Affect and the Negative Affect – comprising ten items each. Items are answered according to a 5-point Likert scale, and women are asked to indicate to what extent they experience that feeling or emotion in the past week. For the Positive Affect scale, greater score indicates more positive affect, reflecting more pleasure and increased well-being; while for the Negative Affect scale, a lower score indicates reduced levels of negative affect, reflecting, also, increased well-being (i.e., a greater score indicates more negative affect, reflecting decreased well-being). To compute the total score of emotional well-being or happiness index, the negative affect score was subtracted from the positive affect score. The original and Portuguese version revealed good consistency results (Galinha & Pais-Ribeiro, 2005; Watson & Clark, 1994). The level of internal consistency for the current study was .81 for the positive affect subscale, and was .84 for the negative affect subscale.

The Female Sexual Functioning Index (FSFI; Rosen et al., 2000; Portuguese version from Pechorro et al., 2009).

The FSFI is a 19-item self-report instrument answered on a 5- or 6-point Likert scale that allows assessment of six dimensions of sexual function: sexual interest/desire, sexual arousal, lubrication, orgasm, sexual satisfaction, and sexual pain. The FSFI allows for the calculation of specific indices for each dimension as well as a sexual function index, with higher scores indicating higher levels of sexual function. The original version has good psychometric properties, with temporal stability, good internal consistency and construct validity (Rosen et al., 2000). The Portuguese version also showed good psychometric properties, with good to very good internal consistency and validity (Pechorro et al., 2009). The level of internal consistency for the current study was .93.

The Sexual Satisfaction Scale for Women (SSS-W; Meston & Trapnell, 2005; Portuguese version from Peixoto et al., 2020).

The SSS-W is a 30-item self-report instrument answered on a 5-point Likert scale. The questionnaire allows one to assess five different areas of sexual well-being: Contentment, Communication, Compatibility, Personal Concern, and Relational Concern. Scores are calculated as a sum, with higher scores indicating higher levels of sexual satisfaction. Personal and relational concern reflect sexual distress and are reverse scored. The original version showed good psychometric properties, with good reliability, temporal stability, and concurrent, convergent, and divergent validity (Meston & Trapnell, 2005). The Portuguese version of the SSS-W also showed good psychometric properties, with good internal consistency, temporal stability, and convergent, concurrent, and discriminant validity (Peixoto et al., 2020). The Cronbach's alpha for the present study was .84.

Data Analysis

Statistical analyses were conducted using IBM SPSS software, version 26.0. At first, descriptive statistics were performed to characterize the sample, and to assess means, standard deviations, ranges and frequencies. Pearson's correlation coefficients were calculated to examine the correlation between all variables in the study (i.e., quality of life, emotional well-being, sexual functioning and sexual satisfaction). Multicollinearity between variables was assessed, and VIF values (between 1.91 and 2.37) were adequate ($VIF < 2.5$; Johnston, Jones, & Manley, 2018).

Statistical assumptions and correlation coefficients between all variables were tested, and using Model 4 of PROCESS macro 3.5.2 for IBM SPSS software (Hayes, 2018), with Bootstrapping Confidence Intervals, a mediation model was run to examine the effect of sexual functioning during COVID-19 pandemic on sexual satisfaction, mediated by quality of life and emotional well-being. The mediation model is grounded on a variable (i.e., sexual functioning) which is theoretically suggested to predict and influence an outcome (sexual satisfaction) through mediator variables (i.e., quality of life and emotional well-being during COVID-19 pandemic). Two pathways are defined by which sexual functioning may predict sexual satisfaction (Hayes, 2018). To assess indirect effects, 5000 bootstrap samples were used based on 95% Bias-Corrected Bootstrap Confidence Intervals (95% BCBCI; Preacher & Hayes, 2008). Interpretation criteria for mediation effect size (small - 0.01; medium - 0.09; and large - 0.25) were based on the work of Preacher and Kelley (2011), and the percentage of total effect mediated was calculated (Shrout & Bolger, 2002).

Results

A total of 301 Portuguese women with a mean age of 27.62 years (standard deviation of

9.28), and an age range of 18 to 66 years were included in the analyses. The sociodemographic characteristics of the sample are shown in Table 1.

INSERT TABLE 1 HERE

Quality of life, emotional well-being, sexual functioning and sexual satisfaction

Means, standard-deviations, and range of the responses of quality of life, emotional well-being, sexual functioning and sexual satisfaction are illustrated at Table 2. Pearson's correlations coefficients for all variables in study are presented at Table 3.

[insert table 2 and 3]

Mediation role of quality of life and emotional well-being in the relationship between sexual functioning and sexual satisfaction

The mediation model explained 27.02% of the variance of sexual satisfaction in women, which was significant, $R^2 = .27$, $F(3,291) = 35.91$, $p < .001$. The regression of sexual functioning on sexual satisfaction was statistical significant, $\beta = .43$, $SE = .12$, $t = 8.05$, $p < .001$; 95% BCBCI 0.73 – 1.20. The regression of sexual functioning on quality of life (mediator) was statistical significant, $\beta = .39$, $SE = .13$, $t = 7.14$, $p < .001$; 95% BCBCI 0.66 – 1.16, as well as the regression of sexual functioning on emotional well-being (mediator) was statistical significant, $\beta = .36$, $SE = .01$, $t = 6.66$, $p < .001$; 95% BCBCI 0.05 – 0.10, The regression of quality of life (mediator) on sexual satisfaction was statistical significant, $\beta = .27$, $SE = .07$, $t = 3.44$, $p < .001$; 95% BCBCI 0.11 – 0.40, but the regression of emotional well-being (mediator) on sexual satisfaction was not statistical significant, $\beta = .08$, $SE = .83$, $t = 0.99$, $p = .326$; 95% BCBCI -0.81 – 2.44. Finally, the regression of sexual functioning on sexual satisfaction after controlling for quality of life and emotional well-being (mediators) was significant, $\beta = .30$; $SE =$

.12, $t = 5.42$, $p < .001$; 95% BCBCI 0.43 – 0.91 (Figure 1). The mediation effect size of the model was .13 and the mediation effect size of quality of life was .10. Regarding percentage of mediation, 35.1% of the total effect of sexual functioning on sexual satisfaction was mediated by quality of life.

[insert figure 1]

Discussion

The present study aimed to investigate the mediating role of quality of life and emotional well-being in the relationship between sexual functioning and sexual satisfaction in a sample of women during the pandemic crisis COVID-19 in Portugal. Overall, the main findings suggest that quality of life, emotional well-being, sexual functioning and sexual satisfaction are positively and significantly correlated. Moreover, quality of life proved to be a significant and positive mediator in the relationship between sexual functioning and sexual satisfaction in Portuguese women, mediating about 35% of that relationship. These findings emphasise the importance of quality of life in women's sexuality, by relating physical, psychological, social relations and environment domains of quality of life in the association between sexual functioning and sexual satisfaction. In addition, these results sustain the paradigm that understand women's sexuality as multifactorial, including not only physical and psychological factors, but also interpersonal and contextual dimensions, with a close link with happiness (Rosen & Bachmann, 2008).

As expected, quality of life, emotional well-being, sexual functioning, and sexual satisfaction were significantly and positively correlated with each other, supporting the findings of previous studies (e.g., Davidson et al., 2009; Haavio-Mannila & Kontula, 1997; Laumann, Paik, & Rosen, 1999; Rosen & Bachmann, 2008), emphasizing the relationship between

happiness dimensions (quality of life and emotional well-being) and women's sexuality. Quality of life was strongly, positively, and significantly correlated with emotional well-being, confirming the direct relationship between these subjective experiences (WHO, 1996). Although quality of life can be considered a broader dimension of happiness, whereas emotional well-being is an emotional and psychological dimension of happiness, a strong correlation shows that the two constructs are related. The correlations between sexual satisfaction, quality of life, and emotional well-being were slightly greater than the correlations between sexual functioning, quality of life, and emotional well-being, consistent with the paradigm of sexual well-being, happiness, and satisfaction in women (Rosen & Bachmann, 2008). It is possible that sexual satisfaction is more strongly related to positive feelings (emotional well-being) and the perception of a better quality of life than adequate sexual function. Sexual satisfaction includes not only satisfaction with sexual activity but also the absence of sexual distress (Meston & Trapnell, 2005). There is evidence that not all women with sexual difficulties experience sexual distress (Burri et al., 2012; Hendrickx et al., 2014; Mitchell et al., 2013), which may explain the different correlation values between sexual functioning and quality of life and emotional well-being, and between sexual satisfaction and quality of life and emotional well-being. It is possible that some women with poorer sexual functioning do not feel extreme distress and therefore do not experience significant decreases in emotional well-being and quality of life.

Previous studies have found a significant decrease in sexual satisfaction (Li et al., 2020; Cocci et al., 2020; Omar et al., 2021; Yuksel & Ozgor, 2020) and a decrease in sexual functioning (Karsiyakali et al., 2021) during the onset of COVID-19. In addition, a campaign to promote quality of life and emotional well-being during the pandemic COVID -19 through self-care strategies was launched by several Portuguese organizations (Portuguese Board of

Psychology, 2021; Portuguese Directorate-General Health, 2020). Therefore, this study also aimed to investigate the mediating role of quality of life and emotional well-being on the relationship between sexual functioning and sexual satisfaction. Regarding the mediating role of quality of life and emotional well-being on the relationship between sexual functioning and sexual satisfaction, the results of the current study only support the mediating role of quality of life, but not of emotional well-being. Our results suggest that perceptions of higher quality of life have a positive impact on sexual pleasure and sexual satisfaction when levels of sexual functioning are considered. Quality of life encompasses perceived quality in the domains of physical, psychological, social relationships, and environment, which relate not only to physical and mental health, but also to social interactions and living conditions. On the other hand, emotional well-being is a balance between positive and negative affect and emotions (Galinha et al., 2014; Ryan & Deci, 2001), and the current findings suggest that experiencing more positive emotions and fewer negative emotions did not, in and of itself, affect the relationship between sexual functioning and sexual satisfaction during the outbreak COVID-19. During the onset of the disease COVID-19, along with physical and mental health (Morgado et al., 2021; Paulino et al., 2021; Wang et al., 2020), living conditions and levels of social isolation were strongly related to perceived life satisfaction and quality of life (Gonzalez-Bernal et al., 2021), with individuals who had private access to the outside world, better living conditions and spent fewer days isolated or not isolated at all due to COVID-19 disease, reporting higher levels of life satisfaction, quality of life, and emotional well-being. It is possible that quality of life domains has a greater impact on sexual functioning and sexual satisfaction compared to emotional well-being, due to all domains that are included in quality of life assessment.

The current study has some limitations, so the results should only be generalized with

caution. The current sample was collected via a web survey; therefore, only women who had internet access and were familiar with this method were able to participate in the study. The sample consists of younger and well-educated women, which may also influence the results. Further studies should be conducted to investigate the mediating role of quality of life and emotional well-being in this particular context due to the COVID-19 pandemic crisis, for instance with male samples. Also, no frequency of sexual activity was assessed, which may interfere with current results and its interpretation. Despite the limitations of the study, the present study supports the role of promoting quality of life in adverse times such as the COVID-19 pandemic crisis to improve women's sexual satisfaction.

In summary, given that sexual activity during the pandemic outbreak is a protective factor against psychological distress (Mollaioli, et al., 2021), and given the social isolation created by the global pandemic crisis, promoting positive sexual experiences is critical to endorse psychological adjustment and emotional well-being. According to Pascoal et al. (2021), clinical sexology interventions should consider couples' adaptations, dynamics, and sexual encounters during the pandemic crisis. In addition, enhancing quality of life in all its domains (physical, psychological, social relationships, and environmental) may be a key dimension in promoting women's sexual functioning and sexual satisfaction during stressful events, with positive effects on psychological adjustment and emotional well-being.

Conflict of Interest statement: The authors have no conflicts of interest to declare that are relevant to the content of this article.

Data availability statement: The datasets generated during and/or analysed during the current study are not publicly available due to further data analysis in the scope of the ongoing project.

Datasets may be made available in the future from the corresponding author on reasonable request.

Ethical Statement: All procedures performed were in accordance with the ethical standards of the institutional ethics committee and with the 1964 Helsinki declaration and its later amendments. The current study is part of a research project approved by University Ethics Committee.

Informed Consent: Informed consent was obtained from all individual participants included in the study.

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Table 1. Sociodemographic characteristics of the sample (N = 301)

Variables	Total Sample (N = 301) n (%)
Sexual Orientation	
Heterosexual	281 (93.4)
Lesbian	5 (1.7)
Bisexual	14 (4.7)
Other	1 (0.3)
Educational Level (years)	
0 to 9	9 (3.0)
9 to 12	81 (27.0)
12 or more	211 (70.0)
Civil Status	
Single, within a relationship	209 (69.4)
Married/Common Law	82 (27.2)
Divorced/Separated/Widow	10 (3.1)
Cohabitation	
Yes	101 (33.6)
No	200 (66.4)
Children	
Yes	60 (19.9)
No	241 (80.1)
Job status	
Full-time	150 (49.8)
Part-time	48 (15.9)
Unemployed	103 (34.2)

Table 2. Means, standard-deviations, and range of quality of life, emotional well-being, positive affect, negative affect, sexual functioning, and sexual satisfaction (N = 301)

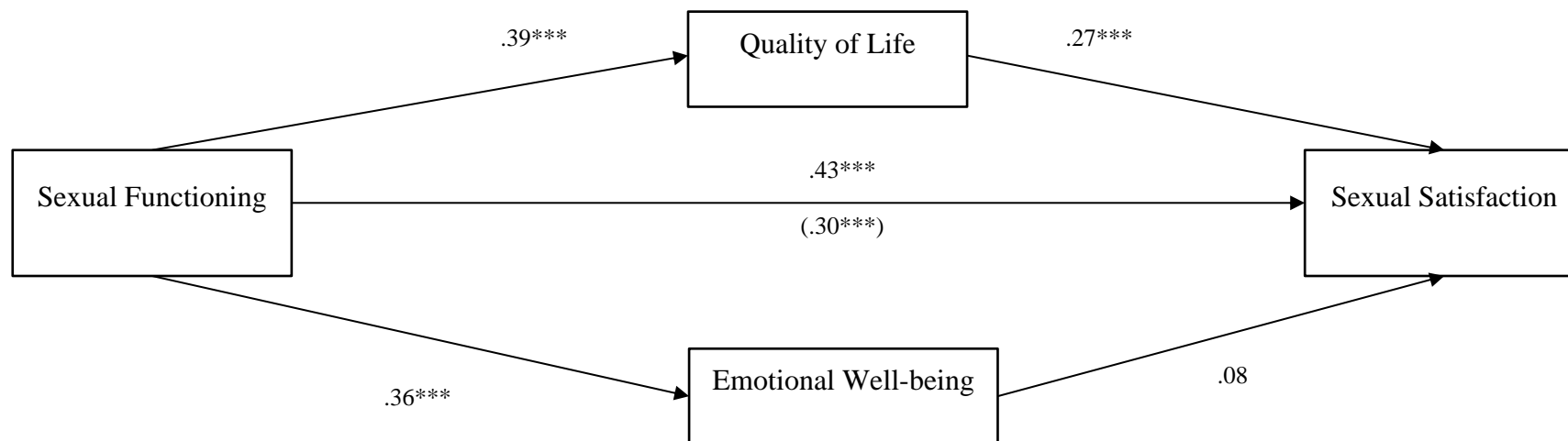
<i>Variables</i>	<i>Total (N = 301)</i>	
	<i>M (SD)</i>	<i>Range</i>
Quality of life	72.44 (13.48)	21.24 – 98.19
Emotional Well-being	1.34 (1.19)	-2.60 – 3.80
Sexual functioning	28.85 (5.72)	3.20 – 36.00
Sexual satisfaction	92.28 (12.93)	51.00 – 125.50

Table 3. Pearson's correlation coefficients between quality of life, emotional well-being, sexual functioning, and sexual satisfaction (N = 301)

<i>Variables</i>	1.	2.	3.	4.
1. Quality of Life	1.00			
2. Emotional Well-being	.75***	1.00		
3. Sexual functioning	.39**	.36***	1.00	
4. Sexual satisfaction	.44***	.39***	.43***	1.00

Footnote: *** $p < .001$

Figure 1. Mediation model of quality of life and emotional well-being in the relationship between sexual functioning and sexual satisfaction in women (N = 301)



Footnote: *** $p < .001$