

# PSYCHOLOGICAL DIMENSIONS IN HUMAN SEXUAL HEALTH AND BEHAVIOR

EDITED BY: Joana Carvalho, Peer Briken, Carmita Helena Najjar Abdo  
and Filippo Maria Nimbi  
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# PSYCHOLOGICAL DIMENSIONS IN HUMAN SEXUAL HEALTH AND BEHAVIOR

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# Editorial: Psychological Dimensions in Human Sexual Health and Behavior

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## Editorial on the Research Topic

### Psychological Dimensions in Human Sexual Health and Behavior

Human sexuality is still an underexplored world, subjected to great taboos and controversies over the decades, representing one of the most challenging areas of research and facing countless political and social demands. In this sense, leading organizations such as the World Health Organization (WHO, 2014) and the World Association for Sexual Health (WAS, 2014) have established sexual health and well-being as human rights and key goals to be achieved worldwide to improve the health-related quality of life. The new message that is being carried out by these entities, is that sexual health not only concerns reproductive issues, sexual problems, sexual violence, and sexually transmitted infections, but also positive aspects related to intimate relationships, pleasure, consenting sexual relationships, gender and sexual orientation variety, and sexual functioning among other aspects.

The current special issue on “Psychological Dimensions in Human Sexual Health and Behavior” represents an important step toward a broader biopsychosocial understanding of human sexuality (Berry and Berry, 2013). After a major focus on organic factors underpinning sexual difficulties and behavior, researchers have recognized the need of targeting the psychological factors, and the interplaying role between organic, psychological, and social aspects affecting sexual health and well-being (Assalian, 2013; Brotto et al., 2016).

The psychological dimensions are being considered as central elements in the international guidelines for clinical intervention in sexual difficulties and dysfunctions, sexual health promotion programs, and sexual education (DeRogatis, 2008; Althof et al., 2012; Bitzer et al., 2013; Fugl-Meyer et al., 2013; Laan et al., 2013; McMahon et al., 2013; Mulhall et al., 2013; WHO, 2018). These psychological dimensions have been framed within conceptualizing models of human sexual response, often including cognitions, emotions, personality traits, psychopathology, socio-cultural, and relational variables influencing sexual functioning and behavior.

In this Research Topic, readers will find interesting and innovative contributions to the understanding of the role of some psychological components in peculiar aspects of sexuality such as cognitive processing and response to sexual stimuli, sexual satisfaction, and adherence to Sexual Double Standards (SDS), coming out in LGBTQI+ population, polyamory, sexual violence, and trauma.

Understanding the processing of sexual stimuli has become prominent in human sexuality research, since it may explain the arousal process and the cognitive mechanisms underlying the sexual response (Huberman, 2021). Erotic processing seems to be very relevant in our brain. Novák et al. reported the absence/inconsistency of spatial attention bias to sexual images and suggested that sexual stimuli are prioritized in memory and cognitive processes compared to other stimuli.

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Moreover, literature has shown that cultural factors play a primary role in sexual stimuli processing (Rupp and Wallen, 2008). Recognizing the need of including cultural relevance in imaging studies, Cui et al. validated and shared a sexual stimuli database, useful for further research in eastern Asian cultural settings, showing some interesting gender differences in sexual arousal, pleasantness, and sexual attractiveness ratings.

How adherence to gender roles may affect psychology in sexuality represent one of the main challenges in sex research. Álvarez-Muelas et al. showed that relationship satisfaction may be the main predictor of sexual satisfaction and vary according to gender and SDS adherence. These results suggest the urgency to investigate how people internalize attitudes toward the SDS in future studies.

The role of attitudes is also relevant when it comes to LGBTQI+ and Polyamory. For example, Rosati et al. extended the current knowledge on the role of coming out and minority stress experiences among different generations of LGBTQ+ people. On average, older adults became self-aware and disclose at a later age than younger men, they seem to be more Catholic and came out more frequently to their Catholic community, with reactions ranging from total acceptance to open rejection. Focusing on women, Baiocco et al. reported that lesbian women had their coming out to both their parents more often than bisexual ones, reporting lower levels of internalized sexual stigma and more positive attitudes toward lesbian/bisexual identity. These new studies contribute to our understanding of coming out peculiarities in varied forms of sexual and relational expressions. Moors et al. with their focus on polyamory, showed that a significant percentage of Americans desire to engage and/or has already engaged in polyamory. Few sociodemographic variables were related to this interest and given that relational intimacy is an important part of most people's lives, understanding the varied ways in which people cross in their intimacy is crucial for social, psychological, and sexological fields (Vaughan et al., 2019).

A significant focus in this special issue has been given to sexual offenders and victims. This is still a relevant topic under different

perspectives. International reports (UNICEF, 2017; WHO, 2021) draw an alarming figure with respect to the rate of abuse in minors and adults, on the need to find more effective prevention strategies and programs to support victims, as well as the management and treatment of offenders. In this context, Barroso et al. focus on specific kind of abuse such as the study on sexting in adolescence in terms of emotional and behavioral problems, potential markers of psychopathy, childhood trauma and maltreatment, and different forms of aggression. The criminal responsibility of sexual offenders with paraphilic disorders is also a current challenge. Dobbrunz et al. presented an assessment following a two-stage method for the severity of a paraphilic disorder and the criteria for/against diminished capacity according to the German legal system, giving ground to an empirically based assessment of criminal responsibility.

From the victims' side, the psychological factors that may improve/worsen the outcome of traumatic conditions such as child sexual abuse are of extreme interest to offer tailored support weighting to the individual resources/weaknesses (Daigneault et al., 2007). Ensink et al. stress the attention on the possible interaction between sexual abuse history and attachment security, showing that sexually abused children with insecure attachment seem to be more at risk for post-traumatic symptoms. Also, in later stages of life, sexual traumas can have profound consequences on quality of life and sexual relationships. Almås and Pirelli Benestad give specific directions for psychological treatments integrating different clinical approaches, highlighting how traumatized people need particular attention to safety, respect, and acceptance.

The journey to understand sexuality is still long and tortuous, but this special issue represents a small significant step in this direction. Enjoy the reading.

## AUTHOR CONTRIBUTIONS

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# Attention Bias and Recognition of Sexual Images

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Attention to sexual stimuli is necessary for the development of sexual response, yet while there is some evidence of attention bias in favor of sexual stimuli, the direction and magnitude of the effect remain unknown. A high-powered sample of 113 participants was tested using the dot-probe task (DPT) and picture recognition task (PRT) to measure visuospatial attention to erotic images. Participants showed no attention bias in the DPT ( $r_B = 0.201$ ,  $p = 0.064$ ) but were significantly better at recognizing erotic rather than neutral or training pictures ( $d = 1.445$  and  $1.461$ , respectively, both  $p < 0.001$ ). This indicates that spatial attention bias to sexual pictures is small, negligible, possibly even non-existent, or else the DPT is not a reliable tool to assess it. Results of the PRT, on the other hand, show that sexual stimuli are prioritized in memory and this should be explored in future research.

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## INTRODUCTION

Do sexual stimuli capture attention? In our culture it is assumed they do. This belief is reflected, for instance, in the frequent use of sexual content in advertising (Reichert et al., 1999; Reichert and Carpenter, 2003; Hennink-Kaminski and Reichert, 2011; Cummins et al., 2020) despite its questionable effect (Reichert and Alvaro, 2001; Cummins et al., 2020).

It has been demonstrated that attentional processes play a central role in sexual arousal (Barlow, 1986; de Jong, 2009) and it is believed that they are processed much like other evolutionarily meaningful stimuli (Spiering and Everaerd, 2007). Nearly all theoretical concepts which operate with attention and sexual stimuli assume some form of attention bias (for an evolutionary psychology-informed account, see Bailey et al., 1994). Surprisingly, though, only a handful of studies had so far investigated the actual patterns of attention toward sexual stimuli and even less studies employed cognitive tasks to do so.

In the context of sexual stimuli, two forms of attention are relevant: *cognitive attention* which takes the form of working memory capacity assigned to cognitive processing of a stimulus, and *visuospatial attention* in the form of directing one's gaze to a stimulus (Imhoff et al., 2019). Cognitive attention to sexual stimuli has been reliably established with respect to the phenomenon of sexual content-induced delay (SCID), which describes a general slowing in cognitive tasks when sexual stimulus is present (Geer and Bellard, 1996). Most studies which use common paradigms for assessing attention – such as the modified Stroop task, parallel decision task, inclusive decision task, or visual search task (for a review, see Jiang and Vartanian, 2018) – in fact measure cognitive attention. Studies on visuospatial attention, on the other hand, are scarce and their results are far from clear-cut.



Two general paradigms are used to study visuospatial attention: one uses an eye-tracking device, the other works with the dot-probe task (DPT). In the eye-tracking paradigm, researchers assess early attentional processing (initial orienting) by measuring the position of the first (or second, see Rupp and Wallen, 2007; Fromberger et al., 2012) fixation while presenting the subject with two concurrent stimuli, e.g., a neutral and a sexual one. Regrettably, none of the eye-tracking studies reviewed below uses such clear design. Most existing studies use first fixation as an indicator of preferred sexual targets in various populations (e.g., heterosexual males: Dagnino et al., 2012; Fromberger et al., 2012; males with a pedophilic preference: Fromberger et al., 2013; and bisexual males and females: Morandini et al., 2020), thus effectively measuring attention bias with respect to different categories of sexual stimuli. In other studies, stimuli are presented in a series (e.g., Rupp and Wallen, 2007; Ganesan et al., 2020), or what is measured are late attentional processing indexes, such as viewing time and the total number of fixations (e.g., Lykins et al., 2006). Still, while eye-tracking studies show that sexually relevant stimuli are visually attended to, they fail to distinguish between cognitive and visuospatial attention bias (Imhoff et al., 2019).

The dot-probe task (DPT; also known as serial probe task, letter probe task, attentional deployment task, or visual probe task) is one of the most commonly employed tools used to assess visuospatial attention bias. Introduced in the context of research of attention to threat-related words in a clinically anxious population (MacLeod et al., 1986), the DPT was developed to measure early automatic allocation of spatial attention. It is based on the simple assumption that people respond faster to probes presented in the attended rather than unattended region of visual display (Posner et al., 1980; Navon and Margalit, 1983). In a typical setup, the subject is presented with pairs of stimuli (e.g., sexual and neutral pictures or words), which are then replaced by a probe that appears in the location of one of the stimuli. Subjects are asked to localize or identify the probe as quickly as possible. Faster response to a probe replacing a sexual stimulus would suggest that attention was directed to this stimulus (*vigilance*), while a slower response would indicate that attention was directed away from it (*avoidance*). The difference in mean response times between trials where the probe replaced a neutral picture (neutral target trials) and those where the probe replaced a sexual picture (sex target trials) amounts to attention bias index, extreme scores of which are thought to reflect attention bias (MacLeod et al., 1986). One of the advantages of the dot-probe paradigm is its ability to distinguish between attentional vigilance and avoidance. Moreover, its ecological validity can be increased by using pictures instead of words (Jiang and Vartanian, 2018). It can be also used to examine the progress of attention by varying the duration of exposure of stimulus pairs. While there is a considerable variation in stimulus exposure time used in various studies – it can vary from 100 ms (Cooper and Langton, 2006) to 2000 ms (Pottage and Schaefer, 2012) – most studies present the stimuli for 500 ms (Mogg et al., 2004; Prause et al., 2008; Kagerer et al., 2014). The main advantage of the dot-probe paradigm lies in its ability to distinguish between cognitive and visuospatial attention by using different combinations of stimuli pairs in trial

conditions. The SCID effect will cause slightly longer response times in every trial where sexual stimulus is present. That is why researchers find consistently slower responses in trials with sexual content than in trials with neutral content in the modified Stroop task or parallel decision task. The dot-probe paradigm keeps the SCID effect constant because it has sexual content in every trial, with only the position of the probe changing. Any difference in the speed or accuracy of response between trials can therefore be attributed to potential bias in visuospatial attention (Imhoff et al., 2019). When researchers want to observe the SCID effect, they can simply add a trial condition consisting of two neutral stimuli.

Although the importance of attention in sexual functioning is beyond doubt, since it determines whether a sexual response will occur (Barlow, 1986), there is no clear consensus on how exactly people attend to sexual stimuli besides the SCID effect. Recently, Strahler et al. (2019) published a meta-analysis on attention bias toward and distractibility by sexual cues. Combining the results of 2933 participants in 32 studies (including eight studies that used the DPT) they found a medium-sized effect of  $g_z = 0.49$ , 95% CI [0.37, 0.61] for attention to sexual cues in general and an effect size of  $g_z = 0.34$ , 95% CI [0.17, 0.50] for the DPT (and letter probe) in particular. Nevertheless, due to differences in the methodologies used, the attention bias as measured by this meta-analysis combined several – and sometimes opposite – effects. To provide a more detailed analysis, we offer in the following a full review of studies which focused on visuospatial attention to sexual pictures.

Beard and Amir (2010) employed a modified dot-probe paradigm with sexual and neutral words to compare attention bias in women with low and high sexual functioning. In the sexually low-functioning group, they indeed found attention bias toward sexual words ( $\eta^2 = 0.106$ ), but in the other group, they found no such effect. It could be argued, though, that the power of verbal stimulus rests in its semantic associations and not in specific perceptual features (Oosterwijk et al., 2017), which is why it may be preferable to use visual stimuli, such as pictures or photographs (Jiang and Vartanian, 2018).

The first authors to measure visuospatial attention to sexual stimuli using a picture version of the DPT were Prause et al. (2008), who focused on the relation between attentional and emotional response to sexual stimuli and participants' sexual desire. Although the authors did not report exact values, their general analysis shows that participants displayed slower reactions to probes in sex target trials than to probes in neutral target trials ( $\eta^2_p = 0.46$ ). Prause and colleagues also found an unexpected negative relationship between attention bias and a broadly defined latent factor of sexual desire: participants with higher levels of sexual desire were slower to detect probes in sex target trials ( $\eta^2_p = 0.16$ ). The effect was rather robust and affected three major domains of sexual desire (desire for autoerotic sexual activity, desire for sexual activity with a partner, and overall propensity for sexual excitation).

A similar pattern of response times was found in a study which compared attention bias for sexual pictures in women with and without hypoactive sexual desire disorder (Brauer et al., 2012). As in the previous study, participants were in general slower at detecting probes in sex target trials compared to neutral target

trials ( $\eta^2_p = 0.045$  for the hypoactive sexual desire disorder group and  $\eta^2_p = 0.079$  for sexually functional group). Given that sexual stimuli are considered highly salient (Spiering and Everaerd, 2007) and as such should attract attention, thus allowing for faster reactions after replacement by a probe, these results are somewhat counterintuitive.

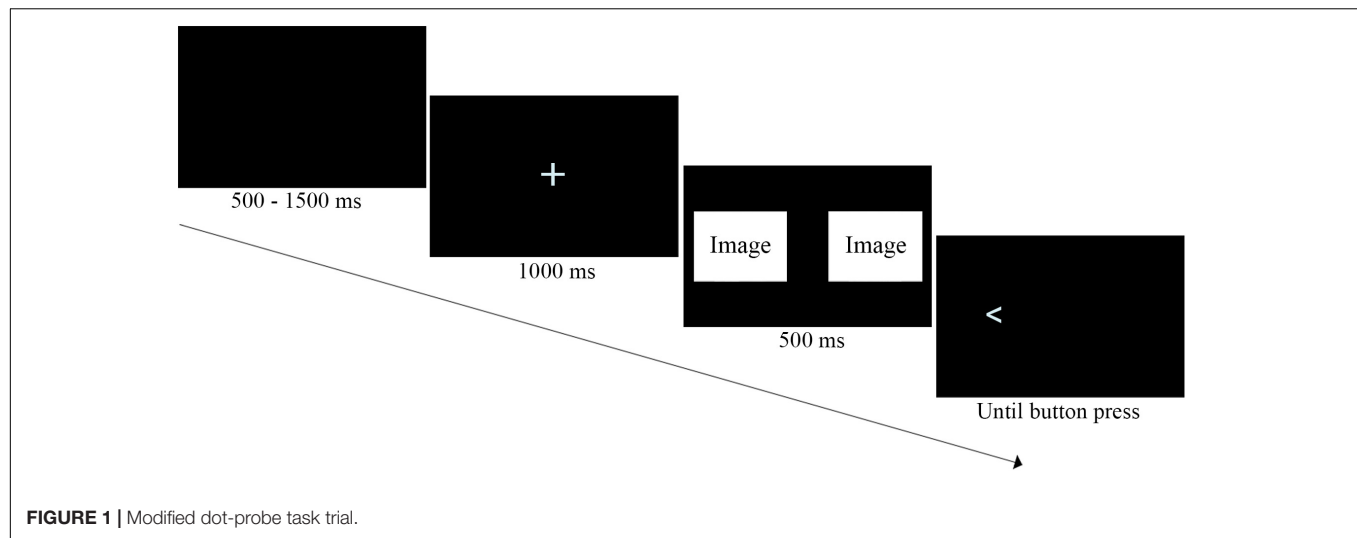
Several later studies used a picture DPT in slightly different contexts. Doornwaard et al. (2014) investigated how short erotic film clips affect the performance of the task. In this study, participants responded faster in sex target trials than in neutral target trials ( $\eta^2_p = 0.07$ ) but viewing of erotic clips had no effect on their performance. Kagerer et al. (2014) published similar results with a slightly smaller effect size ( $\eta^2 = 0.027$ ). Another study compared the attention bias index in individuals with and without compulsive sexual behavior disorder (Mechelmans et al., 2014). Both the clinical group and controls had positive and non-zero attention bias toward explicit sexual stimuli, which manifested itself in faster responses in sex target trials than in neutral target trials. Regrettably, the authors provided no values or effect sizes besides  $p$ -values. Employing the mTurk web platform, Seehuus (2015) compared the effect of different exposition times in the DPT. He found a significant positive attention bias in sex target trials for presentation times of 50, 500, and 1250 milliseconds ( $\eta^2 = 0.129, 0.021$ , and  $0.008$ , respectively). Following up with two experiments, Snowden et al. (2016) focused on gender-specific differences in target stimuli. In the first experiment, rather than pair a sexual picture with a neutral one, they used pictures containing a nude male and a nude female. Their study also employed shorter exposure times (200 ms). The results showed that heterosexual men reacted faster when probe replaced a picture of a female ( $\eta^2 = 0.57$ ), while in heterosexual women, no such difference was found. In their second experiment, they added neutral pictures. In line with the previous experiment, both men and women reacted faster to probes that followed pictures of females in both male–female ( $\eta^2 = 0.172$  and  $0.075$ , respectively) and female–neutral trial ( $\eta^2 = 0.265$  and  $0.075$ , respectively), while in male–neutral trials, there was no difference in reaction times. Visual processing of sexual stimuli tends to be strongly influenced by sex (Dawson and Chivers, 2016) but while the cultural effects of sexual responding are more accentuated in women (Ganesan et al., 2020), men's reactions tend to be consistent. For example, males are strongly motivated by sexual stimuli (Dewitte, 2016), show greater memory bias for erotic elements in stories (Geer and McGlone, 1990), and display a more profound SCID effect (Conaglen and Evans, 2006). But this is the only study that found any difference between men and women in the dot-probe paradigm.

Such mixed evidence may be the result of low reliability of the dot-probe paradigm as such (Schmukle, 2005; Staugaard, 2009). After all, an unreliable tool measures only error variance, thus leading to inconsistent results across studies (Schmukle, 2005). Snowden et al. (2016) suggest that the relatively low reliability of DPT studies could be linked to a relatively small or perhaps even non-existent effect they are trying to detect. Another source of this inconsistency could be publication bias, a phenomenon that is widespread both in cognitive sciences in general (Ioannidis

et al., 2008) and in research on attention to sexual stimuli research in particular (Strahler et al., 2019). Complete absence of non-significant results in published studies seems to support this explanation and in conjunction with high heterogeneity of results in reviewed studies (Strahler et al., 2019), we thus see a clear need of more high-powered studies.

In the light of concerns about DPT's ability to assess early automatic allocation of spatial attention (see, e.g., Cooper and Langton, 2006), it is desirable to employ some kind of validation measure (e.g., Miller and Fillmore, 2010). When searching for an appropriate instrument to validate the DPT results, we considered the following observations made in previous studies: (1) subjects tend to spend more time looking at highly valued pictures, (2) they recognize pictures they looked at longer irrespectively of picture evaluation, and (3) subjects form no memory of pictures viewed only peripherally (Loftus, 1972). Based on the logic of the DPT, MacLeod et al. (1986) suggested that sexual stimulus should capture subject's attention as soon as it appears on the screen and remain its focus until the probe is revealed. If attention bias toward sexual pictures is present, attention should be largely directed at sexual stimuli. And since attention to a stimulus is crucial for a successful creation of memory of it (Bush and Geer, 2001; Pottage and Schaefer, 2012), subjects should be later able to recognize significantly more sexual than neutral pictures. Following this reasoning, we employed in our study a simple picture recognition task (PRT). Previously, such recognition tasks were used with sexual stimuli for assessing SCID (Conaglen and Evans, 2006) or in the context of advertisement research (for a review, see Wirtz et al., 2017). To the best of our knowledge, however, we are the first to use a PRT as an indicator of visuospatial attention to sexual stimuli.

While most of the reviewed studies demonstrated that the presence of sexual pictures had some effect on attention to probes, the magnitude and direction of measured attention bias was highly inconsistent. Some studies reported faster reactions when a probe replaced a sexual picture (Doornwaard et al., 2014; Kagerer et al., 2014; Mechelmans et al., 2014; Seehuus, 2015; Snowden et al., 2016), while others observed slower responses in such cases (Prause et al., 2008; Brauer et al., 2012). We decided to contribute to this body of research with a highly powered study to see whether we can find support for either of the observations. Although only one of the reviewed studies reported sex differences in the visuospatial attention bias, we decided to test for sex differences in our sample to be consistent with the previous literature on sexual responding. In order to explore further the relationship between the visuospatial attention bias and sexual desire, we employ a revised Sociosexual Orientation Inventory (SOI-R; Penke and Asendorpf, 2008). While Prause et al. (2008) measured mainly dyadic sexual desire, SOI-R assesses a more general desire for sexual variability, which might better reflect previous findings when using stimuli that feature more than one sexual target. We use Beck Depressive Inventory (BDI-II; Ptáček et al., 2016) to further characterize the sample (e.g., like Beard and Amir, 2010) and to control for depressive symptoms which could negatively affect sexual desire levels in general (Frohlich and Meston, 2002) and therefore also any attention directed at sexual stimuli.



The aim of the present study is to contribute to our knowledge of the magnitude and direction of the assumed attention bias toward sexual stimuli in a nonclinical population as measured by the DPT. Moreover, we are the first to use the PRT to validate DPT results while controlling for the effects of sex, depressive symptoms, and sociosexuality.

## MATERIALS AND METHODS

### Participants

An *a priori* power analysis was conducted using G\*Power 3.1.9.2 (Faul et al., 2007) to test the difference between two dependent group means using a two-tailed *t*-test, a medium effect size  $d = 0.34$  (effect size estimate for DPT with sexual stimuli given by Strahler et al., 2019), and an alpha of 0.05. The results showed that a sample of 93 participants was required to achieve a power of 0.90.

A total of 119 Czech students were recruited at the Charles University campus. Data from six participants (four women, two men) were excluded from analyses due to high error rate (20% or more during the DPT), leaving 113 participants ( $M_{\text{age}} = 22.00$ ,  $SD_{\text{age}} = 4.47$ , and 60.2% females). This number was substantially higher than the desired sample size. All participants received a remuneration of 100 CZK (app. 4 EUR) for participation. Levels of depressive symptoms in our sample ( $M = 11.848$ ,  $SD = 9.254$ ) were comparable to those of general healthy Czech population under thirty ( $M = 10.73$ ,  $SD = 11.53$ ; Ptáček et al., 2016).

### Measures

The DPT design was initially partially adapted from Prause et al. (2008) but during pilot testing, most participants found it too easy. To increase the difficulty, we employed a modified version of the DPT where participants were asked to respond to probe direction rather than merely its position. Both DPT and PRT were run using E-Prime software package 2.0 (Schneider et al., 2002).

### The Modified Dot-Probe Task

In the DPT, each trial started with an intertrial black screen displayed for 500, 750, 1000, or 1500 milliseconds followed by a fixation cross (1000 ms). Next, laterally randomized sexual and neutral pictures were simultaneously presented on the screen for 500 ms. Then the pictures disappeared and one of them was replaced by a probe in the form of an arrowhead pointing left or right, which stayed on the screen until a participant responded (see Figure 1). Participants were instructed to press quickly the key assigned to probe's direction (Q for arrow pointing left, P for arrow pointing right). Lateral position of the probe, which picture category it replaced, and which direction it indicated were all randomized. The DPT started with 20 training trials and continued with two blocks of 50 experimental trials, whereby each block used identical but randomly paired pictures.

### Picture Recognition Task

The PRT followed the yes/no task paradigm. Participants were presented with a series of 365 pictures, where signal trials contained pictures previously encountered in the DPT (50 sexual, 50 neutral, and 40 training pictures) and noise trials were taken from pictures not selected for any experimental condition in the pilot study (see section "Materials"). There were 255 distractor pictures, which corresponded to 62% of presented stimuli. By pressing assigned keys, participants were instructed to indicate whether they saw the picture previously during the DPT (P for "seen") or not (Q for "not seen"). Participants went through the PRT at their own pace because every picture remained on the screen until a response was recorded.

### Questionnaires

All participants completed a short battery of questionnaires consisting of the Screening Questionnaire for Psychiatric Disorders, BDI-II (Beck et al., 1996), SOI-R (Penke and Asendorpf, 2008), and Emotion Regulation Questionnaire (ERQ; Gross and John, 2003). Back-translated and standardized Czech version of BDI-II (Ptáček et al., 2016) and back-translated

versions of SOI-R and ERQ questionnaires were used. ERQ values were collected for different study and will be reported elsewhere.

## Materials

All pictures used in the study were taken from standardized datasets, namely IAPS (Lang et al., 1997) and NAPS (Marchewka et al., 2014). A total of 365 pictures depicting male–female couples, males, and females were pre-rated by 280 online raters ( $M_{\text{age}} = 28.94$ ,  $SD_{\text{age}} = 6.23$ , 51% females) for the sexual/non-sexual content. Raters viewed a series of 80 pictures in a random order. They were asked to categorize each picture to sexual or non-sexual category (binary choice). For each picture, we obtained on average 48 ratings, from which we computed the percentual rating for sexual category (see **Supplementary Material**). Based on these ratings, we selected 57 sexual (sexual rating ranging from 63.9% to 100% with the mean of 93.11%) and 97 neutral pictures (sexual rating ranging from 0% to 17.6% with the mean of 2.78%). 43 sexual pictures depicted naked heterosexual pairs engaging in sexual activities, while 14 sexual pictures depicted nudity (seven showed a naked man and seven a naked woman). These latter pictures were used in the female and male version of the task, respectively. For each of the 50 sexual pictures, there was a neutral picture matched for content. In other words, these neutral pictures depicted mainly clothed heterosexual pairs, single women, or single men. Another 40 more neutral pictures depicting clothed men (one man per picture) were used for the training phase of the DPT. The rest of the 365 original pictures was used as distractors for the PRT (sexual rating ranging from 0 to 93.5% with a mean of 30.15%; see **Supplementary Material**).

## Procedure

Students were addressed by an assistant at the university campus and offered participation in the study. Upon agreeing to participate, they received further information to read, their eventual questions were answered, and all participants signed the informed consent form. At the outset, each participant completed the Screening Questionnaire, BDI-II, SOI-R, and ERQ. Next, each participant was seated in front of a personal computer and the DPT and PRT were administered. Finally, each participant was debriefed and before leaving received remuneration. The entire procedure took app. 30 min.

## Data Analysis

Data analyses were performed using R (R Core Team, 2019) and JASP (JASP Team, 2019). DPT reaction times (RT) were trimmed by incorrect responses (0.67% of all data) and values 4  $SD$  above and below group mean (2.65% of all data). Descriptive statistics are presented in **Table 1**. Due to technical issues, data were lost from 8 participants for BDI-II and 11 participants for SOI-R.

Attention bias index was computed for each participant by subtracting the mean reaction time in sex target trials from the mean reaction time in neutral target trials. Positive values indicate vigilance to sexual pictures, negative values indicate avoidance of sexual pictures.

Because of normality violations assessed by Shapiro–Wilk test ( $p < 0.001$ ), we calculated differences in reaction times between neutral target trials and sexual target trial using two-tailed Wilcoxon signed-rank tests. Two-tailed Mann–Whitney  $U$  test was used to calculate the differences in attention bias index between men and women. Because of concerns regarding low reliability of the dot-probe paradigm (Schmukle, 2005; Staagaard, 2009), split-half reliability estimates were calculated by correlating the first half of the trials with the second half.

The relationship between attention bias index and sum scores of the questionnaires was tested using Spearman's rank correlation coefficient.

The PRT was evaluated using signal detection theory. We also calculated hit rates for each picture category (sexual, neutral, and training) and false alarm rates. Sensitivity index ( $d'$ ) and response bias index ( $c$ ) were calculated for sexual, neutral, and training conditions for each participant (Stanislaw and Todorov, 1999). The false alarm rates were low ( $M = 12.2\%$ ,  $SD = 12.2\%$ ). Mixed ANOVA was performed for hit rates, sensitivity index  $d'$ , and response bias index  $c$  with one within-subject factor (Category: sexual, neutral, and training) and one between-subject factor (Sex: men, women).

For all tests, we set the alpha level of statistical significance 0.05 and calculated effect sizes and confidence intervals. Datasets of the study are available at OSF website<sup>1</sup>.

## Ethics Statement

Participants were informed about the entire procedure and signed an informed consent form. They were advised of the fact that the tasks would feature some explicit sexual material. All experimental procedures were in accordance with the Helsinki

<sup>1</sup><https://osf.io/ba5w4/>

**TABLE 1 |** Dot-probe task: Mean RT (ms), median, and  $SD$ .

	All ( $N = 113$ )			Men ( $n = 45$ )			Women ( $n = 68$ )		
	Mean	Median	$SD$	Mean	Median	$SD$	Mean	Median	$SD$
All trials	628.242	613.950	128.926	601.969	603.768	106.153	645.629	621.594	140.056
Sex target	624.914	611.059	131.810	597.889	608.260	104.692	642.799	612.551	145.016
Neutral target	631.654	615.408	127.603	606.063	597.306	109.213	648.590	636.190	136.582
AB	3.370	2.495	14.607	4.087	2.495	13.169	2.895	2.340	15.563

AB, Attention bias index.



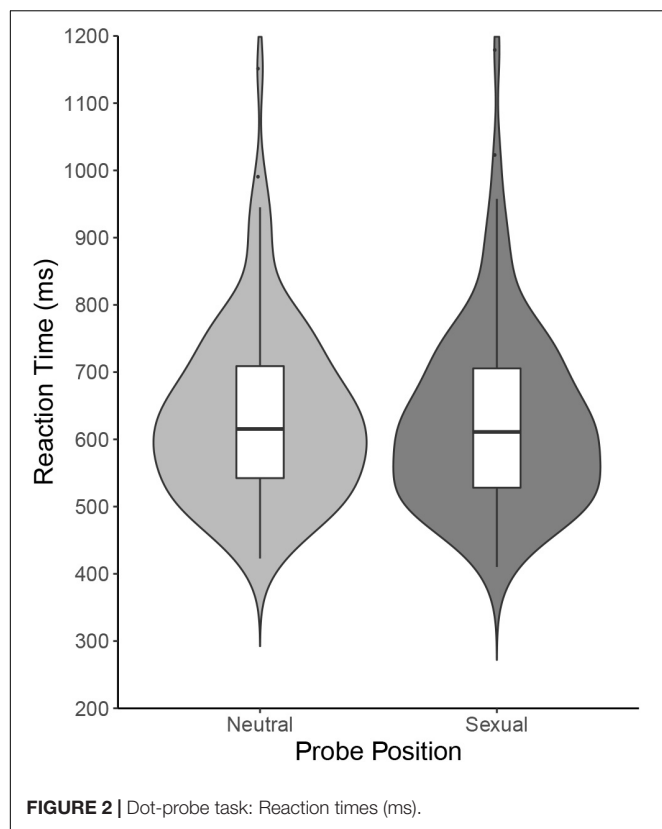


FIGURE 2 | Dot-probe task: Reaction times (ms).

Declaration and the study was approved by the Ethics committee of the National Institute of Mental Health, Klecany (No 47/16).

## RESULTS

### Modified Dot-Probe Task

Wilcoxon's signed-rank test showed that the difference in response times between sex target trials ( $Mdn = 611.06$  ms) and neutral target trials ( $Mdn = 615.41$  ms) was not statistically significant ( $W = 3868$ ,  $p = 0.064$ , *Hodges-Lehmann estimate of  $Mdn$  difference* = 4.520 ms, 95% *CI* [-0.247; 9.836], matched rank biserial correlation  $r_B = 0.201$ , and 95% *CI* [-0.009; 0.394]). Further, Mann-Whitney  $U$  test showed that the difference in attention bias index between men ( $Mdn = 2.495$  ms) and women ( $Mdn = 2.340$  ms) was not statistically significant either ( $W = 1448$ ,  $p = 0.633$ , *Hodges-Lehmann estimate of  $Mdn$  difference* = -1.083 ms, and 95% *CI* [-6.113; 3.659], matched rank biserial correlation  $r_B = -0.054$ , and 95% *CI* [-0.266; 0.163]). See **Figure 2** for illustration and **Table 1** for a summary.

All reliability estimates were well above 0.80 (see **Table 2**) and statistically significant (all  $p < 0.001$ ).

### Picture Recognition Task

Mauchly's test indicated that the assumption of sphericity for the ANOVA was violated in the analysis of hit rates [ $\chi^2(2) = 0.551$ ,  $p < 0.001$ ], which is why degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = 0.696$ ).

TABLE 2 | Dot-probe task: Split-half reliability estimates.

	Split half $r$	CI 95%	$\rho_{SP}$	$p$
All trials	0.894	[0.849; 0.926]	0.944	<0.001
Sex target	0.881	[0.831; 0.917]	0.937	<0.001
Neutral target	0.881	[0.831; 0.917]	0.937	<0.001

$\rho_{SP}$  = split-half reliability coefficient predicted by Spearman-Brown formula.

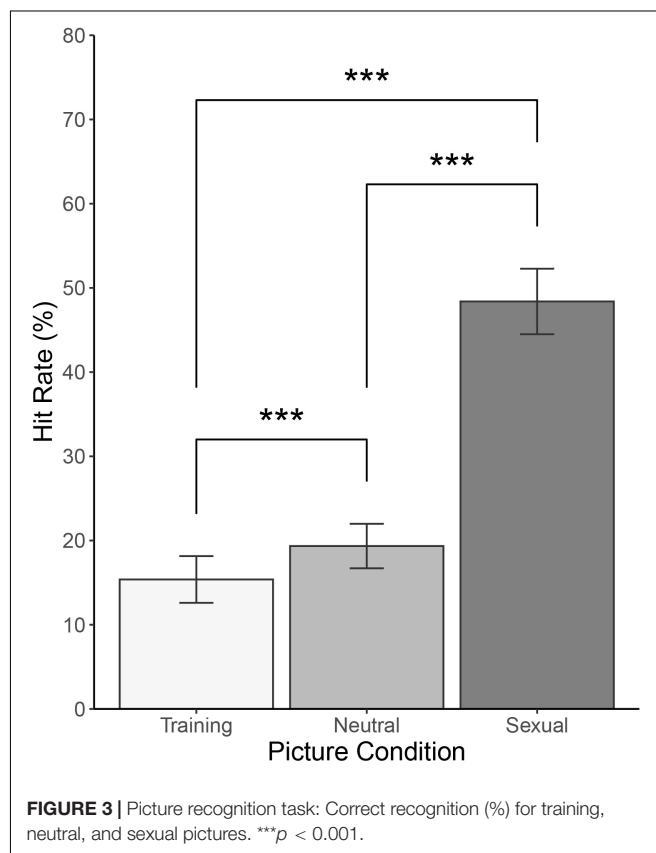


FIGURE 3 | Picture recognition task: Correct recognition (%) for training, neutral, and sexual pictures. \*\*\* $p < 0.001$ .

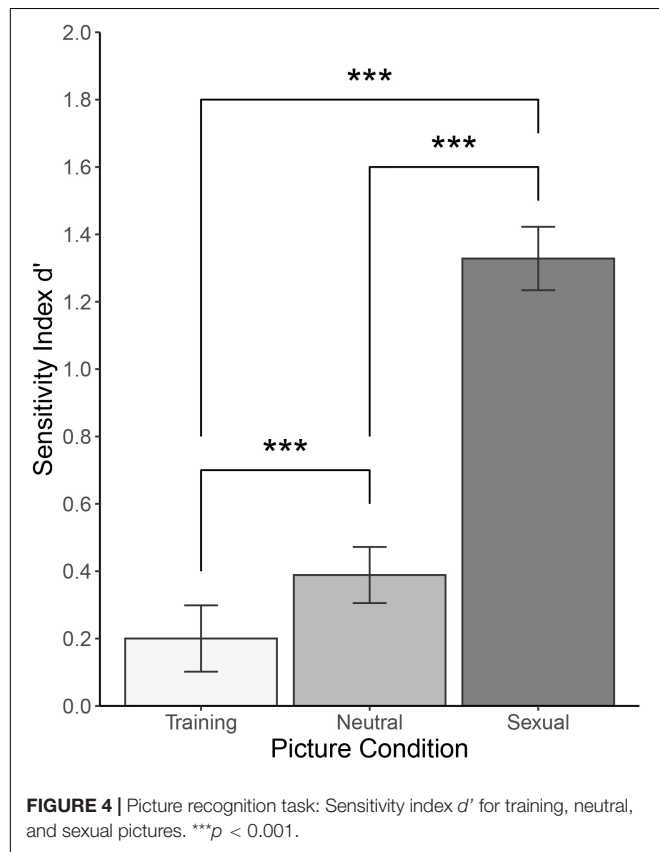
There was a main effect of Category [ $F(1.380, 153.222) = 213$ ,  $p < 0.001$ , and  $\omega^2 = 0.427$ ]. *Post hoc* tests using Bonferroni correction revealed that sexual pictures' hit rate ( $M = 48.4\%$ ,  $SD = 21.1$ ) was greater than neutral pictures' hit rate ( $M = 19.3\%$ ,  $SD = 14.3$ ,  $d = 1.461$ , 95% *CI* [1.193; 1.724], and  $p < 0.001$ ), sexual pictures' hit rate was greater than training pictures' hit rate ( $M = 15.4\%$ ,  $SD = 15.0$ ,  $d = 1.445$ , 95% *CI* [1.180; 1.708], and  $p < 0.001$ ), and neutral pictures' hit rate was greater than training pictures' hit rate ( $d = 0.353$ , 95% *CI* [0.162; 0.542], and  $p < 0.001$ ). There was no statistically significant main effect of Sex [ $F(1, 111) = 0.521$ ,  $\omega^2 = 0$ , and  $p = 0.472$ ] or interaction between the two factors [ $F(1.380, 153.222) = 2.335$ ,  $\omega^2 = 0.005$ , and  $p = 0.118$ ]. See **Figure 3** for illustration and **Table 3** for a summary.

Mauchly's test indicated that the assumption of sphericity for the ANOVA was violated in analyses of  $d'$  and  $c$  [ $\chi^2(2) = 0.731$ ,  $p < 0.001$ ], which is why degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ( $\epsilon = 0.788$ ).

For sensitivity index  $d'$ , there was a main effect of Category [ $F(1.576, 174.911) = 208$ ,  $p < 0.001$ , and  $\omega^2 = 0.494$ ]. *Post hoc* tests

**TABLE 3 |** Picture recognition task: Mean accuracy scores (%), median, and SD.

	All ( <i>N</i> = 113)			Men ( <i>n</i> = 45)			Women ( <i>n</i> = 68)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Sexual	48.389	48.0	21.091	49.867	50.0	21.786	47.412	45.0	20.724
Neutral	19.345	16.0	14.326	16.356	14.0	13.405	21.324	18.0	16.667
Training	15.376	10.0	15.049	13.556	10.0	14.157	16.581	12.5	15.597



using Bonferroni correction revealed that participants showed greater sensitivity to sexual pictures ( $M = 1.328$ ,  $SD = 0.511$ ) than to neutral pictures ( $M = 0.389$ ,  $SD = 0.452$ ,  $d = 1.510$ , 95%  $CI$  [1.239; 1.779], and  $p < 0.001$ ), greater sensitivity to sexual pictures than to training pictures ( $M = 0.200$ ,  $SD = 0.534$ ,  $d = 1.480$ , 95%  $CI$  [1.211; 1.746], and  $p < 0.001$ ), and greater sensitivity to neutral pictures than to training pictures ( $d = 0.386$ , 95%  $CI$  [0.194; 0.576], and  $p < 0.001$ ). There was no statistically significant main effect of Sex [ $F(1, 111) = 0.070$ ,  $\omega^2 = 0$ , and  $p = 0.792$ ] or interaction between the two factors [ $F(1.576, 174.911) = 3.305$ ,  $\omega^2 = 0.011$ , and  $p > 0.050$ ]. See **Figure 4** for illustration and **Table 4** for a summary.

For response bias index  $c$ , there was a main effect of Category [ $F(1.576, 174.911) = 208$ ,  $p < 0.001$ , and  $\omega^2 = 0.160$ ]. *Post hoc* tests using Bonferroni correction revealed that participants showed smaller response bias toward sexual pictures ( $M = 0.706$ ,  $SD = 0.552$ ) than toward neutral pictures ( $M = 1.175$ ,  $SD = 0.560$ ,  $d = 1.510$ , 95%  $CI$  [1.239; 1.779], and  $p < 0.001$ ), smaller response

bias toward sexual than toward training pictures ( $M = 1.270$ ,  $SD = 0.576$ ,  $d = 1.480$ , 95%  $CI$  [1.211; 1.746], and  $p < 0.001$ ), and smaller response bias toward neutral than toward training pictures ( $d = 0.386$ , 95%  $CI$  [0.194; 0.576], and  $p < 0.001$ ). There was no statistically significant main effect of Sex [ $F(1, 111) = 0.026$ ,  $\omega^2 = 0$ , and  $p = 0.872$ ] or interaction between the two factors [ $F(1.576, 174.911) = 3.305$ ,  $\omega^2 = 0.002$ , and  $p > 0.050$ ]. See **Figure 5** for illustration and **Table 5** for a summary.

## Attention Bias and Questionnaires

We found positive and statistically significant correlations between attention bias index and the SOI-R Attitude subscale [ $r_s(100) = 0.274$ , 95%  $CI$  [0.084; 0.445], and  $p = 0.005$ ] and between attention bias index and SOI-R Desire subscale (Desire subscale:  $r_s(100) = 0.232$ , 95%  $CI$  [0.040; 0.407], and  $p = 0.019$ ). There was no statistically significant correlation between attention bias index and either the SOI-R Behavior subscale ( $r_s(100) = 0.147$ , 95%  $CI$  [-0.048; 0.331], and  $p = 0.139$ ) or BDI-II sum score ( $r_s(103) = 0.078$ , 95%  $CI$  [-0.116; 0.266],  $p = 0.430$ ). See **Table 6** for descriptive statistics.

## DISCUSSION

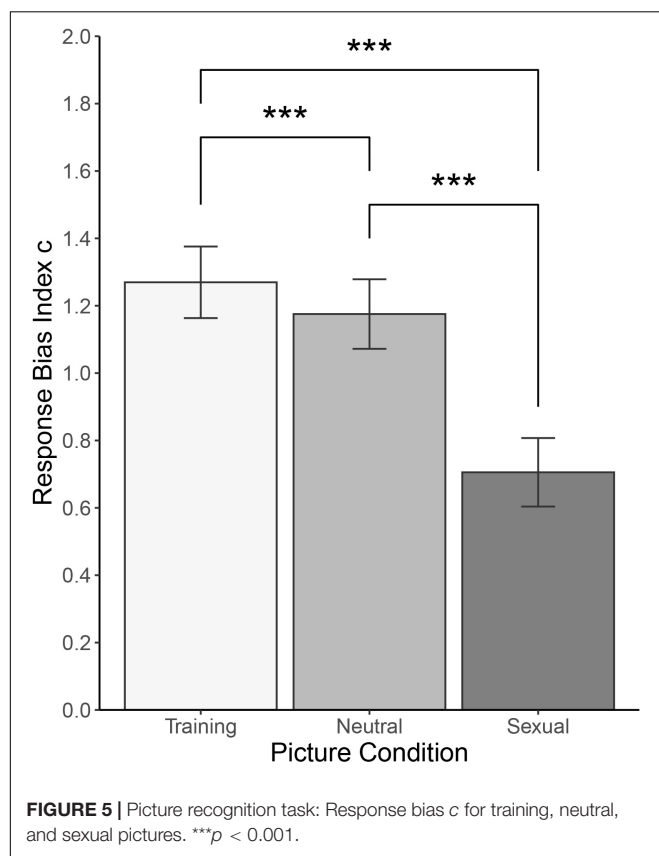
The aim of present study was to find further support for visuospatial attention bias toward sexual stimuli in a nonclinical population as measured by the DPT, to validate its results using the PRT, and to check for sex differences while controlling for depressive symptoms and sociosexuality.

Contrary to all previous research which worked with the dot-probe paradigm for sexual pictures, our main findings show no evidence of bias in favor of sexual pictures in our data. We found a very small difference of 4.520 ms in reaction times between sex target and neutral target trials. Such difference is simply not large enough to reach either statistical or practical significance.

What we did find, however, was a large difference in hit rates for all experimental categories of pictures presented in the PRT. In memory research, exposure time is directly linked to recognition performance (Martini and Maljkovic, 2009). If the DPT works as intended, and if there is an effect to be found, participants should attend mostly to sexual pictures and therefore recognize significantly more pictures from this category. It turned out that participants were indeed most successful in recognizing sexual pictures, achieving a hit rate of almost 50%. One might be tempted to explain this as random responding but in the light of markedly lower hit rates for neutral and training pictures, it is probably not the case. Moreover, because neutral pictures were presented to each participant twice

**TABLE 4 |** Picture recognition task: Mean sensitivity index  $d'$ , median, and  $SD$ .

	All ( $N = 113$ )			Men ( $n = 45$ )			Women ( $n = 68$ )		
	Mean	Median	$SD$	Mean	Median	$SD$	Mean	Median	$SD$
All trials	0.759	0.731	0.358	0.754	0.774	0.408	0.763	0.727	0.324
Sexual	1.328	1.378	0.511	1.402	1.401	0.564	1.279	1.345	0.470
Neutral	0.389	0.429	0.452	0.278	0.317	0.430	0.462	0.455	0.454
Training	0.200	0.265	0.534	0.206	0.311	0.511	0.197	0.225	0.552



(once in each block), while training pictures were presented only once, one could expect better recognition memory for neutral pictures. Our results showed that neutral pictures were successfully recognized at just below 20% rate and training pictures at 15% rate, which lends further support to the dot-probe paradigm working as intended.

**TABLE 5 |** Picture recognition task: Mean response bias index  $c$ , median, and  $SD$ .

	All ( $N = 113$ )			Men ( $n = 45$ )			Women ( $n = 68$ )		
	Mean	Median	$SD$	Mean	Median	$SD$	Mean	Median	$SD$
All trials	0.990	1.048	0.500	0.997	1.045	0.565	0.985	1.054	0.456
Sexual	0.706	0.765	0.552	0.673	0.683	0.627	0.727	0.798	0.499
Neutral	1.175	1.221	0.560	1.235	1.250	0.631	1.136	1.175	0.508
Training	1.270	1.332	0.576	1.272	1.340	0.646	1.268	1.289	0.530

The PRT design did, however, have one limitation that prevents us from making stronger claims based on its results: due to the procedure of stimuli selection for the DPT, there were no clear sexual and non-sexual distractors but rather just a range of more or less easily categorized pictures. This might have affected participants' response patterns (enabling, for example, a strategy of rating most pictures with sexual content as "seen" in the PRT). For assessing this potential bias, we computed sensitivity index  $d'$  and response bias index  $c$ .

Sensitivity in the context of signal detection theory shows a degree of overlap between signal and noise distributions. The larger the index, the larger the participants' ability to distinguish signal from noise. Once again, though, we found the same pattern as with the hit rates. By far the largest  $d'$  was found for sexual pictures, much lower value for neutral pictures, and even lower for training pictures. Such results suggest that sexual pictures were indeed more easily remembered and distinguished from distractor pictures.

Response bias is a general tendency in responding and can reveal potential problematic response patterns. Negative values signify a bias toward a yes response ("seen"), while positive values signify bias toward the no response ("not seen"). Our results showed a relatively strong bias toward the no response with the weakest bias for sexual pictures, stronger for neutral pictures, and strongest for the training pictures. While there is no bias toward generally positive

**TABLE 6 |** Questionnaires: Mean, median, and  $SD$ .

	Mean	Median	$SD$
SOI	36.216	35.0	14.635
Attitude	16.382	16.5	7.035
Desire	11.621	11.0	5.829
Behavior	8.214	7.0	5.618
BDI	11.848	9.0	9.254



responses, this suggests that participants felt more certain about marking a sexual (rather than neutral or training) picture as “seen,” possibly because they recognized those pictures more frequently. The recognition task thus represents a strong, albeit indirect, confirmation of the assumption which the DPT use is based on, namely that sexual pictures indeed attract spatial attention.

It is but natural that one should ask why the present study detected no attention bias toward sexual pictures in the DPT while finding the evidence for memory bias in PRT. There are several possible explanations:

- 1) *Our results may reflect specific variations in the methodology.* The 500 ms presentation time may have given participants enough time to freely shift attention before the probe appeared (Cooper and Langton, 2006; Jiang and Vartanian, 2018), stimuli may have been too weak to capture attention, or they may have been too complex (Miller and Fillmore, 2010), or perhaps the more demanding probe-identifying task diverted participants' attention. The main problem with all these explanations is that if small methodology changes weakened the effect as significantly as our results seem to suggest, the effect itself may not be as universal and robust as theorized.
- 2) *The study may have insufficient power to reliably find the effect.* If that were the case, then given that with sample size of 113 the study had a 90% probability of finding the reported effect had it been of size of at least 0.34, the real effect would have to be much smaller, possibly on the lower bound of reported confidence interval (Strahler et al., 2019).
- 3) Our findings may be a not so rare case of false negative results.
- 4) *The dot-probe task may be a poor measurement instrument.* Although we found our results robust and reliable, as indicated by the split-half reliability estimate, the DPT measure as such has been criticized for extremely weak reliability (Schmukle, 2005; Staugaard, 2009). It has also been claimed that the DPT cannot effectively distinguish between attention bias and the SCID and that it struggles with producing reliable findings in other research areas as well (see Kruijt et al., 2019; Strahler et al., 2019). This explanation is partially supported by our PRT results which do suggest attention bias for sexual pictures.
- 5) *The most obvious explanation is that there is no visuospatial attention bias toward sexual pictures,* at least not in a form that can be measured by the DPT, or that the bias is exceedingly small and easily drowned in a measurement error. Even the evidence from the PRT is somewhat mixed. Sexual stimuli seem to be prioritized in memory, as shown by high free recall rates (Bush and Geer, 2001; Pottage and Schaefer, 2012; Bradley et al., 2017), and a similar effect may well apply to recognition of sexual pictures. In the context of our study, the 48.4% hit rate could be the result of participants attending to sexual stimuli only 50% of the time but having a strong memory bias for them. But to the best of our knowledge, this area has

not been explored yet. Other kinds of evidence in favor of existence of attention bias toward sexual images are not quite convincing either. Eye-tracking studies which show early attentional orientation toward sexual pictures (Lykins et al., 2006; Fromberger et al., 2012) were seriously underpowered. The constantly increasing use of erotica in advertisement (Reichert et al., 1999; Reichert and Carpenter, 2003) may be explained by other properties of sexual stimuli, namely its arousing nature and its effect on memory, mentioned just above. To date, there is no convincing evidence for visuospatial attention capture by sexual stimuli (Imhoff et al., 2019; Strahler et al., 2019).

Our sample did not differ in depressive symptoms from normal population, which is why it is most unlikely that depressive symptomatology had any effect whatsoever on the attention bias we measured. On the other hand, we found a weak but significant correlation between attention bias, SOI-R Attitude subscale, and the SOI-R Desire subscale. Higher ratings of openness to uncommitted sex and higher sociosexual desire were linked to a faster identification of probes in sex target trials. These results are clearly divergent from Prause et al. (2008) finding of a negative relationship between attention bias and sexual desire. Even so, confidence intervals indicate that the real effect may be extremely small. We see this inconsistency with previous research as yet another sign of poor reliability of the dot-probe paradigm.

Research on attention bias to emotional stimuli in general and to sexual stimuli in particular has clear theoretical and clinical implications. General (cognitive and visuospatial) attention bias is an important part of theories on sexual cognitive processing (Barlow, 1986; Bailey et al., 1994; de Jong, 2009). Failure to find such biases would indicate a need to revise these theories. But even aside from that, if we were able to establish the general magnitude and direction of visuospatial bias and validate a simple tool to measure, it would help us disentangle and better understand the functioning of attention processing for sexual stimuli. It would also help clinical practice. For example, greater attention bias toward sexual stimuli might signal problems in controlling urges and thus indicate being at risk for impulsive sexual behavior, while lack of attention to sexual stimuli might be linked to low sexual arousability and some sexual disorders (Strahler et al., 2019).

## CONCLUSION

The present study employed a modified dot-probe task to measure visuospatial attention bias toward sexual pictures in a nonclinical population. Additionally, we used a simple PRT to assess DPT validity. Although the findings of the PRT did suggest increased attention toward sexual pictures, DPT results showed no effect whatsoever. Moreover, we found no differences between men and women. We discussed several implications and possible explanations of our null result. In conclusion, both our findings and the literature we reviewed suggest that attention bias toward sexual pictures is either rather small, that it does not exist in the

theorized form, or that the dot-probe paradigm is not a reliable tool to assess it.

## DATA AVAILABILITY STATEMENT

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: <https://osf.io/3fdtn/>.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the ethics committee of the National Institute of Mental Health, Klecany (No 47/16). The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

ON: conceptualization, data curation, formal analysis, investigation, methodology, project administration, software, visualization, and writing – original draft preparation. KB: conceptualization, funding acquisition, investigation, resources, validation, visualization, and writing – review and editing. VV: investigation and resources. KK: conceptualization, funding

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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# The Coming-Out Process in Family, Social, and Religious Contexts Among Young, Middle, and Older Italian LGBTQ+ Adults

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The coming out (CO) process is fundamental for identity integration among LGBTQ+ people, and its impact can vary greatly depending on personal and contextual factors. The historical, cultural, and social contexts in which LGBTQ+ people develop their sexual identity can mediate the relationship between CO and health outcomes. The present study aimed at clarifying the CO process in three generations of Italian LGBTQ+ people (young adults: aged 20–40 years; middle adults: aged 41–60 years; older adults: aged 61–80 years) by providing data on: (a) sexual orientation milestones, such as age of first awareness, age of first self-label, and age of first CO, as well as the rate of disclosure during different life stages; (b) the rate and average age of CO to significant others; and (c) CO within the religious context and its effect on participants' minority stress experiences. A total of 266 Italian LGBTQ+ people participated in the study, with ages ranging from 20 to 80 years ( $M = 41.15$ ,  $SD = 16.13$ ). Findings indicated that, on average, the older adult group became self-aware, self-labeled, and disclosed their sexual identity at a significantly older age than the other groups. Older adults were also more Catholic and had CO more frequently to their Catholic community, relative to young and middle adults. CO within the Catholic context was associated with distal and proximal minority stressors, such as discrimination, vigilance, and internalized sexual stigma. Catholic community reactions to participants' CO were distinguished through thematic analysis in three main types: unconditional acceptance, invitation to change, and open rejection. The present research extended current knowledge on CO and minority stress experiences in different generations of LGBTQ+ people. Several differences emerged between generational groups on sexual orientation milestones, highlighting the potential impact of historical and cultural contexts in determining sexual minorities' experiences related to sexual identity. It is recommended that mental health professionals working with LGBTQ+ clients implement targeted interventions based on their clients' multiple salient aspects, including age and religious background. Clinicians should also be aware of the potentially detrimental effects of CO within an unsupportive context, rather than encouraging CO *tout court*.

**Keywords:** LGBTQ+, generations, coming out, religion, Catholic, minority stress



## INTRODUCTION

Lesbian, gay, bisexual, queer, and other non-heterosexual (LGBQ+) people are consistently exposed to cis-heteronormative and cis-heterosexist pressures to fit heterosexual and binary gender roles. Cis-heteronormativity and cis-heterosexism are interrelated terms, the first referring to the assumption that all people are heterosexual and their gender identity matches with their birth-assigned sex (cis-gender), the latter indicating a shared beliefs system according to which heterosexual/cisgender people are considered more natural, real, and authentic than non-heterosexual/trans people (Serano, 2007). Consequently, trans/non-heterosexual people must come out to be recognized and become visible, while cisgender and heterosexual people do not have to define who they are because it is assumed that their identity and relationship experience is the norm. For these pressures and beliefs system, coming out (CO) – the act of disclosing one's sexual orientation or gender identity to others – appears as one of the most stressful and pivotal experiences faced by LGBQ+ people (Cass, 1979). The visibility that results from the CO process may generate both benefits and costs, by protecting against or intensifying the effect of minority stressors. Although recent legal, cultural, and social changes in Western societies have generally improved the quality of sexual minorities' identity development, only few studies have explored generational differences and similarities in the CO process (Jenkins Morales et al., 2014; Bishop et al., 2020). A relevant dimension needing further investigation in the literature is CO in the religious contexts, comparing the experiences of young, middle, and older LGBQ+ adults (Vaccaro, 2009). However, it is reasonable to assume that religiosity could affect the CO process in a positive, negative, or neutral way, depending on the individual's age since older adults are generally more involved in religious activities compared to young adults (Chatters and Taylor, 1989). Age and religiosity may interact with the CO process at least at two main levels: (1) LGBQ+ older adults are more likely (currently and in the past) to be part of religious contexts and, therefore, they may feel a greater need to come out in such contexts than their younger counterparts; (2) the majority of LGBQ+ older adults started the CO process inside the religious contexts some years ago in a period in which Church and the whole society were more negative regarding sexual and gender minorities: In such hostile environments, LGBQ+ older were more likely to receive negative reactions to CO process than the new generations of LGBQ+ people (Dahl and Galliher, 2012).

Meyer (2003) conceptualized the sources of stress experienced by LGBQ+ people as *minority stressors*, as such stressors are linked to stigmatized social categories. The impact of minority stress can vary greatly, depending on other social categories that constitute identity, such as ethnicity, religion, gender, class, and age (Frost et al., 2019). Including both distal and proximal processes, minority stressors can be categorized into the following groups: (a) discrimination and/or harassment, experienced through external and objective events (Rollè et al., 2018); (b) vigilance, caused by an expectation of negative events; and (c) internalized sexual stigma (ISS), consisting of the

internalization of negative attitudes and beliefs toward the self due to one's LGBQ+ identity.

LGBQ+ aging people are generally considered as a particularly at-risk subgroup among the overall LGBQ+ population (Rosenfeld, 1999; Shankle et al., 2003; Dentato et al., 2014; Rosati et al., 2018, 2020). Their vulnerability can be explained considering the intersection of cis-heterosexism, the particularly hostile historical context in which they grew up, and ageism, that refers to the set of negative attitudes toward aging, including individual and institutional practices that perpetuate stereotypes, prejudice, and discriminatory practices toward older people (Butler, 1969). However, the few studies that have empirically compared different generations of LGBQ+ people have found higher levels of wellbeing and lower levels of minority stressors (e.g., harassment, rejection, and ISS) in LGBQ+ older adults, compared to younger adults (Cortes et al., 2019; Wickham et al., 2019). Vaccaro (2009) found more similarities than differences when comparing three generations of sexual minorities regarding the CO process, family reactions to CO, activism, and discrimination. In a study interested in examining parental responses to CO in three cohorts of LGBQ+ people, emerged that the youngest cohort was more likely to experience validating responses, however, invalidating responses were frequent across all cohorts without differences (van Bergen et al., 2020). Furthermore, in comparing two generations of LGBQ+ adults, Jenkins Morales et al. (2014) found that the younger group presented a worse perception of legal and healthcare access, less community involvement, and higher rates of verbal harassment compared to the older group. The authors explained these findings as the consequence of younger adults' higher disclosure of sexual identity—a sign of identity affirmation, but also a factor known to increase the risk of stigma and victimization.

Indeed, although the CO process is fundamental for LGBQ+ people's identity integration (Cass, 1979; LaSala, 2000), the act of disclosing one's sexual identity to others can be an important source of stress. Postmodern and feminist theories have questioned the essentialist concept of CO as a linear path involving universal or prescribed stages and described sexual identity development as shaped by historical era and social context (Rust, 1993; Broido, 2000). From this perspective, CO is not conceptualized as a single event, but rather as a non-linear path involving different relationships and contexts which strongly influence the quality of the experience (Gusmano, 2008). Perhaps for this reason, the findings of studies investigating the effect of CO on wellbeing have been quite controversial. On the one hand, CO has been recognized as fundamental for improving self-esteem, life satisfaction, and the quality of relationships (Savin-Williams, 1989; Monroe, 2001; Rosario et al., 2001; Heatherington and Lavner, 2008); on the other hand, greater visibility following disclosure has been found to be associated with higher victimization (D'Augelli and Grossman, 2001). Similarly, while some studies have identified the concealment of one's sexual identity as a dysfunctional coping strategy for both physical (Cole et al., 1996) and mental health outcomes (Morris et al., 2001), others have found a lack of influence (Fredriksen-Goldsen et al., 2013)—or even a protective role (Cole, 2006)—of concealment on health indicators.

Several studies have revealed the importance of social and contextual variables in determining the relationship between CO and wellbeing, highlighting the harmful impact of the negative reactions of significant persons, such as parents (D'Augelli et al., 1998; Willoughby et al., 2006; Baiocco et al., 2015; Baiocco and Pistella, 2019), siblings (Pistella et al., 2020a), and close friends (Ryan et al., 2015). Legate et al. (2012) showed that CO was associated with more positive wellbeing when it occurred in supportive contexts, whereas this association was not present in controlling contexts—such as religious ones. Although religion is generally associated with positive psychosocial outcomes (Cotton et al., 2006), sexual minority people may feel (or be) rejected by their religious community, or stop practicing a religion altogether, due to a perceived conflict with their sexual minority status. Through a qualitative investigation, Dahl and Galliher (2012) found that CO in religious environments could lead to both positive and negative outcomes, with the latter including feelings of inadequacy, religious-related guilt, depressive symptoms, and social strain. Additionally, high family religiosity has been found to be strongly associated with parents' rejection of LGBQ+ children (Baiocco et al., 2015; Snapp et al., 2015; Heiden-Rootes et al., 2019, 2020).

The role of religion in sexual minorities' wellbeing is still not clear, with studies reporting it as a positive resource in the lives of many LGBQ+ individuals (Rosenkrantz et al., 2016), while others indicating it as a risk factor for experiencing ISS (Lingiardi et al., 2012; Severson et al., 2014; Sowe et al., 2014; Nardelli et al., 2020). This lack of coherence in literature may depend on the fact that not all religious contexts are stigmatizing (Coley, 2017), and that some LGBQ+ people succeeded in reconciling their faith with their sexual identity (Beagan and Hattie, 2015). In Italy, where the present research was conducted, the most practiced religion is Catholicism, and there is a lack of openly inclusive LGBQ+ contexts. This could be due to the fact that the Italian Catholic Church – as Italian culture in general – is strongly based on traditional values (e.g., clear division of gender roles) and conservative religious beliefs, thus representing a potentially dangerous environment for Italian sexual minorities. In fact, LGBQ+ people who belong to non-affirming religious communities (Barnes and Meyer, 2012) or who use negative religious coping (Brewster et al., 2016) are highly at risk of experiencing ISS. With regard to the other minority stressors, to our knowledge, no prior study has investigated the expectation of negative events (i.e., vigilance) among LGBQ+ persons who belong to a religious community, and only a few studies have considered experiences of discrimination from one's religious community; these studies have found such discrimination to relate to higher ISS and greater religious struggle, which, in turn, were associated with poorer wellbeing (Szymanski and Carretta, 2020).

## Present Study

In Italy, cis-heterosexism and cis-heteronormativity is pervasive at an institutional level, and LGBQ+ people face stigma and prejudice in several contexts (Baiocco and Pistella, 2019; Rollè et al., 2020). Previous research has identified the family, school, and healthcare arenas as potentially negative environments for

Italian sexual minorities (Baiocco et al., 2015, 2020; Rosati et al., 2020), and other research has highlighted the relationship between ISS and CO (Baiocco et al., 2016; Pistella et al., 2020b). As mentioned above, another environment potentially causing minority stress for Italian sexual minorities is represented by the Catholic Church: a recent study (Garelli, 2013) estimated that approximately 80% of Italian citizens identify as Catholic, thus for sure including also a share of the Italian LGBQ+ population. For instance, some Italian LGBQ+ people are members of LGBQ+ Catholic associations, whose aim is precisely to tackle stigma against sexual minorities in a Catholic environment and to support the reconciliation of faith and sexual identity.

In order to gain insight into the CO experiences of three generations of Italian LGBQ+ people (young adults: aged 20–40 years; middle adults: aged 41–60 years; older adults: aged 61–80 years), the present study aimed at: (a) providing descriptive data on sexual orientation milestones, such as the age of first awareness, self-labeling, and CO, and the rate of disclosure at different life stages; (b) providing descriptive data on meaningful features of CO, such as the rate and average age of first disclosure to family members, friends, coworkers, neighbors, and family doctors; and (c) examining the CO process within the religious context and its effect on participants' experiences of minority stress. A further aim of the study was to explore the quality of the reactions that LGBQ+ people received from their religious community in response to their CO.

## MATERIALS AND METHODS

### Procedures and Participants

Recruitment occurred through purposive and snowball sampling, beginning with the first author's personal contacts. Flyers were also posted on social media and within LGBTQ+ centers/meeting places. Inclusion criteria were: (a) having lived in Italy for at least 20 years; (b) self-identified as LGBQ+; and (c) aged 20–80 years. Before data collection began, the research protocol was approved by the Ethics Commission of the Department of Developmental and Social Psychology, Sapienza University of Rome. The survey was then uploaded online. Participants first gave their consent to the research before accessing the rest of the questionnaire, which took them, on average, 30 min to complete. From the original sample ( $n = 291$ ), 11 participants were excluded because they self-identified as heterosexual. Again, for the purpose of this study, we did not consider 14 participants whose stated religion was non-Catholic (3% Buddhist, 6% Rastafarian, 3% Pagan, 1% Jewish, and 2% Waldensian), due to the small number of participants per religion and the religions' differing conceptions of LGBQ+ issues.

The final sample was comprised of 266 Italian LGBQ+ people, aged 20–80 years ( $M = 41.15$ ,  $SD = 16.13$ ). In accordance with previous research (Howe and Strauss, 1992; Vaccaro, 2009), participants were divided into generational groups, as defined by certain historical and cultural events (e.g., the post-war period, civil rights movements, the technological revolution). Ultimately, we considered three generations of LGBQ+ people: young adults (aged 20–40 years;  $n = 145$ ), middle adults (aged 41–60 years;  $n = 61$ ), and older adults (aged 61–80 years;

**TABLE 1** | Rates of sexual orientation labels in young, middle, and older LGBTQ+ adults.

	Young ( <i>n</i> = 145) <i>n</i> (%)	Middle ( <i>n</i> = 61) <i>n</i> (%)	Older ( <i>n</i> = 60) <i>n</i> (%)	Total ( <i>n</i> = 266) <i>n</i> (%)
Lesbian	54 (40.7%)	27 (44.3%)	22 (56.7%)	103 (38.7%)
Gay	59 (37.2%)	25 (41.0%)	34 (36.7%)	118 (44.4%)
Bisexual	18 (12.4%)	4 (6.6%)	3 (5.0%)	25 (9.4%)
Queer/Pansexual/Fluid	14 (9.7%)	5 (8.2%)	1 (1.7%)	20 (7.5%)

*n* = 61), which, respectively, corresponded to *millennials* (born after 1981), *Generation Xers* (born between about 1960 and 1980), and *baby boomers* (born between about 1940–1960) (Howe and Strauss, 1992; Vaccaro, 2009). Most participants (94%) self-identified as cisgender men (*n* = 123; 46%) and women (*n* = 126; 47%), while 6% (*n* = 17) self-identified as transgender/non-binary/genderqueer.

Concerning sexual orientation, 77% of the women identified as lesbian, 20% as bisexual, and 3% as queer, pansexual, or fluid; among the men, 97% self-identified as gay and 3% as bisexual; most transgender/non-binary participants self-identified as queer, pansexual, or fluid (86%), with the remaining 14% as bisexual. **Table 1** presents data on the sexual orientation of all participants and the different age groups. Regarding ethnicity, most participants (95%) were White, 3% were Hispanic, and 2% were Asian. More than half of the participants (72%) reported an average socio-economic status, whereas 17% reported a low status and 11% reported a high status. Educational level varied from high school diploma (39%) to bachelor's or higher degree (61%).

## Measures

### Sociodemographic Variables

The survey included several sociodemographic questions to obtain information on participants' age, gender identity, sexual orientation, ethnicity, socio-economic status, and education level. Participants indicated their sexual orientation from one of six options: heterosexual, mainly heterosexual, bisexual, mainly gay/lesbian, gay/lesbian, and other (with the request to specify).

### Sexual Orientation Milestones

To obtain information on participants' experiences related to the development of their sexual orientation, we used several items from D'Augelli and Grossman (2001). Specifically, participants were asked at what age: (a) they became aware that they were attracted to people of the same gender (i.e., age of first awareness); (b) they started using a "label" to describe their sexual orientation (i.e., age of first self-label); and (c) they first told someone about their sexual orientation (i.e., age of first CO). Moreover, experiences of CO to specific figures (i.e., mothers, fathers, siblings, children, nephews, grandparents, best friends, employers, co-workers, neighbors, family doctor) were also investigated. Participants were asked to specify whether they had CO to each of these figures and, if so, to specify the age of disclosure; they were also asked to indicate if they had not yet CO to each figure or if the situation was not applicable (e.g., if the respondent did not have children). Finally, we investigated the percentage of figures who knew about the participant's sexual orientation during the participant's adolescence (13–18 years

old), emerging adulthood (19–30 years old), and adulthood (31–59 years old), and at the present time (i.e., the time of study). Obviously, for the young adult and middle adult groups, we did not consider answers referring to an age of CO that was not applicable (e.g., for a young adult aged 29 years we considered only the percentage of figures who knew about the participant's sexual orientation during the participant's adolescence and emerging adulthood, and at the present time).

### Religious Variables

Religiosity was evaluated using both quantitative and qualitative procedures. Participants were asked to indicate whether they followed a religion (0 = yes; 1 = no), as well as to specify which religion they followed (through an open-ended question). Additionally, religious participants were asked: "Have you ever talked about your sexual orientation with priests or nuns or other members of your religious community?" (0 = yes; 1 = no; 2 = I do not belong to a religious community). Participants who answered affirmatively were then asked to describe the reaction of their religious community to their CO, through an open-ended question: "What were their reactions and how did you feel about that?"

### Minority Stressors

Three measures were used to investigate the sources of minority stressors—both distal and proximal—identified as relevant to the LGBTQ+ community (Meyer, 2003): (a) experiences of discrimination/harassment, (b) vigilance, and (c) ISS. Two subscales of six items each were taken from the Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam et al., 2013) to assess experiences of discrimination and vigilance. Further to this, participants were asked the following question: "How much has this problem distressed or bothered you during your life?" They registered their response to this on a six-point Likert scale ranging from 0 (*did not happen/not applicable to me*) to 5 (*it happened, and it bothered me extremely*).

The DHEQ Discrimination/Harassment subscale was used to assess participants' experiences of external, objective stressful events (distal minority stressors). Example items were: "Being called names, such as fag or dyke" and "People laughing at you or making jokes at your expense because you are LGBTQ+." Cronbach's  $\alpha$  for the Discrimination/Harassment subscale score was 0.80. The DHEQ Vigilance subscale was used to measure expectations of homo-lesbo-biphobia attitudes, which often lead LGBTQ+ people to conceal their sexual identity (distal-proximal minority stressor). Example items were: "Watching what you say and do around heterosexual people" and "Hiding your



relationship from other people.” Cronbach’s  $\alpha$  for the Vigilance subscale score was 0.87.

The Measure of ISS for Lesbians and Gay Men–Short Version (MISS-LG; Lingardi et al., 2012) was used to measure the internalization of homo-lesbo-biphobia, which manifests as negative attitudes held by LGBQ+ people toward non-heterosexual sexual orientation and, accordingly, toward themselves (proximal stressor). Example items were: “When I have sex with someone of the same gender, I feel awkward” and “I do not believe in love between LGBQ+ people.” Participants were asked to express their agreement with each item on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating higher levels of ISS. Cronbach’s  $\alpha$  for the total score was 0.82.

## Data Analysis

The Statistical Package for the Social Sciences (SPSS 25.0) was used to conduct the quantitative analysis. The chi-square test was used to investigate differences between groups in terms of the rate of CO to relevant figures and religiosity. Univariate analyses of variance (ANOVAs) were used to analyze group differences regarding sexual orientation milestones and the average age of CO to significant figures. A multiple analysis of variance (MANOVA) was used to assess the effect of generations and CO in a religious context on minority stress indicators.

Finally, thematic analysis (Braun and Clarke, 2006) was used to identify the main categories within the qualitative data. Specifically, a theoretical approach driven by the research area of interest was adopted at a semantic level, when interpreting participants’ answers. This analysis consisted in several steps, involving the familiarization of all authors with the data, followed by a discussion of the first emerging contents. Once the main thematic categories were identified, the first author re-coded, where necessary, all transcripts to align them with the correspondent theme.

## RESULTS

### Sexual Orientation Milestones

Participants reported becoming aware of their sexual orientation around the age of 15 years, and first self-labeling and disclosing

their sexual identity around the age of 21 years (Table 2). Young adults became aware of, self-labeled, and disclosed their sexual identity at a significantly younger age than did middle and older adults (Figure 1). The percentage of people who knew about participants’ sexual orientation during different life stages was approximately 17% during adolescence, 54% during emerging adulthood, 69% during adulthood and 76% at the present time. The three groups significantly differed in their rates of disclosure during adolescence and emerging adulthood, with young adults demonstrating greater disclosure than the other two groups, and middle adults presenting significantly greater disclosure than the older adults. No significant differences were found between groups in the rate of disclosure during adulthood and at the present time. Specifically, young adults were known to be LGBQ+ by 24, 68, 73, and 78% of others, during middle adolescence, emerging adulthood, adulthood, and the present time, respectively; comparable others for middle adults were 10, 43, 72, and 74%; and for older adults, 7, 34, 62, and 76%.

### Disclosure of Sexual Orientation to Significant Others

Table 3 reports participants’ rates and average ages of disclosure to relevant figures, as well as the  $\chi^2$  and  $p$ -values for each variable. Most participants reported having disclosed their sexual orientation to their mother (76%), father (59%), and siblings (84%). Young adults were significantly more disclosed to both their mother (85%) and their father (71%) than were older adults (CO to mother: 47%; CO to father: 18%), whereas no significant difference was observed between young adults (88%), middle adults (93%), and older adults (75%) in the rate of CO to siblings. Among the participants with children, more than one-fourth (35%) had CO to them. Only one participant in the young adult group with children had not CO to them, whereas 44% of the middle adults and 50% of the older adults had disclosed their sexual identity to their children. No chi-square test was run to compare the three generations, due to the small number of participants per cell-group (<5). Almost half (44%) of the participants had CO to their nephews, with no significant difference found between the young adults (35%), middle adults (53%), and older adults (44%). Only 19% of the total sample had CO to their grandparents (21% young adults; 18% middle adults; 12% older adults). A chi-square test was not applicable.

**TABLE 2 |** Sexual orientation milestones in young, middle, and older LGBQ+ adults.

	Total Sample ( <i>n</i> = 266) <i>M</i> ( <i>SD</i> )	Young adults ( <i>n</i> = 145) <i>M</i> ( <i>SD</i> )	Middle adults ( <i>n</i> = 61) <i>M</i> ( <i>SD</i> )	Older adults ( <i>n</i> = 60) <i>M</i> ( <i>SD</i> )	<i>F</i>	<i>p</i>
Age of first awareness	15.17 (7.53)	13.99 (5.60)	16.61 (8.53)	16.63 (9.95)	4.06	<0.05
Age of first self-label	21.39 (7.29)	19.13 (4.56)	24.43 (8.62)	24.08 (9.39)	17.90	<0.001
Age of first CO	21.83 (6.97)	19.26 (4.48)	24.95 (8.02)	25.24 (8.31)	26.95	<0.001
% of CO in adolescence	17.26 (26.94)	24.31 (29.45)	10.25 (25.16)	7.2 (14.72)	12.08	<0.001
% of CO in emerging adulthood	54.29 (31.15)	67.61 (24.51)	43.03 (31.67)	33.9 (29.64)	37.98	<0.001
% of CO in adulthood	69.22 (29.01)	73.48 (27.34)	71.72 (27.19)	61.86 (31.61)	2.89	0.06
% of current CO	76.79 (21.96)	78.45 (19.23)	73.77 (23.90)	75.85 (25.83)	1.04	0.35

The *F* refers to the difference between young, middle, and older adults. Adolescence, 13–18 years; Emerging adulthood, 19–30 years; Adulthood, 31–59 years. Totals vary in variable “% of CO in adulthood”, because only participants having at least 31 years were considered.

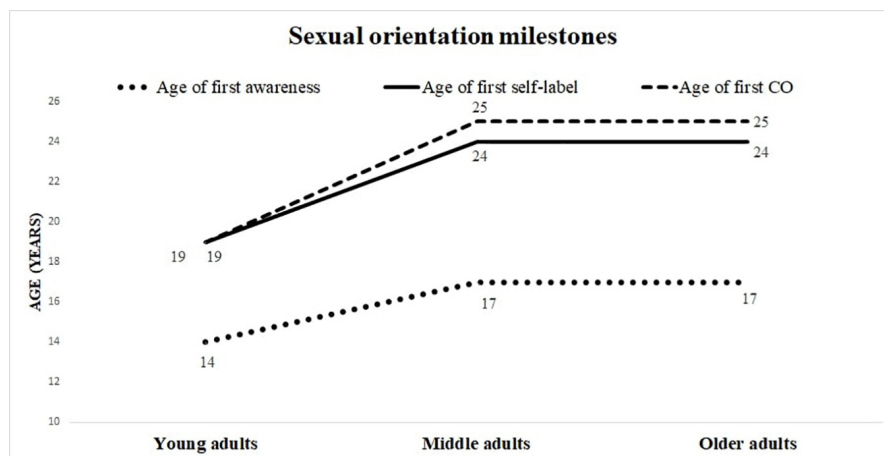


FIGURE 1 | Sexual orientation milestones.

TABLE 3 | Differences between young, middle, and older LGBTQ+ adults in rate and average age of coming out (CO) with significant others.

	Total Sample (n = 266)	Young adults (n = 145)	Middle adults (n = 61)	Older adults (n = 60)	$\chi^2$ F	$p(\chi^2)$ $p(F)$
	n (%) Age (M, SD)	n (%) Age (M, SD)	n (%) Age (M, SD)	n (%) Age (M, SD)		
Coming out to mother	191 (76.1%) 24.76 (9.12)	121 (84.6%) 21.83 (6.6)	47 (79.7%) 27.87 (8.01)	23 (46.9%) 33.83 (13.89)	29.01 25.61	<0.001 <0.001
Coming out to father	138 (58.7%) 23.71 (6.89)	99 (71.2%) 22.06 (5.89)	31 (60.8%) 27.87 (7.4)	8 (17.8%) 28 (8.42)	40.17 11.61	<0.001 <0.001
Coming out to siblings	183 (83.6%) 26.09 (10.2)	101 (87.8%) 21.41 (4.76)	43 (82.7%) 28.63 (8.34)	39 (75%) 35.41 (14.37)	4.32 40.58	0.11 <0.001
Coming out to children	11 (37.9%) 46.30 (10.54)	0 (0%) /	4 (44.4%) 43.33 (11.37)	7 (50%) 47.57 (10.83)	/ 0.31	/ 0.59
Coming out to nephews	45 (43.7%) 35.74 (12.38)	13 (35.1%) 25.85 (10.06)	16 (53.3%) 38.29 (6.28)	16 (44.4%) 41.56 (13.67)	2.24 8.42	0.33 <0.01
Coming out to grandparents	28 (18.8%) 24.79 (5.81)	19 (21.3%) 23.11 (4.63)	5 (17.9%) 30.8 (7.98)	4 (12.5%) 25.25 (3.4)	/ 4.36	/ <0.05
Coming out to best friend	250 (97.7%) 22.59 (8.18)	141 (98.6%) 19.38 (4.29)	60 (100%) 25.38 (8)	49 (92.5%) 28.39 (11.86)	8.26 33.59	<0.05 <0.001
Coming out to employer	114 (58.2%) 30.76 (9.14)	65 (62.5%) 26.31 (4.97)	31 (60.8%) 34 (7.93)	18 (43.9%) 42.56 (11.41)	4.37 38.63	0.11 <0.001
Coming out to colleagues	195 (83.7%) 29.05 (8.47)	106 (85.5%) 24.86 (4.41)	46 (82.1%) 31.96 (6.68)	43 (81.1%) 36.63 (11.3)	0.64 47.8	0.72 <0.001
Coming out to neighbors	57 (28.6%) 31.77 (11.04)	25 (22.7%) 25.48 (5.08)	21 (39.6%) 32.95 (9.61)	11 (30.6%) 45 (12.79)	5.07 18.63	0.08 <0.001
Coming out to family doctor	93 (39.7%) 30.41 (11.82)	43 (33.1%) 23.44 (4.98)	22 (40.7%) 31.14 (8.67)	28 (56%) 40.93 (13.79)	7.95 29.88	<0.05 <0.001

The  $\chi^2$  refers to the difference between young, middle, and older adults. The frequencies refer to the answer "He/she is aware of my sexual orientation" to the questions. The  $\chi^2$  is not applicable (NA) for those variables with <20% of cells with expected frequencies <5. Totals for each variable vary because of missing data. The "/" refers either to a missing value due to the lack of participants; or to the impossibility to apply the  $\chi^2$  variable.

CO to a best friend emerged as the highest rate of disclosure, involving 98% of participants. Middle adults (100%) had CO to their best friend significantly more frequently than older adults (92%), whereas young adults (97%) fell between these two groups. Just over half of the participants (58%) had disclosed their sexual orientation to their employer, with no significant difference between generations (62% young adults; 61% middle adults; 44% older adults). A high percentage of participants

(84%) had disclosed their sexual orientation to coworkers, with no differences between young adults (85%), middle adults (82%), and older adults (81%). CO to neighbors involved 29% of total sample (23% young adults; 40% middle adults; 31% older adults), with no significant difference between groups,  $\chi^2(1) = 5.074, p = 0.08$ .

Finally, 40% of participants had disclosed their sexual orientation to their family doctor, with significant differences

**TABLE 4 |** Religious variables in young, middle, and older LGBTQ+ adults.

	Total Sample (n = 266) n (%)	Young (n = 145) n (%)	Middle (n = 61) n (%)	Older (n = 60) n (%)	$\chi^2$	p
Catholic	75 (28.2%)	29 (20.0%)	21 (34.4%)	25 (41.7%)	11.36	<0.01
CO to Catholic community	50 (66.7%)	14 (48.3%)	15 (71.4%)	21 (84.0%)	8.01	0.01
Non-acceptance	30 (60.0%)	8 (57.1%)	7 (46.7%)	15 (71.4%)	2.30	0.32

The  $\chi^2$  refers to the difference between young, middle, and older adults. The frequencies, respectively, refer to the answers to the following questions: "Do you follow a religion?" (Q1); "Have you ever talked about your sexual orientation with priests or nuns or other member of your religious community?" (Q2); "If Yes, what were their reactions?" (Q3). The sample size varies in each variable, depending on answers to previous questions: only participants who answered "Yes" to Q1 and define their religion as Catholic (n = 75) were considered for Q2; only participants who answered "Yes" to Q2 (n = 50) were considered for Q3.

between generations: more older adults (56%) had disclosed to their family doctor relative to young adults (33%). Regarding the average age of CO to different figures (Table 3), the best friend emerged as the first person to whom most participants disclosed their sexual orientation, at around 19 years of age for young and middle adults. Older adults, in contrast, CO first to grandparents at the age of 25 years, and then to a father and best friend at the age of 28.

A series of ANOVAs revealed significant differences between generations in the average age of CO, with young adults CO to significant others earlier than middle and older adults. Specifically, young adults CO to their mother, siblings, best friend, employer, coworkers, neighbors, and family doctor at an earlier age than middle adults; likewise, middle adults CO to these figures at an earlier age than older adults. Additionally, younger adults first disclosed their sexual orientation to their father and nephews at an earlier age than middle and older adults, who did not significantly differ in the average age of CO to these figures. Middle adults CO to grandparents at an older age (approximately 31 years) than young adults (23 years) and older adults (25 years). CO to children occurred at approximately 46 years of age, with no significant differences between middle and older adults.

## Rates of Catholicism and CO in the Religious Context

In our sample, 28% of participants self-identified as Catholic, whereas 72% self-identified as atheist. Older adults (42%) were significantly more religious than young adults (20%) (Table 4). More than half (67%) of the Catholic participants had CO to their religious community, with the older adults more disclosed (84%) than the middle adults (71%) and young adults (48%). Of those who had CO to their religious community, 60% were not accepted; older adults were the most rejected (71%), followed by young adults (57%), and middle adults (48%). As explained below, non-acceptance from the Catholic community could manifest as either an invitation to change or open rejection.

To explore the characteristics of the Catholic community's reactions to participants' CO, we analyzed the content of participants' descriptions, as well as their stated feelings in response to these reactions [i.e., in response to the open-ended question: "What were their reactions (priests, nuns, or other members of your religious community) and how did you feel about that?"]. Through the theoretical thematic analysis (Braun and Clarke, 2006), we identified three main types of reactions, ranging from acceptance to rejection (Table 5).

*Unconditional acceptance* represented an extremely positive reaction to CO, mainly consisting of the interpretation and application of Catholic values such as love and a sense of welcoming. Participants who experienced unconditional acceptance were permitted to attend and/or actively participate in religious rituals, and experienced feelings of wellbeing, serenity, and psychological integrity.

*Invitation to change* can be considered as a neutral or ambiguous reaction, which can be well represented by the Catholic expression "hating the sin but not the sinner" (Valera and Taylor, 2011). When it comes to sexual orientation, separating the practice (loving and having sex with someone of the same gender) from the person is not possible and the person concerned risks to be trapped in an unclear position. Moreover, some problematic aspects underlie the apparent acceptance characterizing this reaction, thus increasing ambiguity, such as the encouragement of having sex with opposite-gender partners that some participants reported having received from their priests.

Finally, *open rejection* is the negative extreme of the Catholic community's range of potential reactions to CO, characterized by an overt opposition to non-heterosexual identity and abusive prescriptions, often resulting in the application of "reparative therapeutic" techniques such as sexual abstinence, prayers, and exorcisms. The effects of these practices on participants' emotional and mental condition include guilt, inadequacy, mistrust, humiliation, and depression.

## Impact of CO to the Catholic Community on Minority Stressors

Table 6 reports differences in levels of discrimination, vigilance, and ISS between participants who: (a) had not CO in a religious context due to the absence of a religious community (atheists), (b) had not CO to their religious community (concealed), and (c) had CO to their religious community (disclosed). To test the effect of CO in the religious context, we performed a MANOVA using age as a covariate. Compared to atheist participants, those who had disclosed their sexual orientation to the Catholic community showed higher levels of discrimination, vigilance, and ISS, whereas participants who had concealed their sexual orientation from the Catholic community had scores falling between those of these two groups. Age had a significant effect on discrimination and vigilance: the older the participant, the more likely they were to be subjected to more stressors; however, no association was found between ISS and age. No differences were

**TABLE 5 |** Catholic community reactions to CO: Thematic categories and representative quotations ( $n = 50$ ).

	Community behaviors	Associated feelings
Unconditional acceptance ( $n = 20$ : 6 young adults, 8 middle adults, 6 older adults)	<i>During a confession, Don Luigi told me: "What right do I have to judge you? The church should practice acceptance and in church you must feel welcome" (64-year-old gay man)</i>	<i>I felt wonderfully well</i>
	<i>In the Catholic Church I received complete acceptance by both the parish priest and the bishop of the diocese. They allowed me to be my partner's godmother of confirmation (33-year-old lesbian woman)</i>	<i>I was very serene, it seemed to me a very normal thing</i>
Invitation to change ( $n = 12$ : 4 young adults, 5 middle adults, 3 older adults)	<i>Someone expressed understanding for the person but condemnation of the practice (44-year-old gay man)</i>	<i>I felt welcomed while being invited to change</i>
	<i>I came out during confessions or personal spiritual directions. Hardly anyone was scandalized, except for one priest who advised me to have sexual relations with men even outside of marriage (42-year-old lesbian woman)</i>	<i>On some occasions I felt protected, while on others I felt left out</i>
Open rejection ( $n = 18$ : 4 young adults, 2 middle adults, 12 older adults)	<i>They told me it was wrong, that it would be just a moment and that I had to pray to become normal (39-year-old lesbian woman)</i>	<i>Depressed, guilty, and humiliated as a person. I felt ashamed for who I was and tried to change my sexual orientation</i>
	<i>Someone proposed and/or subjected me to exorcisms or prayers. Someone told me that my attraction to women was due to the fact that I didn't want to leave control of my life to a man and that this had to be changed (31-year-old bisexual woman)</i>	<i>Guilty, wrong, inadequate</i>
	<i>They told me I shouldn't have sex, as if the issue was related to sex and not love (79-year-old lesbian woman)</i>	<i>I felt betrayed by my own religion. As if I no longer had reference points</i>

Transcriptions of some answers to the following open-ended questions: (a) "Have you ever talked about your sexual orientation with priests or nuns or other members of your religious community? What were their reactions?" and "How did you feel about that?"

**TABLE 6 |** Means and standard deviations for discrimination, vigilance, and internalized sexual stigma (ISS) by CO to Catholic community.

	Discrimination			Vigilance			Internalized sexual stigma		
	<i>M (SD)</i>	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>
<b>CO to Catholic Community</b>									
Disclosed	1.43 (1.40)	3.87	<0.05	1.9 (1.75)	4.64	<0.01	2.02 (1.67)	8.45	<0.001
Concealed	1.09 (0.97)			1.43 (0.75)			1.77 (0.63)		
Atheist	0.95 (1.01)			1.29 (1.15)			1.54 (0.63)		

Significant effect of age (used as a covariate) emerged for discrimination and vigilance, but not for ISS.

found in the levels of minority stress by using generation as an independent variable.

## DISCUSSION

The present study aimed at expanding the empirical literature on the CO process, as experienced by different generations of LGBTQ+ people, as well as verifying the effect of CO in understudied contexts, such as the religious context. Considering certain historical and cultural events as fundamental in shaping generational divides, we categorized participants into groups of young, middle, and older adults, corresponding to millennials, Generation Xers, and baby boomers, respectively (Howe and Strauss, 1992; Vaccaro, 2009).

Significant differences were found between generations on all sexual orientation milestones and almost all CO variables (Dunlap, 2016; Bishop et al., 2020). On average, young adults experienced self-awareness, self-labeling, and disclosure of their sexual identity 3–5 years earlier than middle and older adults

(Figure 1). Considering the total sample, approximately 6 years elapsed between participants' average age of first awareness, and the first time they self-label as LGBTQ+ and CO, with young adults demonstrating a shorter period (approximately 5 years), and middle and older adults demonstrating a longer period (approximately 8 years). Additionally, young and middle adults were more likely than older adults to not recognize themselves in the provided sexual orientation categories (i.e., heterosexual, gay/lesbian, bisexual), and to instead use the open-ended answer option to identify themselves as queer, pansexual, fluid, etc. This is consistent with previous research reporting millennials' tendency to reject traditional and normative labels of gender and sexual orientation (Russell and Bohan, 2005; Vaccaro, 2009).

As found in previous studies, the rate and average age of disclosure decreased as participant age increased (Jenkins Morales et al., 2014; Dunlap, 2016; Bishop et al., 2020; Pistella et al., 2020a). The earlier age at which young adults first became aware of and disclosed their sexual identity likely relates to the increased cultural references to and social acceptance of sexual minorities in Western countries, including Italy (Russell and Fish,



2016). Considering the total sample, participants' average age of first CO was approximately 22 years, which is considerably later than that recorded in other countries (Dunlap, 2016; Russell and Fish, 2016). However, the average age of CO among young adults was 19 years, in line with prior national studies investigating participants in a similar age range (Barbagli and Colombo, 2007; Baiocco et al., 2015; Pistella et al., 2020a).

Accordingly, young adults were significantly more disclosed than older groups during adolescence (aged 13–18 years) and emerging adulthood (aged 19–30 years), whereas no meaningful differences emerged between groups during adulthood (aged 31–59 years) and the present time, suggesting that generations did not differ in their choice of CO (i.e., whether to CO), but only in their process of CO (i.e., when to CO) (Dunlap, 2014). At the present time, participants' sexual identity was known, on average, by 75% of the listed figures. While this represents a high percentage—especially compared to the percentage demonstrated in other life stages—it nonetheless indicates that Italian LGBTQ+ people struggle to be completely disclosed in all relationships and contexts.

To obtain more detailed information and to gain greater comprehension of the CO process, we investigated whether—and at what age—participants had CO to a series of significant figures (D'Augelli and Grossman, 2001; Jenkins Morales et al., 2014; Pistella et al., 2020a). To extend prior research on this topic, we included in our study a set of figures who had not been considered previously, including nephews, grandparents, and neighbors. In line with the results of previous studies, the present study found that most participants first CO to their best friend (Baiocco et al., 2012; Costa et al., 2013; Salvati et al., 2018; Pistella et al., 2020a). Within the family, participants were more likely to CO first to siblings than to parents, confirming the important role played by siblings in the CO process within the family context (Pistella et al., 2020a). Grandparents were less commonly disclosed to, perhaps as a result of participants' desire to protect their grandparents from any negative consequences of disclosure. Indeed, previous studies have found that LGBTQ+ grandchildren perceive their grandparents as fragile, and that the experience of CO to grandparents is often mediated by other family members (Scherrer, 2016).

Among the figures to whom LGBTQ+ people CO to later are children and nephews, followed by neighbors, employers, family doctor, and coworkers (D'Augelli and Grossman, 2001). However, the present findings concerning the average age of CO to important figures must be interpreted with caution. For instance, older adults had CO to their grandparents at a younger age than the age at which they had CO to their best friend, father, and mother. But if we look at the percentage of disclosure, only four older adults (12%) had CO to their grandparents and only eight older adults (18%) had CO to their father, whereas almost all (92%) had CO to their best friend and almost half (47%) had CO to their mother. Consequently, it is not possible to rigorously compare the average age of first CO to significant figures between the participants and groups.

Older adults emerged as the least disclosed group to almost all relevant figures, with the exception of the family doctor (Jenkins Morales et al., 2014). The greater tendency of the older

generation to conceal their sexual identity can be interpreted as a consequence of the stigmatized historical period in which they grew up, when non-heterosexual behavior was considered immoral and/or condemned by all institutions (e.g., religious, legal, and medical institutions) (Shankle et al., 2003; Rosati et al., 2018). Moreover, although they CO at a later average age than both other groups, their decision to conceal their sexual identity from their parents might be due to the fact that their parents passed away before they became comfortable disclosing. The exception of the family doctor, to whom older adults presented the highest rate of disclosure, can be explained by the greater need of LGBTQ+ older adults to access healthcare services; this might entail greater confidence in the family doctor, including confidence in disclosing one's sexual identity (Gardner et al., 2014; Rosati et al., 2020).

No differences were found between generations in levels of minority stressors. This result contrasts with the findings of previous studies, which have assumed aging LGBTQ+ people to be more stigmatized than emerging adults (Rosenfeld, 1999; Shankle et al., 2003; Dentato et al., 2014). However, such studies have generally been based on a single age group (e.g., older adults), and have thus inferred differences without the supporting evidence of empirical comparisons of cohorts. It is likely that shifts in the historical environment impact experiences of sexual minority identity, and that other important factors may contribute to determining LGBTQ+ peoples' experiences of minority stress (Frost et al., 2019). For instance, although older adults grew up in a more cis-heterosexist and cis-heteronormative social context than young adults, they had also had a greater opportunity to process life experiences and elaborate on aspects of their sexual identity, to gain resiliency (Kimmel, 2015). Moreover, the greater tendency of LGBTQ+ older adults to conceal their sexual identity probably protected them from experiences of discrimination and harassment (D'Augelli et al., 1998; D'Augelli and Grossman, 2001; Jenkins Morales et al., 2014).

Although Italy is a very religious country, to our knowledge, no previous studies have investigated the effect of CO in Italy within a religious context. Moreover, there is a lack of information in the psychological literature on the relationship between CO in religious contexts and levels of minority stress. Given the significant relationship between minority stress and the quality of one's social context, and considering that cis-heterosexist assumptions generally characterize Catholic environments, we expected to find higher levels of minority stress among participants who were both Catholic and openly LGBTQ+ within their religious community. Among the Catholic participants in our sample, approximately 67% had CO to their religious community; this figure is higher than the percentages reported in previous research (Legate et al., 2012). Furthermore, older adults (84%) were significantly more disclosed to this community than were young adults (48%). We can infer that the need to integrate religious aspects with one's LGBTQ+ identity may be more relevant for older adults, who in fact have been found to be significantly more religious than young adults. As a result, older adults in our study may have CO to their religious community in an attempt to live more authentically in the context of the Catholic Church.

More than half of the participants who had CO to their religious community were not accepted by that community. The fact that older adults were the most rejected group may suggest a decrease in cis-heterosexist attitudes and sexual prejudice within Catholic institutions in Italy. However, given that we did not evaluate the cis-heterosexist attitudes and sexual prejudice and the information about the age of CO with the Catholic community was missing, this explanation is only speculative. Our thematic analysis (Braun and Clarke, 2006) uncovered that non-acceptance from the Catholic community could manifest in subtle or open forms of rejection. Subtle rejection was expressed as an *invitation to change* participants' sexual orientation, whereby participants' behavior was condemned, but not their personhood, as transmitted by the message "hating the sin but not the sinner" (Valera and Taylor, 2011). In such situations, LGBQ+ people experienced the paradox of being accepted, on the condition that they recognized that their non-heterosexual behavior was wrong (Severson et al., 2014). *Open rejection* was characterized by a condemnation of LGBQ+ identities and behaviors, often accompanied by the administration of coercive techniques aimed at "correcting" participants' sexual identity. Among the psychological consequences reported by participants who received such open rejection were guilt, inadequacy, mistrust, humiliation, and depression, thus confirming the highly detrimental effects of such reactions on mental health (American Psychological Association, 2009).

As hypothesized, CO to the Catholic community was associated with a higher level of minority stress. Specifically, participants who had CO to their religious community experienced more discrimination, vigilance, and ISS than those who remained concealed or who did not belong to the Catholic Church. As shown by Legate et al. (2012), disclosure can have a negative impact on mental health if it occurs within an unsupportive context; therefore, concealment could mitigate the impact of stress under certain circumstances (Cole, 2006). Similar to what found by previous authors (D'Augelli et al., 1998; D'Augelli and Grossman, 2001) in family and unspecified contexts, the present study found that, the more LGBQ+ people had disclosed their sexual identity to their religious community, the more at risk they were of experiencing discrimination and harassment. Participants likely considered their experiences of the Catholic community's negative reactions to their CO as discriminatory.

The present study also found that participants who were more disclosed to their religious community experienced greater vigilance—a state of constant alert related to the fear of being a target of prejudice (Crocker et al., 1998). In line with Meyer's (2003) theorization, minority stressors are overlapping and interdependent, so that "the greater one's perceived stigma, the greater the need for vigilance in interactions with dominant group members" (p. 680). Therefore, we suggest that LGBQ+ participants who had CO to their religious community experienced greater vigilance as a consequence of the greater discrimination they experienced from the Catholic Church.

Finally, LGBQ+ people who had not CO to their religious community presented higher levels of ISS, confirming the potential harmful impact of religiosity in LGBQ+ self-perception

(Barnes and Meyer, 2012; Lingiardi et al., 2012; Severson et al., 2014; Sowe et al., 2014; Nardelli et al., 2020). ISS entails an insidious process of self-stigmatization that leads to self-devaluation and internal conflict. It has been shown to have several negative consequences on mental health, including depression, anxiety, substance abuse, self-harm, and suicidality (Williamson, 2000; Meyer, 2003; Kuyper and Fokkema, 2011; Lehavot and Simoni, 2011). The present study also found that, the older the participant, the more likely they were to have experienced discrimination and vigilance in the context of CO to the Catholic community. No significant age effect was found for ISS.

## Limitations and Directions for Future Research

The present study is not exempt from limitations, which should be considered when designing future research. First, we only focused on generational differences in CO experiences, and did not consider variation in participants' gender and/or sexual orientation. We also acknowledge that relevant differences exist among subgroups of the LGBQ+ population, which should be investigated in future studies through larger samples. Additionally, future research should also consider the specific CO experiences of transgender and non-binary people. Second, not all participants had been able to CO to all of the significant figures examined because, for instance, they were lacking one or both parents, siblings, and grandparents when they became aware of their sexual orientation. Therefore, although we differentiated participants who had not CO by choice from those who had not CO for lack of opportunity, this limitation may still impact the comparison between groups on the rate of CO to specific figures.

Finally, given the qualitative nature of the open-ended question concerning the quality of the reactions of the religious community to participants' CO, as well as the small number of participants ( $n = 50$ ) who experienced such reactions, we could not verify whether minority stressor experiences related to the quality of the community reactions, rather than to CO, *per se*. More generally, although data from the present study may be valid for numerous reasons, they are not generalizable to all Western countries, nor can they fully explain the complex relationship between religiosity, sexual minority identity, and the CO process. This study should therefore be contextualized in the Italian context, where the Catholic religion plays a significant role in both historical and contemporary cultural traditions, and is embedded in the society's shared belief system.

## CONCLUSION

The CO process is fundamental for identity integration among sexual minorities. However, the effects of CO can vary greatly depending on contextual variables, such as the historical period in which people grow up, as well as the social contexts they frequent. By considering three generations of Italian LGBQ+ people, this study analyzed meaningful features of CO in family, social, and religious contexts. This study contributed to expand knowledge about stress processes related to sexual minority identity and CO.

We found that different generations of sexual minorities differ in the CO process, even if they are similar in the level of minority stressors. Our findings confirmed that CO is a non-linear process, rather than an event, which can increase or protect from stress, based on contextual factors.

## IMPLICATIONS

The empirical findings on the differences and similarities between diverse generations of LGBTQ+ people can help mental health professionals implement targeted interventions on the basis of priority needs for each age cohort. Moreover, our results suggest that mental health professionals should pay particular attention to clients from cultural or religious traditions that are less accepting of sexual minorities, as such clients may experience intense struggles when attempting to integrate their sexual and religious identities (Baiocco et al., 2018). Although religious belief is generally associated with positive psychosocial outcomes, CO to one's religious community may increase minority stress, thus confirming that the impact of CO on wellbeing is strongly connected to the quality of the environment in which it occurs (Legate et al., 2012). It is important that psychotherapists and psychologists reflect on the potentially detrimental effect of CO within an unsupportive context (together with their LGBTQ+ clients), rather than encourage CO *tout court*. Further, clinicians should embrace a complex understanding of the multiple individual and social factors involved in sexual identity development and affirmation (e.g., self-awareness, authenticity, social support, and community connectedness) (Riggle et al., 2014), rather than focus on the CO process as the only viable means for LGBTQ+ people to achieve self-acceptance (Rosenberg, 2018).

As per the social implications of this research, our findings contribute to give visibility to LGBTQ+ Catholic people, highlighting their personal experiences through qualitative analysis and the challenges they face in crossing Catholic contexts. LGBTQ+ Catholic people risk being isolated both in the LGBTQ+ community and within their religious community, or to conceal some crucial aspects of their identity (e.g., sexual or religious identity) in order to feel accepted and integrated in such communities (Beagan and Hattie, 2015). Efforts would be needed

from both LGBTQ+ organizations and grassroots Catholic groups to foster an inclusive environment and to counter discrimination and stigma. Other Christian religions in Italy have already started working in this direction, through the creation of support groups, training sessions, and experiences-exchange meetings, which can be used as a reference or good practice.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethics Commission of the Department of Developmental and Social Psychology of Sapienza University of Rome. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

FR conducted the data collection for the study and wrote the manuscript. JP and RB collaborated with designing and writing the study, and together with FR conducted data analysis. MN collaborated in writing and editing the final manuscript. All authors read and approved the final manuscript.

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# Coming Out to Parents in Lesbian and Bisexual Women: The Role of Internalized Sexual Stigma and Positive LB Identity

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The experience of “coming out” (CO) to parents is often a crucial event in the lives of lesbian and bisexual (LB) women, associated with lower internalized sexual stigma (ISS) and higher positive LB identity. Few studies have compared the experiences of LB women in the CO process. Rather, most prior research has either: (1) not addressed bisexuality or eliminated bisexual individuals from the analysis; (2) combined bisexual women and bisexual men in the same sexual orientation group; or (3) examined bisexual participants alongside lesbian women and gay men, using a single monolithic measure. Thus, the present research aimed at investigating the role of ISS and positive LB identity in inhibiting or encouraging CO to parents in a sample of 241 lesbian women ( $M_{\text{age}} = 27.61$ ,  $SD = 7.19$ ) and 186 bisexual women ( $M_{\text{age}} = 25.23$ ,  $SD = 5.81$ ), aged 18–40 years. Most participants reported that they had already revealed their sexual orientation to their mother (69%) and their father (52%). More lesbian women had CO to both their mother and their father than had bisexual women. These lesbian women reported lower levels of ISS and higher levels of LB positive identity relative to bisexual women. On average, CO to mothers occurred at age 20 ( $SD = 5.54$ ), while CO to fathers occurred at age 22 ( $SD = 5.63$ ). LB women did not differ in the average age of CO to mothers or fathers, or in parental reactions to CO. Finally, ISS was found to affect the process of CO to both parents via positive identity (bootstrapping estimate =  $-0.26$ ,  $SE = 0.08$ , 95% CI =  $-0.43$ ,  $0.11$ ), whereas sexual orientation was not found to moderate the path from ISS to CO to both parents. The present study contributes to our understanding of the differences between LB women when developing their sexual orientation, highlighting the relevance of a positive LB identity for CO to parents. Research and clinical implications and directions for future research are discussed.

**Keywords:** coming out, parents, sexual orientation, bisexuality, women, internalized sexual stigma, positive identity

## INTRODUCTION

The experience of coming out (CO) is often a pivotal event in the lives of women who identify as lesbian or bisexual (LB). Prior research on the CO process has mainly focused on lesbian women (Morris, 1997; Jordan and Deluty, 1998; Baiocco et al., 2015; Pistella et al., 2020a), and only a few studies have investigated this phenomenon in bisexual women (Rust, 1993; Morris et al., 2001;

Knous, 2006; Balsam and Mohr, 2007; McLean, 2008; Wandrey et al., 2015). Specifically, most studies assessing the CO experience of bisexual people have drawn on monolithic measures of sexual orientation, combining bisexual women and men (Legate et al., 2012; Pistella et al., 2016). Other research has eliminated bisexual people from the analysis altogether or combined bisexual participants with lesbian women and gay men (Helms and Waters, 2016). Only a small number of recent studies have utilized separate measures of sexual orientation, considering LB women separately (Rosario et al., 2001, 2009; Costa et al., 2013; Belmonte and Holmes, 2016). Indeed, recent evidence has demonstrated that the CO process of bisexual people should be examined further, with greater attention paid to gender differences (Costa et al., 2013; Persson and Pfaus, 2015; Wandrey et al., 2015; Pistella et al., 2016; Mathers, 2019; Newcomb et al., 2019).

The CO process is a relevant developmental task for the identity construction of LB women (Mosher, 2001; Rosario et al., 2001; Legate et al., 2012; Baiocco et al., 2015; Scherrer et al., 2015). Specifically, the CO process is defined as the experience of understanding, accepting, and appreciating one's non-heterosexual identity and starting to reveal one's sexual orientation to others. Previous research has suggested that CO to family members is a relevant and sometimes crucial developmental task (Savin-Williams, 2003; Willoughby et al., 2008; Scherrer et al., 2015), and that positive parental reactions can increase the child's well-being and positive development (Ryan et al., 2010). In contrast, negative parental reactions to CO can imply parental rejection and an avoidance of communication on the subject (Baiocco et al., 2015), making the child more likely to develop depression or substance use (Legate et al., 2012; Baiocco et al., 2015) or to even commit suicide (Ryan et al., 2010). Regarding differences in CO to mothers versus CO to fathers, Pistella et al. (2020a) found that lesbian women, compared to gay men, were more likely to hide their sexual orientation from their father and brothers and to come out to their mother, first, followed by their father later on. However, other studies have found no gender differences related to the choice of which parent to CO to first among gay and lesbian young adults (Baiocco et al., 2015) and among lesbian, gay, and bisexual (LGB) adolescents and young adults (D'Augelli et al., 1998; Grov et al., 2006).

Research has also examined potential differences in parents' reactions to CO, depending on the biological sex of the child, producing inconsistent results. Some studies have found that parents react more negatively to the CO of children of their same biological gender (i.e., fathers react more negatively to the CO of a son and mothers to the CO of a daughter) (D'Augelli, 2006). In line with this result, an Italian study conducted on participants who identified as gay men or lesbian women found that mothers of lesbian daughters were more likely to report a negative reaction to their daughter's CO than were fathers, in response to their gay son's CO (Baiocco et al., 2015). It is possible that mothers, especially in the Italian context, may react particularly negatively to their daughter's CO, because mothers are usually the primary caregivers—responsible for the growth and education of their children—and the mothers of lesbian daughters may feel that they have not been a good female role model, and experience

significant anger and guilt as a result (Baiocco et al., 2015). However, other studies and reviews have not confirmed these findings (D'Augelli et al., 2005; Heatherington and Lavner, 2008).

When CO to parents, bisexual people may experience more difficulties than gay or lesbian people (Pistella et al., 2016). Some qualitative studies conducted in the United States have shed light on the tendency of bisexual people—especially bisexual women—to hide and not disclose their sexual orientation, for fear of being rejected (Knous, 2006; Hayfield et al., 2013; Wandrey et al., 2015). These studies have suggested that bisexual women are less likely to come out than lesbian women (Rosario et al., 2001; Koh and Ross, 2006). In general, bisexual women have more negative feelings about their sexual orientation and are less disclosed than lesbian women, and their family members have more negative feelings and reactions to their CO (Balsam and Mohr, 2007; Scherrer et al., 2015; Belmonte and Holmes, 2016).

Another study, conducted in the Italian context, found that bisexual people were less likely to CO to their family than were lesbian women (Pistella et al., 2016); nevertheless, this study did not distinguish between women and men. Bisexual women face particular stigma and prejudice related to their sexual orientation that can inhibit their disclosure not only to family, but also to the sexual minority community (Costa et al., 2013; Roberts et al., 2015; Smalley et al., 2015; Wandrey et al., 2015). For instance, it is a commonly held belief that bisexuality is only a phase and that bisexual women are confused about their sexual orientation. Another common stereotype views bisexual women as promiscuous and unable to commit to a relationship (Eliason, 2001).

## Variables Associated With CO Process in LB Women

A recent review of the literature (Watson et al., 2017) highlighted that the average age of CO amongst bisexual people is higher than that of lesbian women and gay men (Kooden et al., 1979; Rust, 1993). In line with this, a study conducted in the United States (Pew Research Center, 2019) found that bisexual individuals were far less likely to CO to significant others in their life (19%), relative to lesbian women and gay men (75%). Also, recent studies conducted in the Italian context have found that the average age of CO amongst bisexual people, regardless of gender, is 18–24 months later than the average age at which gay men and lesbian women CO (Pistella et al., 2020a). To our knowledge, there are no specific data on the average age of CO of Italian LB women.

Certain individual and demographic variables can affect the CO process in LB women, and the literature reports inconsistent results about the impact of these variables on the CO process. For instance, lesbian women have been found to relinquish their religious identification when they CO, considering the abandonment of their prior religion a central aspect of their CO process (Morris, 1997). Similarly, in a qualitative study conducted by Belmonte and Holmes (2016), LB women reported that they hid their sexual orientation when they were with religious people, including family members. Thus, it is plausible to assume that having a religious family and/or living in a



traditional or conservative family may discourage LB women from disclosing their sexual orientation, as found in a previous study that did not distinguish between LB women and gay men (Schope, 2002; Maslowe and Yarhouse, 2015; Pistella et al., 2016; Salvati et al., 2018).

Previous studies have suggested that if young people have a traditional/religious or politically right-wing/conservative family of origin (Schope, 2002; Pistella et al., 2016; Salvati et al., 2018), they are less likely to disclose their sexual orientation in an attempt to avoid negative parental reactions (Heatherington and Lavner, 2008; Baiocco et al., 2018a). However, Pistella et al. (2016) did not detect any relationship between religiosity and CO, and Maslowe and Yarhouse (2015) found religiosity to be related to parental acceptance of CO. Again, Pistella et al. (2016) found that higher levels of education were related to a greater likelihood of CO to family members. To our knowledge, there are no specific data on individual and demographic variables that influence the CO process of lesbian and, in particular, bisexual women.

## Benefits and Costs of CO Process

Coming out has also been found to relate to both positive and negative aspects of well-being and positive identity. In particular, sharing one's sexual orientation with others may support self-integration and social acceptance (Corrigan and Matthews, 2003). Research has also stressed that the CO process is associated with greater life satisfaction (Griffith and Hebl, 2002; Heatherington and Lavner, 2008), self-esteem (Savin-Williams, 1989), emotional relief (Monroe, 2000), and physical and life well-being and job satisfaction (LaSala, 2000; Griffith and Hebl, 2002), as well as reduced anxiety (Monroe, 2000), and the development of a positive sense of self (Rosario et al., 2001). A study by Ryan et al. (2015) found lesbian women to have more positive reactions and to feel more autonomy and satisfaction after CO, relative to gay men. A further study on LB women showed that their disclosure of sexual orientation increased their self-esteem and positive affectivity, decreasing anxiety and enhancing social support (Jordan and Deluty, 1998).

Conversely, other research has shown that CO can be a negative experience, by exposing young people to violence, verbal abuse, and rejection (D'Augelli and Grossman, 2001; Pistella et al., 2020a,b). These negative outcomes may have a significant impact on psychological well-being (Baiocco et al., 2015), especially amongst bisexual individuals, more so than gay and lesbian people (Ross et al., 2018). Bonet et al. (2007) stressed how the CO of LB women is associated with high levels of discrimination and stress and possible negative consequences (D'Augelli and Hershberger, 1993). In particular, CO may lead LB women to be rejected, exposed to verbal and physical violence, and excluded from groups (Rosario et al., 2002).

Koh and Ross (2006) found higher levels of psychological distress and suicidality among LB women compared to heterosexual women. Moreover, it has been shown that LB women may be rejected and disapproved of by family, in addition to peers, with severe consequences for psychological health, including greater stress (Rosario et al., 1996) and substance use (Russell et al., 2002). However, the CO process can also enhance

self-esteem by welcoming subjects into the LGB community and solving the conflict related to their developmental task, thereby decreasing depression and anxiety (Crocker and Major, 1989).

The CO process has also been found to be associated with internalized sexual stigma (ISS; Lingardi et al., 2012)—that is, the internalization of negative feelings, representations, and attitudes toward a non-heterosexual orientation that sexual minority people inflict upon themselves, either consciously or unconsciously (Herek et al., 2009). By preventing self-acceptance of one's sexual orientation, a high level of ISS can lead young people to hide and deny their orientation (D'Augelli et al., 2002; Lingardi et al., 2012; Salvati et al., 2018) and consequently come out less to family members (D'Augelli and Grossman, 2001; Chow and Cheng, 2010; Pistella et al., 2016, 2020a,b), friends, and significant others (Lingardi et al., 2012; Costa et al., 2013; Salvati et al., 2018).

The theoretical framework of the minority stress model can assist our understanding of the negative impacts of stigma, discrimination, expectations of rejection, violence, and ISS, as chronic and psychological stressors for sexual minorities (Meyer, 1995, 2003; Sandfort et al., 2006). Within this framework, it is conceivable that young people with a high level of ISS are less likely to CO (Durso and Meyer, 2013). It is important to note that recent studies have found that minority stress causes more psychological distress for LB women, relative to other sexual minorities, suggesting that there is a need for more in-depth research into minority stress among these populations (Prell and Traeen, 2018; Scandurra et al., 2020).

Recent studies (Riggle et al., 2014; Baiocco et al., 2018b) have investigated positive variables that might promote CO, finding that CO is related to the development of a positive LGB identity, associated with neither positive nor negative attitudes. A positive LGB identity is the result of a multifaceted evolutive process characterized by a progressive combination and integration of feelings, thoughts, and emotions arising from an awareness that one's sexual orientation can enhance one's individual, social, and relational functioning (Mohr and Kendra, 2011; Riggle et al., 2014; Rostosky et al., 2018; Petrocchi et al., 2020). Having a positive LGB identity is not equivalent to lacking negative attitudes and feelings about one's sexual orientation. Indeed, positive LGB identity and negative LGB identity, in terms of ISS, are not opposite poles of the same continuum (Moradi et al., 2009; Petrocchi et al., 2020). A study by Petrocchi et al. (2020) found that ISS was negatively and modestly related to all dimensions of a positive LGB identity. To our knowledge, there is a paucity of studies on the relationship between positive identity and CO process: Some authors have highlighted how positive identity predicts the CO process (Monroe, 2000; Baiocco and Pistella, 2019) while other researchers have described CO as a process that is conducive to personal growth and positive identity (LaSala, 2000; Savin-Williams, 2003). Anyhow, further studies are needed to better understand the nature of this relationship.

## Present Study

Within the theoretical framework of the minority stress model (Meyer, 1995, 2003), and driven by the need for more research

on LB women (Pistella et al., 2016; Prell and Traeen, 2018; Scandurra et al., 2020), the present research had three main objectives: (a) to provide descriptive data on CO to parents in a sample of LB women, including the age of first disclosure to mothers and fathers and the quality of the parental reactions; (b) to examine the role of certain sociodemographic variables (i.e., age, sexual orientation, socioeconomic status, education level, political orientation, religiosity and religious education, presence of a stable relationship, family size) in CO to parents; and (c) to explore the relationship between CO to parents, ISS, positive LB identity, and sexual orientation.

Specifically, we predicted that: (H1) women with a higher level of ISS, regardless of their sexual orientation, would be less likely to reveal their sexual orientation to mothers and fathers; (H2) positive LB identity would mediate the impact of ISS on self-disclosure to parents; and (H3) the mediation model would be moderated by sexual orientation. Specifically, we aimed at examining whether sexual orientation (i.e., self-identification as lesbian vs. bisexual) would moderate the path from ISS to CO to mothers, fathers, or both parents. Moderated mediation was supported when the model paths differed as a function of sexual orientation. No specific hypotheses were made regarding the possible moderation effect of sexual orientation.

## MATERIALS AND METHODS

### Procedures

The original sample consisted of 449 women who had been recruited through online advertisements and an Internet-based survey. The inclusion criteria were: (a) Italian nationality, (b) female biological sex, (c) lesbian or bisexual sexual orientation, (d) aged 40 years or younger, and (d) at least one parent alive. On the basis of these criteria, 6 participants were excluded due to sexual orientation (5 pansexual, 1 asexual), 12 were excluded because they did not indicate that at least one of their parents was alive, and 4 were excluded because they did not complete the entire set of questionnaires. Moreover, the research did not include other sexual orientations (e.g., pansexual or asexual), because prior studies have reported that the CO experience of these sexual minorities differs significantly from that of LB women.

Participation was voluntary and anonymous, and all respondents completed the same set of questionnaires (requiring approximately 10–15 minutes). Informed consent was obtained from all participants, and no compensation was provided for participating in the research. In total, 98% of women who accessed the online survey completed the entire questionnaire. Prior to initiating data collection, the research protocol was approved by the Ethics Commission of the Department of Developmental and Social Psychology, Sapienza University of Rome, Italy. All procedures performed with human participants were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration

of Helsinki and its later amendments, or comparable ethical standards.

### Participants

The final sample consisted of 427 Italian women who self-identified as lesbian ( $n = 241$ ; 56%) or bisexual ( $n = 186$ ; 44%), with ages ranging from 18 to 40 years (lesbian women:  $M = 27.61$ ,  $SD = 7.19$ ; bisexual women:  $M = 25.23$ ,  $SD = 5.81$ ). Among the lesbian women, 5 (2%) did not have a mother, whereas 23 (9%) did not have a father (bisexual women: 7 [4%] and 12 [7%], respectively). The general level of education was high, with 56 (23%) lesbian women and 55 (30%) bisexual women having at least a university degree, and 142 (59%) lesbian women and 98 (53%) bisexual women having completed secondary school. With respect to socioeconomic status, 78 (32%) lesbian women reported an above average status, whereas 135 (56%) reported an average status (bisexual women: 68 [37%] and 94 [51%], respectively).

### Measures

#### Sociodemographic Variables

Participants completed an identifying form to provide sociodemographic data pertaining to sex, age, sexual orientation, socioeconomic status (0 = poor, 2 = good), education level (0 = high school, 2 = Ph.D., specialization), political orientation (0 = left-wing, 2 = right-wing), and parental situation (parents alive vs. both parents deceased or out of contact). Participants also indicated whether they adhered to any religion, with the dichotomous item “Are you a believer?” (no = 0, yes = 1). Following this, they were asked: “Have you received a religious education?” Here, participants indicated their response using a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very much*). In addition, participants were asked to indicate whether they were an only child (=0) or whether they had at least one sibling (=1). The presence of a stable relationship was investigated by the following item: “Do you have, at this time, a stable romantic relationship?” The answer modality was dichotomous (no = 0, yes = 1). Finally, participants were asked to report their sexual orientation by indicating one of three possible responses (0 = lesbian woman; 1 = bisexual woman; 2 = other). In cases where “other” was selected, participants had the opportunity to specify their sexual orientation.

#### Disclosure of Sexual Orientation

Each participant was given a list of two significant figures (i.e., mother and father) and asked to indicate whether each figure was aware of their sexual orientation. Three possible responses were provided: “He/she is aware of my sexual orientation,” “He/she is not aware of my sexual orientation,” and “not applicable” (e.g., if a parent was not alive). Participants were also asked to indicate the age of their first disclosure to each parent. Parents’ reactions to the CO were categorized into one of four response options (accepting, tolerant, intolerant, or rejecting). Previous research has also used these measures of CO (D’Augelli et al., 1998; Pistella et al., 2020a,b).

## Measure of Internalized Sexual Stigma for LB Women–Short Version (MISS-LB; Lingardi et al., 2012)

The short version of the MISS-LB was used to measure participants' ISS (Pistella et al., 2016; Baiocco et al., 2018b). The scale was adapted for the current research in order to evaluate such aspects in bisexual women, as well. Example items included: "I would prefer to be heterosexual" and "I do not believe in love between lesbian women or bisexual women." Participants answered on a 5-point Likert scale ranging from 1 (*I disagree*) to 5 (*I agree*). A mean score of six items was calculated, with higher scores indicating greater levels of ISS. Cronbach's alpha was 0.76.

## Positive LB Identity

The Italian version of the Multifactor LB Positive Identity Measure (LB-PIM; Riggle et al., 2014; Baiocco et al., 2018b) is a 25-item adapted measure designed to assess positive identity in LB women through five dimensions: self-awareness (e.g., "I am more aware of how I feel about things because of my LB identity"), authenticity (e.g., "I am comfortable with my LB identity"), community (e.g., "I feel supported by the LB community"), intimacy (e.g., "My LB identity allows me to be closer to my intimate partner"), and social justice (e.g., "My experience with my LB identity leads me to fight for the rights of others"). Respondents rate each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). In accordance with previous research (Baiocco et al., 2018b; Pistella et al., 2020a), we used the average total score for the analysis, with a higher score indicating greater positive LB identity. Previous studies using the total score have indicated excellent internal consistency (Pistella et al., 2020a). In the current research, Cronbach's  $\alpha$  for the total score was 0.95.

## Data Analysis

Bivariate and multivariate analyses were conducted using the Statistical Package for the Social Sciences (SPSS 25.0). Sexual orientation differences in relation to CO to parents, ISS, positive LB identity, and other covariates were examined using chi-square tests and univariate analyses of variance (ANOVAs). Kruskal–Wallis  $H$ -tests were used to reveal differences in parents' reactions to CO between lesbian women and bisexual women. Point-biserial (when one variable was continuous and one was dichotomous), Pearson (when both variables were continuous), and phi (when both variables were dichotomous) coefficient correlations were calculated to examine the relationships between variables.

Finally, we tested different mediation models using the Process SPSS macro (Hayes, 2009, 2013), and evaluated the direct and mediating effects for statistical significance with bias-corrected bootstrapping (5,000 samples) and 95% confidence intervals (CI). We also examined moderated mediation models to measure the effect of sexual orientation (lesbian vs. bisexual). All continuous variables were standardized to  $z$ -scores prior to the analysis.

## RESULTS

### Sexual Orientation Differences and Associations Between Key Variables

More women reported that they had CO to their mother ( $n = 289$ , 69%) than their father ( $n = 203$ , 52%), regardless of sexual orientation. Descriptive statistics of the measure, differentiated by sexual orientation, are presented in **Table 1**. Sexual orientation differences were found in relation to CO to mothers, CO to fathers, ISS, and positive LB identity. In particular, more lesbian women had revealed their sexual orientation to both parents, relative to bisexual women. Again, the analyses showed that lesbian women reported lower levels of ISS and higher levels of positive LB identity compared to bisexual women. There were no significant differences between LB women regarding other sociodemographic characteristics, such as SES, educational level, political orientation, religiosity, stable relationship, and family size.

No differences were found between LB women in terms of the figure to whom participants first CO. Paired-sample  $t$ -tests showed statistically significant differences between the average age of CO to mothers versus the average age of CO fathers,  $t(194) = -4.13$ ,  $p < 0.001$ , indicating that participants in both groups tended to CO first to mothers. On average, CO to mothers occurred at age 20 ( $SD = 5.54$ , range = 10–40 years), while CO to fathers occurred at age 22 ( $SD = 5.63$ , range = 13–40 years).

Participants' reports of mothers' and fathers' CO reactions are reported in **Table 2**. Overall, paired-sample  $t$ -tests revealed no significant differences between mothers' and fathers' reactions,  $t(53) = -3.53$ ,  $p = 0.001$ . Similarly, no differences in mothers' and fathers' reactions between LB women were found (**Table 2**). Almost half of the mothers and fathers of both LB women were perceived as tolerant of their daughter's sexual orientation, but not fully accepting. Amongst lesbian women, 11% of mothers and 11% of fathers were perceived as fully accepting, while bisexual women reported higher frequencies of 15% and 18%, respectively.

**Table 3** shows correlations among key variables for the overall group of women. There was a significant moderate correlation between CO to mothers and CO to fathers. CO to both parents was negatively correlated with ISS and positively related with positive LB identity and age. Interestingly, CO to mothers was weakly associated with participants who were only children. Finally, CO to both parents, positive LB identity, and ISS were significantly correlated with the presence of a stable relationship.

### CO to Parents, ISS, and Positive LB Identity

To investigate whether the relationship between ISS and CO to parents was mediated by positive LB identity, we tested various mediation models. First, we performed mediation analysis, considering CO to mothers and CO fathers as dependent variables in the same model. Specifically, we tested a mediation model in which ISS was the independent variable, CO to mothers and CO to fathers were the dependent variables, and positive LB identity was the mediator. However, there were no significant findings. Thus, we repeated the



analysis with a dummy dependent variable coded as: 0 = those who had CO to only one or to neither parent; and 1 = participants who had CO to both parents. A preliminary chi-square test,  $\chi^2(1) = 12.84$ ,  $p < 0.001$ , indicated that

lesbian women ( $n = 147$ , 61%) had CO more frequently to both parents compared to bisexual women ( $n = 81$ , 43%). Previous research has recoded these variables similarly (Pistella et al., 2020a).

**TABLE 1 |** Descriptive of the sample's characteristics.

	Lesbians ( $n = 241$ )	Bisexuals ( $n = 186$ )	Total sample ( $n = 427$ )	$t/F/\chi^2$	$p$
(1) CO to mother (yes)	184 (78%)	105 (59%)	289 (69%)	17.95	$< 0.001$
(2) CO to father (yes)	130 (60%)	73 (42%)	203 (52%)	12.11	$< 0.01$
(3) Positive LB identity	5.67 (0.98)	5.20 (1.14)	5.47 (1.08)	20.94	$< 0.001$
(4) Internalized Sexual Stigma (ISS)	1.52 (0.67)	1.71 (0.76)	1.60 (0.71)	3.59	0.01
(5) Age	27.61 (7.19)	25.23 (5.81)	26.57 (6.68)	3.79	$< 0.001$
(6) SES (average)	135 (56%)	94 (51%)	229 (54%)	1.27	0.53
(7) Education level (high school)	142 (59%)	98 (53%)	240 (56%)	2.35	0.31
(8) Political orientation (left wing)	160 (66%)	138 (74%)	298 (70%)	4.18	0.12
(9) Religiosity (yes)	55 (23%)	47 (25%)	102 (24%)	0.35	0.56
(10) Religious education	1.74 (0.91)	1.75 (0.92)	1.75 (0.91)	0.11	0.91
(11) Relationship (yes)	139 (58%)	95 (51%)	234 (55%)	1.85	0.17
(12) Family size (sibling(s))	203 (84%)	144 (77%)	347 (81%)	3.20	0.07

The  $t/F/\chi^2$  it refers to the sexual orientation difference in total sample (LB women).

Standard deviations and percentages are in parentheses. Totals for CO to mother and CO to father vary because some women did not have a father or a mother.

**TABLE 2 |** Mother and father responses reported by those who had disclosed.

	Mothers' reactions		Fathers' reactions	
	Lesbians ( $n = 184$ )	Bisexuals ( $n = 105$ )	Lesbians ( $n = 130$ )	Bisexuals ( $n = 73$ )
Rejecting	27 (15%)	15 (14%)	15 (12%)	11 (15%)
Intolerant	65 (35%)	29 (28%)	34 (26%)	17 (23%)
Tolerant	71 (39%)	49 (47%)	62 (47%)	32 (44%)
Accepting	21 (11%)	12 (11%)	19 (15%)	13 (18%)
$M$	2.47	2.55	2.65	2.64
$SD$	0.87	0.86	0.88	0.82
Kruskal–Wallis test	$H(1) = 0.86; p = 0.35$		$H(1) = 0.99; p = 0.98$	

All the values refer to participants who revealed their sexual orientation.

The Kruskal–Wallis test refers to the difference between LB women.

**TABLE 3 |** Correlations between CO to parents, Internalized Sexual Stigma (ISS) and positive LB identity and other variables considered in the present study ( $n = 427$ ).

	1	2	3	4	5	6	7	8	9	10	11	12
(1) CO to mother	1.00											
(2) CO to father	0.66**	1.00										
(3) Positive LB identity	0.27**	0.30**	1.00									
(4) ISS	−0.18**	−0.22**	−0.40**	1.00								
(5) Age	0.17**	0.21**	0.14**	−0.12*	1.00							
(6) SES	0.10*	0.09	−0.12**	0.02	−0.08	1.00						
(7) Education level	0.05	0.05	−0.07	−0.02	0.26*	0.19**	1.00					
(8) Political orientation	−0.05	−0.03	−0.06	0.09	−0.02	−0.01	−0.19**	1.00				
(9) Religiosity	−0.07	−0.07	−0.06	0.10*	0.04	0.01	−0.02	0.18**	1.00			
(10) Religious education	−0.06	−0.06	−0.09	0.17**	0.06	0.05	−0.05	0.08	0.53**	1.00		
(11) Relationship	0.12*	0.10*	0.11*	−0.18**	0.10*	−0.05	0.09	−0.03	−0.02	−0.02	1.00	
(12) Family size	−0.10*	0.02	−0.07	−0.03	0.09	−0.06	−0.03	0.02	0.03	0.02	1.00	1.00

\*\* $p < 0.01$ , \* $p < 0.05$ . CO to mother and father (0 = He/she is not aware of my sexual orientation to 1 = He/she is aware of my sexual orientation); SES: socioeconomic status (0 = poor to 2 = good); education level; (0 = high school to 2 = Ph.D., specialization); political orientation (0 = left wing to 2 = right wing); religiosity, religious education, and presence of a stable relationship (0 = no, 1 = yes); family size (0 = only child, 1 = sibling(s)).

We then tested a mediation model in which the relationship between ISS and CO to both parents was mediated by positive LB identity. We adjusted our analyses for a number of covariates: age, sexual orientation, socioeconomic status, education level, political orientation, religiosity and religious education, presence of a stable relationship, and family size (only child vs. sibling(s)). The results are presented in **Figure 1**. When examining the relationship between ISS and CO to both parents, we found a significant direct effect (see  $\beta$  path c in **Figure 1**; H1). When we entered the mediator in the model, there was a total reduction in the relationship between ISS and CO to parents (see  $\beta$  path c'), providing support for our second hypothesis (H2). The individual paths showed that ISS was negatively related to positive LB identity ( $\beta$  path a), which in turn was positively related to CO to both parents ( $\beta$  path b). ISS and positive LB identity accounted for a significant amount of variance in CO to parents,  $R^2_{\text{Nagelkerke}} = 0.20, p < 0.001$ .

An examination of indirect effects showed that positive LB identity significantly mediated the association between ISS and CO to both parents (bootstrapping estimate =  $-0.26$ , SE =  $0.08$ , 95% CI =  $-0.43, 0.11$ ). Among the covariates considered in the model, only age,  $\beta = 0.05$ , SE =  $0.02$ ,  $p = 0.003$ , and SES,  $\beta = 0.45$ , SE =  $0.17$ ,  $p = 0.007$ , were associated with CO to both parents, while sexual orientation,  $\beta = -0.40$ , SE =  $0.22$ ,  $p = 0.06$ , education level,  $\beta = 0.08$ , SE =  $0.15$ ,  $p = 0.58$ , political orientation,  $\beta = 0.04$ , SE =  $0.16$ ,  $p = 0.79$ , religiosity,  $\beta = -0.18$ , SE =  $0.29$ ,  $p = 0.52$ , religious education,  $\beta = -0.10$ , SE =  $0.22$ ,  $p = 0.62$ , presence of a stable relationship,  $\beta = 0.34$ , SE =  $0.21$ ,  $p = 0.10$ , and family size,  $\beta = -0.08$ , SE =  $0.27$ ,  $p = 0.76$ , were not. We also examined moderated mediation models to verify the effect of sexual orientation as a moderator (lesbian vs. bisexual women), but there were no significant findings. Thus, the last hypothesis (H3) was not supported by the moderated mediation.

In addition, given that a causal relationship was not assumed between ISS and positive LB identity, alternative models were tested using the same key variables with counter pathways (results available upon request). When we considered positive LB identity as the independent variable and ISS as the mediator, the mediation model was not significant (bootstrapping estimate =  $-0.08$ , SE =  $0.05$ , 95% CI =  $-0.18, 0.02$ ). Therefore, we concluded that our original model was the most adequate in describing the association between positive and negative aspects of LB identity and CO to parents.

## DISCUSSION

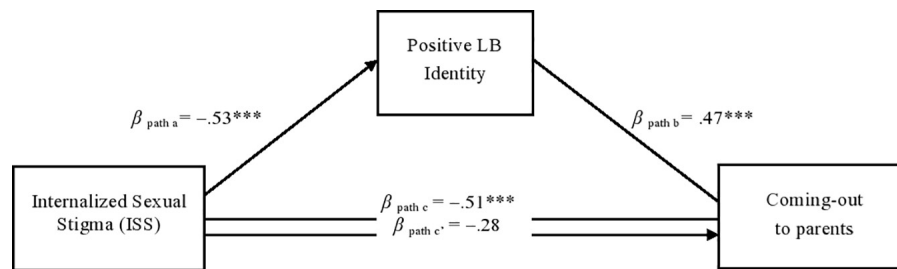
As there is a paucity of studies in the literature on LB women, the present study sought to investigate the process of CO to parents, focusing on these specific sexual minority populations. Previous research has typically combined bisexual men and women in a single sample (Legate et al., 2012; Pistella et al., 2016); however, “diversity within the LGB community should not be overlooked,” as stated by Costa et al. (2013), (p. 241). Furthermore, prior research has not typically differentiated between CO to mothers and CO to fathers (Costa et al., 2013; Pistella et al., 2016), nor has it generally considered CO to

both parents, as performed here. The present study found no differences between LB women regarding either the age of CO to parents or fathers' and mothers' reactions to the disclosure. Nonetheless, more lesbian women had CO to both mothers and fathers relative to bisexual women, and both LB women were more likely to CO first to mothers and, within the following 2 years, to fathers, in line with a recent Italian study conducted by Pistella et al. (2020a). These results are consistent with previous studies, suggesting that bisexual women are more likely than lesbian women to hide and not disclose their sexual identity for fear of being rejected (Knous, 2006; Hayfield et al., 2013; Wandrey et al., 2015).

The innovative aspects of the present study relate to the investigation of the role of ISS and positive LB identity in inhibiting or promoting LB women's CO to both parents. First, the results showed that lesbian women had lower levels of ISS and higher levels of positive LB identity than bisexual women, suggesting that bisexual women may comprise a more vulnerable group, exposed to higher levels of sexual stigma. The literature stresses that bisexual people must cope with more negative prejudice and stigma than lesbian women and gay men (Eliason, 1997), and that bisexual people, in general, have to manage stigma and rejection even from the sexual and gender minority community (Mohr and Rochlen, 1999; Friedman et al., 2014). It is also important to consider that this research was conducted in the Italian context, which is characterized by a sexist and heteronormative culture and a high level of sexual prejudice (Lingiardi et al., 2012; Baiocco and Pistella, 2019); this, in itself, may lead LB women—especially bisexual women—to develop a high level of ISS and a low level of positive identity (Baiocco et al., 2018b; Petrocchi et al., 2020).

An even more interesting result is the detection of the hypothesized mediation effect of a positive LB identity in the relationship between ISS and CO to both parents, within both LB women. Specifically, ISS was found to be negatively related to a positive LB identity, which, in turn, was associated with CO to both parents. The mediation model was tested whilst controlling for the effects of demographic variables, but only age and socioeconomic status were found to have a significant positive effect on CO to both parents. Due to the impossibility of assuming a causal relationship between ISS and positive LB identity, we tested an alternative model in which ISS was the mediator variable between positive LB identity and CO to both parents. However, this model did not yield a significant mediation effect of ISS, highlighting that our hypothesized model should be preferred. The present findings suggest the significant role of a positive LB identity in reducing the negative effect of ISS on the CO process to parents (Riggle et al., 2014; Rostosky et al., 2018; Petrocchi et al., 2020).

Although bisexual women reported higher levels of ISS and lower levels of LB positive identity than did lesbian women, data from the mediation model suggests that the development of a positive LB identity could be a protective factor for both LB women. As suggested by Petrocchi et al. (2020), a positive LB identity should be fostered in LB people, because it can protect them from negative and discriminative experiences—particularly in the Italian heterosexist context. Furthermore, a positive LB



**FIGURE 1 |** The mediated effect of positive LB identity on the relationship between ISS and CO to parents. \*\*\* $p < 0.001$ . All values are beta coefficients. In the ISS and positive LB identity scales, a higher score indicates greater internalized sexual stigma and positive LB identity, respectively. A higher score to the coming out variable indicate more likely to reveal their sexual orientation to both parents. Age, Sexual orientation, SES, education, presence of a stable relationship, and family size were included as covariates.

identity can promote resilience and adaptive functioning in LB women, leading to greater psychological well-being.

The present findings have implications that extend beyond social science research, because they may also be useful for clinical practice with LB women, who have unique therapeutic needs (Scherrer, 2013; Baiocco and Pistella, 2019). It is important that future studies evaluate not only dimensions related to psychological distress (e.g., ISS), but also positive dimensions (e.g., the development of a positive LB identity), especially among the younger generations of sexual minority people. Moreover, future studies on the CO process should consider the mediating role of a positive LB identity in the relationship between ISS and CO.

Regarding clinical implications, the findings could advise mental health professionals on which variables they should take into account when working with LB women to promote a positive CO process and adaptation to family contexts (Baiocco and Pistella, 2019). Clinicians should be aware that bisexual women may face additional prejudice and suffer from higher levels of ISS, relative to lesbian women; however, it is important that clinicians focus on strengthening and promoting a positive LB identification in both LB women. In most clinical settings, psychotherapists working with LB clients aim at reducing ISS and helping clients to alleviate the negative effect that minority stress can have on CO process, working on negative emotions associated with stigmatizing experiences and developing a positive self-image (Scandurra et al., 2020).

Again, our results suggest that clinicians and mental health professionals should focus their attention—in different phases of the work and according to patients' needs—on strengthening and supporting a positive LB identity. This, in turn, might encourage LB women to disclose their sexual identity to their parents. Thus, it is important that clinicians and mental health professionals working with LB women aim at increasing their clients' resilience, positive identity, coping strategies, self-awareness, authenticity, intimacy, and resources and strengths, in line with the guidelines of affirmative therapy with sexual minority people (O'Shaughnessy and Speir, 2018). LB women who are supported in developing a positive identity may be more likely to CO, because they are more resilient to any prejudice, stigma, and rejection that may arise in response to

their disclosure. Therefore, CO can provide an opportunity for personal growth and the development of inter- and intrapersonal resources, which can generate more social support for LB women, as they are no longer hiding their sexual identity (Riggle and Rostosky, 2012; Kwon, 2013).

In terms of practical implications in the social context, the present results suggest that educational, work, and cultural contexts should promote positive and visible models of LB women. Indeed, early intervention in these environments may prevent young LB women from becoming discouraged, which may lead them to conceal their sexual orientation in family, cultural, and social contexts due to a fear of being discriminated against. Programs and events should be developed to combat sexism and homophobia, such as campaigns to support sexual and gender minority rights (Baiocco and Pistella, 2019). Over recent years, Italian society has faced several challenges. We are aware that much work remains to be done to improve sexual minority acceptance in the Italian context; however, we are motivated to continue our efforts to promote the positive identity and well-being of sexual and gender minority people.

Despite its innovative aspects, the study also has some limitations. First, we used a convenience sample that was not representative of the general population, and we did not focus explicitly on any differences that may exist on the basis of age, race, class, or gender. Second, we used self-report questionnaires, which are subject to a common method bias (Podsakoff et al., 2003). Moreover, the study was conducted in Italy—a conservative, family-oriented, and heterosexual country, in which young people are typically more involved in family dynamics than are youth in other Western societies (Baiocco et al., 2015). Thus, future cross-cultural studies should be conducted to confirm our mediation model in other cultural contexts. Finally, it was not possible to infer causal relationships among the variables, due to the correlational nature of data. Future longitudinal studies may be conducted to more deeply test the possible effects of ISS and positive LB identity on the process of CO to parents.

The present study contributes deeper knowledge of the differences between LB women during the development of their sexual orientation, highlighting the relevance of a positive LB identity in influencing CO to parents. Moreover, the finding that ISS impacts CO to both parents via a positive LB identity in both

LB women supports further investigation into these populations within the field of CO. Nevertheless, considering the scarcity of data on the CO process of LB women, the present study constitutes an important step forward in our understanding of sexual minority women's experiences with their parents.

## DATA AVAILABILITY STATEMENT

The dataset generated for this study is available upon request to the corresponding author.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by ethics committee of the Department of Developmental and Social Psychology, Sapienza University of Rome. The patients/participants provided their written informed consent to participate in this study.

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## AUTHOR CONTRIBUTIONS

RB and JP contributed to conceptualization of the project and creation of the research design and instruments, executed the study, assisted with the data analyses, and wrote the manuscript. MM and JP collaborated with designing and writing the study. RB collaborated in writing and editing the final manuscript. All authors read and approved the final manuscript.

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# Predictive Validity of Operationalized Criteria for the Assessment of Criminal Responsibility of Sexual Offenders With Paraphilic Disorders—A Randomized Control Trial With Mental Health and Legal Professionals

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The prevention of sexual violence is a major goal of sexual health. In cases of accused sexual offenders, the assessment of diminished criminal responsibility of the accused is one of the most important procedures undertaken by experts in the German legal system. This assessment follows a two-stage method assessing first the severity of a paraphilic disorder and then second criteria for or against diminished capacity. The present study examines the predictive validity of two different sets of criteria for the assessment of criminal responsibility in the context of paraphilic disorders combined with sexual offending. Two exemplary case vignettes of two suspected sexual offenders were developed to assess the criteria. For each participant, one of the two exemplary case vignettes was randomly presented. The presentation of the two different sets of criteria was also randomized, so that each participant was assigned only one of the two criteria sets to rate one of the presented cases.  $N = 349$  participants from different professional backgrounds (mental health and legal professionals) completed their assessments and were included in the data analysis. The data were evaluated using logistic regression. Results show that the more recently published criteria set (Briken and Müller, 2014) predicts both the severity of the disorder as well as the diminished capacity twice as good as the older criteria set of Boetticher et al. (2005) currently used regularly for forensic court reports. In preliminary conclusion, the new criteria of Briken and Müller (2014) form an empirically based assessment of criminal responsibility. However, the proposed criteria cannot replace an extensive exploration of the accused person and a careful file analysis. Validity and reliability of the results are also limited due to the methodical choice of a vignette study.

**Keywords:** assessment, criminal responsibility, sexual violence, sexual offender, paraphilic disorders

## INTRODUCTION

The assessment of criminal responsibility is subject to the individual national legal system and is therefore handled heterogeneously. It represents, besides matters of legal prognosis of criminal offenders and of credibility assessment, the most common task for psychiatric and psychological experts in German court proceedings. In the field of predicting legal-prognostic issues in sexual offenders, actuarial-statistical methods, whose conclusions are based on the application of an explicit numerical method with empirically validated items, have proven to be superior to clinically intuitive assessments (Hanson and Morton-Bourgon, 2009). Hanson and Morton-Bourgon (2005) showed that deviant sexual interests are one of the most powerful predictors of sexual recidivism. According to Levenson (2004), forensic experts assessing sex offenders show a rather poor inter-rater-reliability (IRR) of DSM-IV-TR diagnoses. However, Packard and Levenson (2006) pointed out that the informative value of Cohen's kappa is limited and that it tends to underestimate the agreement of the raters. More common diagnoses result in greater agreement than those diagnoses that are less common or those that are based on vague or confoundable criteria, i.e., sadism. This inconsistency in diagnoses might be the result of imprecise diagnostic criteria or an indication of the low prevalence of the disorders in question, another potential factor could be the experience of the experts.

The exceptional relevance of the agreement of diagnoses in the legal context must be taken into account given the large impact they might have on the life of the person being assessed. Therefore, Marshall (2006) suggested the agreement of the raters should be reflected in a kappa of at least  $K = 0.90$  when diagnosing sexual offenders. In less severe cases, the IRR should reach at least 0.60. In multiple cases of paraphilias, this could not be confirmed by either Levinson (2004) or Marshall et al. (2002). IRR of 15 forensic psychiatrists concerning the diagnosis of sexual sadism was very poor with a coefficient of  $K = 0.14$ . Accordingly, Marshall (2006) concluded that DSM-IV-TR diagnoses cannot be considered helpful in defining an appropriate treatment or prognosis for sexual offenders.

According to §20 of the German penal code (*Strafgesetzbuch; StGB*), which has the status of a uniform federal law, someone who “acts without guilt [who,] when committing the act due to a pathological mental disorder, due to a profound consciousness disorder, due to intellectual deficiency or other serious mental abnormality (so called SASA), unable to see the wrongdoing or to act on this insight” should receive appropriate legal treatment: “If the offender's ability to perceive the wrongdoing or act on this basis is significantly reduced for one of the reasons specified in §20 when the offense is committed, the sentence may be reduced” (§21 of the German penal code).

Culpability is not explicitly named in German legal text. Instead, the legislator provides mental conditions or situations which could indicate a reduced culpability. These include the inability to perceive wrongdoing or to act on this basis due to:

- A pathological mental disorder,
- A profound consciousness disorder,

- An intellectual deficiency or
- A serious mental abnormality (SASA).

The assessment of criminal responsibility takes place in a so-called two-stage method (Jescheck and Weigend, 1996). First, there is a possible assignment to one of the four entry criteria: pathological mental disorder, profound consciousness disorder, intellectual deficiency, or other severe mental abnormality (SASA). In the second step, the effects of the aforementioned conditions on the ability to understand and control (diminished capacity) are considered. The impact on the life of the person being examined as a result of the assessment can be vast. One potential consequence is the indefinite placement in a psychiatric clinic in accordance to § 63 StGB.

The assessment of the respective symptoms to the SASA and the ability to understand and control (diminished capacity) is unfortunately subject to a relatively subjective assessment. Paraphilic disorders are represented by the criterion of the SASA and hence might lead to a potentially significant reduction in the ability to control one's own behavior (diminished capacity) which can result in diminished capacity within the meaning of §21 StGB (Schreiber and Rosenau, 2015). Ultimately, the court determines whether someone should be held legally responsible for the accused crime. The court can be advised by an external psychiatric or psychological expert on questions of these issues.

Sexual delinquency does of course not only occur as a symptom of paraphilic disorders. Other mental disorders that might lead to such behavior include, for example, intellectual developmental disorders or schizophrenia spectrum disorders.

The prevalence rate of paraphilic disorders displays distinct differences depending on the sample. A study of an Austrian population of male incarcerated sex offenders with a sample of 1346 is particularly worth mentioning here (Eher et al., 2019). The study found that 43.3% of the investigated men met the criteria for any kind of paraphilic disorder, 4.4% had a sexual sadistic disorder, 34.5% had a pedophilic disorder, and 2.8% had an exhibitionistic disorder. Regarding the general public however, the following lifetime prevalence for at least once occurring paraphilic behavior (not to be confused with the diagnosis of a paraphilic disorder) was found: 25.0% for some kind of paraphilic behavior, 2.7% for sadistic behavior, 0.9% for paraphilic behavior, and 4.3% for exhibitionistic behavior (Baur et al., 2016).

Traditional evaluation criteria regarding the entry criteria of the SASA refer to a psychologically heterogeneous clinical presentation, and refer mainly to personality disorders without explicit reference to paraphilic disorders (Saß, 1985; Rasch, 1999; Schmidt, 2008).

The minimum requirements for the assessment of criminal responsibility (Boetticher et al., 2005) were created by an interdisciplinary group of experts. They are based on criteria derived from various theoretical models from a multitude of heterogeneous sources (Saß, 1985), and on the effects of personality pathologies on the ability to control one's behavior. Despite these criteria only being named and not further operationalized, they do illustrate psychological states and their effects. The following criteria are indicators for a severe paraphilic disorder (Boetticher et al., 2005; Briken et al., 2019):



- The paraphilic disorder determines the sexuality of the person to a great extent, or
- Paraphilic impulses are denied and perceived as egodystonic (=alien). While being overcontrolled and masked the vast amount of time, the ability to control the impulses decreases significantly under certain circumstances.
- The paraphilic disorder is progressive with regard to its dynamic, that is, the person being evaluated experiences themselves as progressively being flooded by stronger and stronger paraphilic impulses: The pressure to act on them increases.
- The person has (as a result of particular personality factors or sexual dysfunction) few or no other opportunities to satisfy himself or herself sexually.

Indicators for and against a forensically relevant capacity to control one's behavior in relation to paraphilic disorders in the case of sex offenses (Boetticher et al., 2005; Briken et al., 2019) are:

Indicators pointing toward a considerable level of impairment in the capacity to control one's behavior:

- Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive.
- Carrying out of the offense, even in social situations that are strictly monitored.
- An abrupt, impulsive course of criminal action.
- Criminal action that appears ritualized. Outer stimuli appear to be blanked out.
- Contributing factors (substance intoxication, co-occurring disorders, personality disorders, limited intelligence).

Indicators pointing away from a considerable level of impairment in the capacity to control one's behavior:

- Indicators for preparations being made for the offense in advance, as well as a planned approach (elaborations of paraphilic fantasies are expressly not included here).
- The ability to wait or a crime that is very prolonged in nature.
- The crime involves a complex step-by-step sequence of actions.
- Precautions are taken against being discovered.
- The person has previously acted differently in comparable situations.

Initially, Briken and Müller (2014) suggested criteria that could reflect the severity of the paraphilia and the extent of accountability. These criteria were already standardized due to their application in prognosis instruments, and thus could possibly improve the IRR when assessing SASA and the capacity to control one's behavior. The authors chose eight items from two established standardized prognosis instruments for sex offenders, which are operationalized in detail: from the STABLE-2007 (Matthes and Rettenberger, 2008b) and from the ACUTE-2007 (Matthes and Rettenberger, 2008a).

The following criteria are indicators to determine the severity of a paraphilic disorder:

- Paraphilic sexual interests,
- Sex drive/sex preoccupation,
- Sex as coping,
- Capacity for stable relationships,
- General social rejection.

Indicators regarding a forensically relevant capacity to control one's behavior in relation to paraphilic disorders in the case of sex offenses are:

- Collapse of social support,
- Emotional collapse,
- Sexual pre-occupations.

Briken and Müller (2014) criteria were examined and elaborated in a further step by Brunner et al. (2016) with regard to their applicability and IRR. This pilot study showed that the criteria can be applied. However, besides a small sample size, the missing inclusion of expertise from the legal side emphasizes the need for future research. Therefore, Dobbrunz et al. (2020) examined the IRR of the two criteria catalogs in a preliminary study. Fourteen experts from the fields of psychology, psychiatry, and prosecution, who were qualified for the assessment of criminal responsibility, participated in the study. Dobbrunz et al. (2020) found that the IRR was higher based on Briken and Müller (2014) criteria than on those of Boetticher et al. (2005). It was shown that the subjective importance/relevance of the two assessment scales' 22 criteria were rated, on average, with at least moderate accordance between the experts.

## CURRENT STUDY

The aim of this work is to compare the existing operationalized criteria (Boetticher et al., 2005; Briken and Müller, 2014) for assessing the criminal responsibility of accused offenders with paraphilic disorders, which are used by various professional groups (psychologists, psychiatrists, and prosecutors) dealing with the subject of assessment of criminal responsibility. For this experimental study, we focus exclusively on the influence of paraphilic disorders, for which in the German legal system the question of criminal responsibility is much less clear than for other disorders, for example, the presence of an acute schizophrenic disorder. In order to keep the methodological design as clear and unambiguous as possible, the complexity was also reduced and other constellative factors such as intoxication were omitted in the case vignettes and in the evaluation criteria. Of course, this makes the cases less naturalistic. The criteria are examined with regard to their predictive validity in order to increase the quality and transparency of assessments, and thus achieving a substantial added value for the assessment of criminal responsibility in practice. In this study, the predictive validity based on the criteria of Boetticher et al. (2005) and Briken and Müller (2014), regarding the assessment of criminal responsibility (SASA and diminished capacity), is examined.

## MATERIALS AND METHODS

For the assessment of the criminal responsibility criteria, two exemplary case descriptions of two alleged sex offenders were developed. Both case descriptions were constructed by the authors. Each case was constructed with a specific aim: the first case was constructed in a way that it would indicate no SASA and no diminished capacity, and the second was constructed so that it would indicate SASA and diminished capacity. It was important not to construct the cases in such a way that this intent was too obvious, but present cases as realistic as possible with the limitations mentioned above (no additional relevant psychiatric disorders or constellative factors). This had been assessed by the experts in the preliminary study as well (Dobbrunz et al., 2020). Thus, the decision of the experts from the preliminary study (Dobbrunz et al., 2020) that used the same case vignettes was the standard (correct assessment) regarding the SASA and the diminished capacity presented in both case vignettes. The case vignettes are shown in the **Appendix**.

For the verification of predictive validity, psychiatrists, clinical psychologists, and legal psychologists as well as judges and prosecutors from all over Germany were contacted by email and asked to participate in the study. These are professional groups that potentially have to deal with questions regarding the assessment of culpability in the course of their professional activities either as experts or in the context of legal decisions. We have deliberately not tried to concentrate only on participants already experienced in the assessment of criminal responsibility. Participants were recruited via relevant email distribution lists from the professional associations of the respective occupational groups. In the case of judges and prosecutors, the ministries of justice of the 16 federal states were asked for permission for the prosecutors to participate, of whom 10 federal states agreed to support the study.

An online study using LimeSurvey was carried out. LimeSurvey is a free online survey application. For each participant, one of the two exemplary case vignettes was randomly presented to assess criminal responsibility. Since no experience in assessing or working with individuals with paraphilic disorders was a prerequisite for participation in the study, the ICD-10 criteria for paraphilic disorders were also shown and were available when participants rated their assessment. The presentation of the criteria by Boetticher et al. (2005) or the criteria of Briken and Müller (2014) was also randomized, so that each participant used and evaluated only one of the two scales. The 22 items were assessed on three-level rating scales (version: is not present at all/is somewhat present/is completely present) and with regard to the assessment of the SASA as well as in the case of diminished capacity in the form of a dichotomous version (versions: exists/does not exist). Finally, in form of an open response format, the raters were asked to provide additional information on the evaluation of the individual items or to indicate which other criteria could be considered. Power and sample size calculation was carried out using the statistical software PASS (version: 15.03). The desired minimum sample size was  $N = 300$ . In total, there were four experimental groups (two case vignettes  $\times$  two criteria catalogs). Logistic regression

models were calculated to determine the predictive validity, using the statistical software SPSS (version 26).

## Participants

A total of 718 participants took part in the online study, 360 of whom canceled the study or did not complete the study. Another 358 participants completed the study. Of these 358 participants, nine cases were excluded because these participants were part of occupational groups that did not belong to the target groups, or because their occupational status was “student.” The sample size is therefore  $n = 349$ . There were 202 women (57.9%), 146 men (41.8%), and one Trans-/Inter person (0.3%). The distribution of the occupational groups participated in the investigation was: 155 psychologists (44.4%), 68 psychiatrists (19.5%), 114 judges or public prosecutors (32.7%), and 12 others (six criminologists, four scientific officers not otherwise specified, and two experts not otherwise specified; 3.4%).

The average age of the participants was  $M = 45.82$  ( $SD = 11.61$ ), with a minimum of 24 and a maximum of 77 years. The distribution of the four groups which were randomly assigned was: case vignette “rape” and criteria according to Boetticher et al. (2005): 89 participants; case vignette “rape” and criteria according to Briken and Müller (2014): 88 participants; case vignette “abuse” and criteria according to Boetticher et al. (2005): 90 participants; and case vignette “abuse” and criteria according to Briken and Müller (2014): 82 participants.

The study was approved by the ethic committee of Hamburg Chamber of Psychotherapists on the 07.12.2018.

## RESULTS

**Table 1** shows the absolute and relative frequencies with regard to the correct assessment of the SASA and diminished capacity in total and with regard to the differentiation between the two sets of criteria. The data show that the evaluators were more successful in correctly predicting the diminished capacity than the SASA.

The logistic regression model (**Table 2**) shows that the chance of correctly assessing the SASA using the Briken and Müller (2014) criteria was 2.15 times higher than using those by Boetticher et al. (2005). With regard to the correct assessment of the diminished capacity, it was shown that the chance for a correct prediction with the criteria catalog by Briken and Müller (2014) was 2.10 times higher than with the criteria catalog according to Boetticher et al. (2005).

Looking at the interactions between the two case vignettes and the two criteria sets, there were no significant differences: with regard to the SASA, the interaction  $p$ -value was 0.084 and the diminished capacity was 0.459. As a consequence, the comparison between the two criteria catalogs took place independently of the case vignette—in other words: the two case vignettes behaved similarly.

**Table 3** shows the result of the logistic regression model of the items of both criteria sets with regard to the variable SASA corrected for the vignettes. None of the items alone yielded a significant result in the prediction of SASA.

**TABLE 1** | Absolute and Relative frequencies with regard to the correct assessment of the SASA and diminished capacity.

Correct assessments		SASA		Diminished capacity	
		Absolute frequency	Relative frequency	Absolute frequency	Relative frequency
Total		233	66.8%	261	74.8%
Criteria set	Boetticher et al.	105	58.7%	122	68.2%
	Briken and Müller	128	75.3%	139	81.8%

**TABLE 2** | Logistic regression model with regard to the different criteria sets.

Model	SASA			Diminished capacity		
	Odds ratio	95%-KI	p-value	Odds ratio	95% KI	p-value
Model 1: Criteria set (Reference: Boetticher et al.)	2.15	1.36–3.40	0.001	2.10	1.27–3.46	0.004

**Table 4** shows the result of the logistic regression model of the items of both criteria catalogs with regard to the variable diminished capacity. The choice of a specific category of the item “Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive” had a significant influence on the correct assessment of diminished capacity, irrespective of the vignette and the answers to the other items.

**Table 5** shows the results of the logistic regression model of the item “Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive” with regard to the variable diminished capacity. The parameter estimates are corrected for the other items and for the vignettes (adjusted model). The chance that diminished capacity was correctly assessed was 9.81 times higher if the item was assessed as “completely present” compared to “not present at all.”

## DISCUSSION

In this study, the predictive validity based on the criteria of Briken and Müller (2014) was higher than the predictive validity

of the criteria of Boetticher et al. (2005). This applied both for the assessment with regard to the SASA and for the diminished capacity. Possible reasons for this could be that the items by Briken and Müller (2014), in contrast to the criteria by Boetticher et al. (2005), have been operationalized more in detail, so there should be fewer incongruities in the understanding of the individual items and consequently, the content of the target variables SASA and diminished capacity can be captured better.

The analysis on the item level showed that only the item “Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive” from the criteria catalog of Boetticher et al. (2005) had a significant influence on the correct prediction of diminished capacity, independent of the vignette and the answers regarding the other items. Maybe, this item seems to play a special role for the decision process.

From a statistical point of view, sufficient reliability applies as a prerequisite for the validity of diagnostic procedures. In addition, for the practical application of diagnostic criteria catalogs, it is advantageous if the measured target variables can be captured with as few items as possible. From a preliminary study by Dobbrunz et al. (2020), we know that the IRR based on the criteria of Briken and Müller (2014) are higher than those of the

**TABLE 3** | Logistic regression model of the items of both criteria sets with regard to the variable SASA.

Criteria set	Items	Wald-Chi-Quadrat	df	p-value
Boetticher et al.	The paraphilic disorder determines the sexuality of the person to a great extent.	0.09	2	0.955
	Paraphilic impulses are denied and perceived as egodystonic (=alien). While being overcontrolled and masked the vast amount of time, the ability to control the impulses decreases significantly under certain circumstances.	5.27	2	0.072
	The paraphilic disorder is progressive with regard to its dynamic, that is, the person being evaluated experiences themselves as progressively being flooded by stronger and stronger paraphilic impulses: The pressure to act on them increases.	2.94	2	0.230
	The person has (as a result of particular personality factors or sexual dysfunction) few or no other opportunities to satisfy himself or herself sexually.	2.32	2	0.313
Briken and Müller	Paraphilic sexual interests.	<0.01	1	0.951
	Sex drive/Sex preoccupation.	4.76	2	0.093
	Sex as Coping.	1.24	2	0.539
	Capacity for stable relationships.	0.30	2	0.862
	General social rejection.	0.58	2	0.749

**TABLE 4 |** Logistic regression model of the items of both criteria sets with regard to the variable diminished capacity.

Criteria set	Items	Wald-Chi-Quadrat	df	p-value
Boetticher et al.	Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive.	9.64	2	0.008
	Carrying out of the offense, even in social situations that are strictly monitored.	0.67	2	0.716
	An abrupt, impulsive course of criminal action.	4.60	2	0.100
	Criminal action that appears ritualized. Outer stimuli appear to be blanked out.	5.65	2	0.059
	Contributing factors (substance intoxication, co-occurring disorders, personality disorders, limited intelligence).	1.80	2	0.406
	Indicators for preparations being made for the offense in advance, as well as a planned approach (elaborations of paraphilic fantasies are expressly not included here).	0.41	2	0.814
	The ability to wait or a crime that is very prolonged in nature.	4.62	2	0.099
	The crime involves a complex step-by-step sequence of actions.	4.09	2	0.130
	Precautions are taken against being discovered.	2.79	2	0.249
	The person has previously acted differently in comparable situations.	3.41	2	0.182
Briken and Müller	Sexual pre-occupations.	0.50	2	0.781
	Emotional collapse.	5.90	2	0.052
	Collapse of social support.	2.20	2	0.332

**TABLE 5 |** Logistic regression model of the item “Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive” with regard to the variable diminished capacity.

Item: “Conflictual escalation and emotional weakening before the suspected offense with an already long-standing hopelessness in the dynamic of sexual drive”	Odds ratio	95%-Wald-CI: Lower	Upper
Specification: “is completely present” (Reference specification: “is not present at all”)	9.81	2.21	43.50
Specification: “is completely present” (Reference specification: “is somewhat present”)	4.48	1.39	14.49
Specification: “is somewhat present” (Reference specification: “is not present at all”)	2.18	0.67	7.13

criteria of Boetticher et al. (2005). To sum up, there are indicators pointing toward the notion that Briken and Müller’s criteria catalog (2014) might represent a more suitable procedure—both in terms for the assessment of the SASA as well as for the diminished capacity. However, the validity of both criteria catalogs should be investigated in further studies using real cases. Results should also be discussed in qualitative studies by experts.

## Implications and Limitations

It should be pointed out that the evaluations were based on two constructed and non-comprehensive case vignettes which were kept relatively short for reasons of time efficiency and to be applicable for use in future studies. Furthermore, the experts lacked a personal impression of the subject, as is usually the case in a psychological/psychiatric assessment or a possible main trial in court. In order to specifically measure the effect of the assessment of paraphilic disorders in this study, the inclusion of other disorders into the case vignettes was omitted. This reduction in complexity surely leads to the fact that the cases presented are less similar to naturalistic cases. In reality, comorbid diagnoses (e.g., with personality disorders) are often present in the context of assessing criminal responsibility in sexual offenders. Varying the cases with further diagnoses would have meant a different methodological approach and an even larger sample. This would have made the implementation of this study more difficult. However, comorbid diagnosis and constellative factors should be considered in future studies.

## CONCLUSION

It may currently make sense to include both criteria catalogs in the assessment process for greater transparency and to further investigate this approach in research. However, the results so far already indicate that the criteria of Briken and Müller (2014) are superior to those of Boetticher et al. (2005) in terms of predictive validity. This can also be assumed for IRR. However, the proposed criteria should not be seen as the only source of information in the assessment process.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## AUTHOR CONTRIBUTIONS

SD and PB are the main authors. AD gave statistical expertise. JM assisted in the discussion. All authors contributed to the article and approved the submitted version.

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## APPENDIX

Case vignette 1: The defendant Mr. Z. is 46 years old (\*12.01.1972). He is accused of repeatedly sexually abusing 4-year-old Jonas, the son of his partner, over a period of approximately 2 years. On the basis of pictures and video tapes, which were produced during the sexual acts by Mr. Z., 38 single-acts were identified. Mr. Z. performed oral sex on the boy and penetrated him anally, in doing so the boy cried. Mr. Z. was always alone in the shared apartment with Jonas when performing these acts. He paid meticulous attention to this fact. During the questioning of the witnesses, the partner and the sister, it turned out that they regarded the accusations as unimaginable. Moreover, the partner stated that she had always had—during the 2 and a half year relationship with Mr. Z.—the impression that he had little interest in mutual sexual activity, but he had explained this as a results of his workload. In the last months of the relationship, there had been nearly no sexual intercourse. Mr. Z. had lost his job as a building cleaner a few weeks ago. In the examination of the defendant by the criminal investigation department, Mr. Z. stated that he had initially begun to caress the boy and had expanded the intensity of this act gradually in the process. Furthermore Mr. Z. stated that he had recorded the act with his digital camera to be able to watch it again anytime later—for example when feeling stressed or after conflicts with his partner or at work. Mr. Z. had fallen in love for the first time in his schooldays (seventh grade) with a classmate of the same age. In his adult life, he maintained affairs and short relationships that lasted up to 3 years. He had relationships with women and with men which he experienced as mutually satisfying. The age of the male partners had decreased over time. Currently Mr. Z. preferred boys at the age of 4–6 years. He had used homosexual pornography since his youth, however, over time he consumed more and more child pornography. Mr. Z. was in regular contact with his family of origin and had two best friends which he had known since their schooldays. There was no quantitative increase in the sexual assaults to the detriment of Jonas after the termination of his work contract a few weeks ago. He made use of child pornography and masturbated to it (approximately five times a week). The termination of his work contract had lowered his self-esteem temporarily, but he was confident to find a new employment soon. Regarding the delinquent prehistory: At the age of 27 Mr. Z. had been accused of approaching boys aged of 6–12 in a swimming team with a sexual intention; the proceeding was dismissed.

Case vignette 2: The defendant Mr. M. is 24 years old (\*05.02.1994). He is accused of grabbing the 48 year old Mrs. N, who was passing by, from the back in the evening hours of the 10.03.2018 around 8 pm on an illuminated sidewalk in front of the front door of his residential house (multi-family house with 12 rental parties). He kept her mouth shut with his left hand, fixated her upper arm with his right hand, and dragged the woman, who tried to defend herself, to his rented apartment, which was situated on the first floor. Arriving in the apartment he violently headbutted the woman, who continuously cried for help, with a hammer so that she lost consciousness. Then he taped the woman's mouth shut with package tape and tied her wrists and ankles up with cable ties. Afterward he masturbated twice until ejaculation in front of the still unconscious woman. As Mrs. N. gained consciousness, approximately 3 h later, Mr. M. demanded oral sex by grabbing her hair multiple times and punching her on her throat and on her ears violently multiple times. A neighbor, whose attention was caught by the woman's screams, eventually called the police.

In the defendant's examination by the criminal investigation department Mr. M. stated, among other things, that he had already been standing in front of his window for several hours searching for women before he had spotted Mrs. N. Mrs. N. was the first woman who was alone. Thereto he manipulated his member. He had pre-fantasized about violently overpowering an unsuspecting woman and had researched sadistic pornography on the internet. He did not consider neighbors, pedestrians, or other potential interferences in his plan—"I had tunnel vision." The torture and humiliation of the woman in form of punching and hair ripping was connected to a particular sexual pleasure.

Mr. M. stated moreover that he regularly watched pornography and had done so since his 13th year of life. There would be days in which he would search for stimulating content on the internet for hours (up to 5 h)—his preference would be abduction and rape which included the use of physical violence and humiliation. In times of stress and rejection, he would vent his stress by masturbating, as he would feel better for a while afterward. Except for a relationship with a former classmate that lasted 10 months, in which there had been repeated domestic violence, he had no relationship experiences. Mr. M. visited prostitutes regularly.

Except for his older sister, who also visited Mr. M. in custody regularly, he did not have any noteworthy social contacts. He had only met an elderly man from the opposite apartment to play cards a couple of times. As a result of a dispute with his parents, 14 days before the alleged crime, his parents had cut off contact with him. The reason for the dispute was that Mr. M. had discarded the plan to start an apprenticeship. Here, once again, Mr. M experienced rejection.

Regarding the delinquent prehistory: Mr. M. had been released from juvenile prison 4 weeks prior to the alleged crime, where he had been jailed for a custodial sentence of 3 1/2 years because of sexual harassment in two cases and another case of attempted sexual harassment. Mr. M. had rejected therapy because he considered himself mentally healthy.



# Study of Sexual Satisfaction in Different Typologies of Adherence to the Sexual Double Standard

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The sexual double standard (SDS) refers to the acceptance of different criteria to assess the same sexual behavior in men and women. To date, the few studies that have addressed the relationship between SDS and sexual satisfaction have obtained inconclusive results. In addition, no study has analyzed sexual satisfaction in people who maintain different forms of adherence to the SDS. This study establishes three SDS typologies of adherence (man-favorable, woman-favorable, egalitarian) in two areas of sexual behavior (sexual freedom and sexual shyness) to examine the predictive capacity of personal variables (age, social dominance orientation, propensity for sexual excitation/inhibition), interpersonal variables (relationship satisfaction) and social variables (gender norms about sexual behaviors) in sexual satisfaction. A sample of 1194 heterosexual adults (51.1% men, 48.8% women) aged between 18 and 87 years ( $M = 40.63$ ;  $SD = 15.67$ ), who had been in a relationship for more than 6 months, was evaluated. In men, the highest sexual satisfaction levels were obtained in the egalitarian typology in the sexual freedom area. In women, no significant differences were found between the typologies of adherence to the SDS. Regression models showed that relationship satisfaction was the main predictor of sexual satisfaction in all the typologies in both men and women. In addition, the predictive relationship of personal variables with sexual satisfaction varied according to gender and the SDS adherence type. The results show the importance of studying sexual satisfaction by taking into account not only the differences between men and women. Furthermore, it is essential to consider other differences between people; for example, the difference that derives from the way of psychologically internalizing attitude toward the SDS.

**Keywords:** sexual satisfaction, sexual double standard, typologies, predictors, gender

## INTRODUCTION

One of the most relevant manifestations of sexual health is sexual satisfaction (Henderson et al., 2009; World Health Organization., 2010), which suggests a subjective dimension of sexuality and is defined as “an affective response arising from one’s subjective evaluation of the positive and negative dimensions associated with one’s sexual relationship” (Lawrance and Byers, 1995, p. 268). Sexual satisfaction does not depend only on one’s own sexual relationships, but also on other personal, interpersonal, and socio-cultural factors (Sánchez-Fuentes et al., 2014; Calvillo et al., 2018); that is,

studying it requires multicomponent models. For that purpose, Henderson et al. (2009); Sánchez-Fuentes et al. (2016), and Calvillo et al. (2020a) based their works on the Ecological Theory of Human Development (Bronfenbrenner, 1994), which conceives personal development as the result of the interaction of individuals with the environmental contexts in which they live and socialize. The most relevant factors in these models for explaining sexual satisfaction are those of the personal and interpersonal kind (Sánchez-Fuentes et al., 2014; Calvillo et al., 2018).

A personal factor that has been associated with sexual satisfaction, albeit with inconsistent results to date, is the sexual double standard (SDS); that is, the attitude which involves a distinct evaluation of given sexual behaviors depending on if they are performed by a man or a woman, where men have more freedom and/or permissibility than women (Álvarez-Muelas et al., 2020b). Some studies report a negative association between the SDS that favors men and sexual satisfaction (Haavio-Mannila and Kontula, 2003; Horne and Zimmer-Gembeck, 2006; Santos-Iglesias et al., 2009), while others have found no relation between both variables (Marques et al., 2013). We believe that there might be several reasons for this inconsistency in using measures that do not accurately capture sexual satisfaction, and for not considering some individual differences that could play a relevant role in the sexual satisfaction relationship. As regards the sexual satisfaction measure, isolated questions are normally employed (e.g., Haavio-Mannila and Kontula, 2003), or scales that mix sexual satisfaction items with items about sexual satisfaction-related variables, such as sexual attitude, desire or sexual excitation (e.g., Santos-Iglesias et al., 2009; Marques et al., 2013). We believe that this limitation can be overcome by using the Global Measure of Sexual Satisfaction, which has been validated in a Spanish population (Sánchez-Fuentes and Santos-Iglesias, 2016), and is one of the measures included in the Interpersonal Exchange Model of Sexual Satisfaction Questionnaire (Sánchez-Fuentes et al., 2015; Calvillo et al., 2020b; Lawrance et al., 2020). This evaluation instrument is based on one of the few theoretical models of sexual satisfaction (Lawrance and Byers, 1992, 1995), and is the only one that has been validated in a Spanish population (Sánchez-Fuentes and Santos-Iglesias, 2016).

On the other hand, we are interested in knowing if individual differences in SDS are related to sexual satisfaction. In accord with Endendijk et al. (2020), to analyze the role of individual differences in attitude toward SDS, we consider the degree to which people have internalized SDS in their own social cognitions. From this approach, we study sexual satisfaction taking into account the different forms of adherence to SDS. Previous studies show that various forms of adherence to SDS prevail, from the attitude that favors men to that which favors women (Álvarez-Muelas et al., 2020b; Endendijk et al., 2020). In addition, the prevalence of forms of adherence to SDS differs in the field of behavior related to sexual freedom (SF; that is, “the recognition and approval of the benefit for men and women, of freely having sex and respecting sexual rights”), and in the area of sexual shyness (SS; that is, “the recognition and approval of men and women’s will to manifest decorum, chastity, and continence in sexual relations”) (Álvarez-Muelas et al., 2020b, p. 2).

Moreover, in order to understand sexual satisfaction, the proposal of personal, interpersonal, and social factors could be considered in accordance with the Ecological Theory (Bronfenbrenner, 1994). In the present study, we kept some variables with previous evidence with respect to sexual satisfaction (age, propensity for sexual excitation/inhibition, relationship satisfaction, and gender norms about sexual behaviors), and we included a variable would play a relevant role according to the different form of adherence to SDS (social dominance orientation).

Age stands out among the personal variables, which has been negatively associated with sexual satisfaction (Tren and Schaller, 2010; De Ryck et al., 2012; Sánchez-Fuentes and Sierra, 2015; Træen et al., 2017; Wyverkens et al., 2018).

Another personal factor that has not yet been considered to date is social dominance orientation. Social dominance orientation is an individual characteristic that predisposes someone to support and defend a social structure, where intergroup relations (e.g., between men and women) are hierarchical and non-egalitarian (Sidanius and Pratto, 1999). There is evidence to suggest that those people who manifest social dominance orientation support discriminating ideologies toward women’s rights (Pratto et al., 1994), the traditional gender roles (Christopher and Wojda, 2008) and, concretely, the SDS that favors men in both the sexual freedom and sexual shyness areas (Sierra et al., 2018). Moreover, social dominance orientation tends to support discriminating toward men and women’s sexual behaviors (Kelly et al., 2015). From such this perspective, social dominance orientation could be relevant for predicting sexual satisfaction considering the SDS adherence type, especially in those people who belong to an SDS adherence type in agreement with the hegemony of one gender category over another (i.e., man-favorable typology and woman-favorable typology).

We also considered the propensity for sexual excitation/inhibition, proposed with the Dual Control Model (Janssen and Bancroft, 2007). What this model assumes is that people possess an excitation system, as well as another system that inhibits the sexual response and associated behaviors. The inhibitory system contains two subsystems: inhibition due to threat of performance failure and inhibition due to threat of performance consequences (Janssen et al., 2002a,b; Carpenter et al., 2008). According to former findings, sexual satisfaction was associated negatively with to sexual excitation (Lykins et al., 2012), inhibition due to threat of performance failure (Lykins et al., 2012; Moyano and Sierra, 2014; Arcos-Romero and Sierra, 2020), and inhibition due to threat of performance consequences (Moyano and Sierra, 2014).

Of the interpersonal factors, relationship satisfaction has been demonstrated to be the most important one as a determining factor of sexual satisfaction (Byers, 2005; Sánchez-Fuentes et al., 2015; Sánchez-Fuentes and Santos-Iglesias, 2016; Calvillo et al., 2020a).

Finally, it based on the assumption that social norms predict conduct (Cialdini et al., 1990), it was demonstrated that the way sexual norms are perceived can influence subjective feelings of sexual satisfaction (Stephenson and Sullivan, 2009). Despite the fact that gender norms in sexual relations can confer women



less power because gender roles dictate feminine submission and masculine dominance (Impett and Peplau, 2003; Kiefer et al., 2006), evidence suggests that being involved in adhering to gender norms can negatively affect sexual satisfaction in both men and women (Sánchez et al., 2005). Faced with this evidence, we explored not only those individuals who maintained different SDS adherence, but also the perception of gender norms about sexual behaviors.

Therefore, based on the Ecological Theory of Human Development framework (Bronfenbrenner, 1994), this study considers the different forms of individual SDS adherence to examine the sexual satisfaction relationship with personal (age, social dominance orientation, propensity for sexual excitation/inhibition), interpersonal (relationship satisfaction) and social (gender social norms about sexual behavior) factors.

When considering gender (i.e., men and women) and SDS adherence types in the SF and SS areas:

RQ1: Would there be any differences in sexual satisfaction and related variables of personal (age, social dominance orientation, and propensity for sexual excitation/inhibition), interpersonal (relationship satisfaction) and social (gender norms about sexual behaviors)?

RQ2: What predictive capacity would personal (age, social dominance orientation, and propensity for sexual excitation/inhibition), interpersonal (relationship satisfaction), and social (gender norms on sexual behaviors) variables have on sexual satisfaction?

## MATERIALS AND METHODS

### Participants

The sample was made up of 1194 adults (610 men, 584 women) aged between 18 and 87 years ( $M = 40.63$ ;  $SD = 15.67$ ) and recruited by non-random sampling. The inclusion criteria included: (1) Spanish nationality; (2) heterosexual orientation; (3) being 18 years old or older; (4) being involved in a heterosexual relationship for at least 6 months. Significant gender differences were found in the sample. Men reported having more sexual partners ( $t = 2.99$ ;  $p < 0.005$ ) and younger partners ( $t = -3.02$ ;  $p < 0.005$ ). **Table 1** presents the sample's socio-demographic characteristics.

### Measurements

- Socio-demographic and Sexual History Questionnaire. We designed a questionnaire to assess gender, age, nationality, sexual orientation, sexual activity in the relationship, partner's age, length of the relationship, age of first sexual experience, number of sexual partners and level of education.
- Spanish version of the Sexual Double Standard Scale (SDSS; Muehlenhard and Quackenbush, 2011; Sierra et al., 2018). The scale is a self-referred measure of the SDS. It consists of 16 items answered on a 4-point Likert-type scale from 0 (*strongly disagree*) to 3 (*strongly agree*), and distributed into two factors: Acceptance of sexual freedom and Acceptance

of sexual shyness. Each factor is formed by four pairs of parallel items: one refers to sexual behavior attributed to men, and the other to sexual behavior attributed to women. The responses to Acceptance of sexual freedom allow the Index of Double Standard for Sexual Freedom (IDS-SF) to be obtained, and the responses to the Acceptance of sexual shyness items allow the Index of Double Standard for Sexual Shyness (IDS-SS) to be acquired. Both indices represent a bipolar measurement (between  $-12$  and  $+12$ ). The man-favorable typology includes those people with positive scores in the index (between  $+1$  and  $+12$ ). The woman-favorable typology is obtained from the scores that take a negative value (between  $-1$  and  $-12$ ). Finally, the egalitarian typology includes those people whose score equals zero in either index and obtain a zero result in the subtractions between the pairs of parallel items of the index. The scale suitably evidenced internal consistency (Cronbach's ordinal alpha 0.84 for the Acceptance of sexual freedom factor and 0.87 for the Acceptance of sexual shyness factor) (Sierra et al., 2018). It was invariant for gender and age (by eliminating the pair of items 11 and 14 which showed DIF by age) (Álvarez-Muelas et al., 2019). So these pairs of items were removed from the present study. The ordinal alphas were respectively 0.89 and 0.91 for the Acceptance of sexual freedom factor, and 0.87 and 0.89 for the Acceptance of sexual shyness factor, in men and women.

- The Spanish version of Social Dominance Orientation Scale (SDOS; Pratto et al., 1994; Silván-Ferrero and Bustillos, 2007). It consists of 16 items that are answered on a 7-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*), and two factors: General opposition to equality and Support for group-based dominance (Jost and Thompson, 2000; Silván-Ferrero and Bustillos, 2007). Whereas General opposition to equality is conceived as justifying the hierarchical social system, Support for group-based dominance is defined as a way to justify the own group's dominance (in-group) (Jost et al., 2004). Cronbach's alpha coefficients were 0.84 for men and 0.77 for women. In this study, the ordinal alpha coefficients were 0.90 in men and 0.91 in women for General opposition to equality, and 0.72 in men and 0.82 in women for Support for group-based dominance.
- The Spanish version of the Sexual Inhibition/Sexual Excitation Scales-Short Form (SIS/SES-SF; Carpenter et al., 2011; Moyano and Sierra, 2014). This scale evaluates the individual propensity for sexually excited or inhibited. Its 14 items are answered on a 4-point Likert-type scale from 1 (*strongly agree*) to 4 (*strongly disagree*). The items are distributed into three subscales: Sexual excitation, Inhibition due to threat of performance failure, Inhibition due to threat of performance consequences. Cronbach's alpha coefficients range between 0.60 and 0.72. In this sample, the ordinal alpha values range fell between 0.73 and 0.79 for men and between 0.68 and 0.82 for women.
- The Spanish version of Global Measure of Relationship Satisfaction (GMREL; Lawrance et al., 2011; Sánchez-Fuentes et al., 2015). It evaluates satisfaction with partner

relationship using five seven-point bipolar subscales: *Very bad/Very good*; *Very unpleasant/Very pleasant*; *Very negative/Very positive*; *Very unsatisfying/Very satisfying*; *Very worthless/Very valuable*. Its Cronbach's alpha coefficients are 0.94 for men and women (Sánchez-Fuentes et al., 2015). In the present study, the ordinal alpha values were 0.94 for men and 0.96 for women.

- The Spanish hetero-referred version of Sexual Double Standard Scale (SDSS-H; Muehlenhard and Quackenbush, 2011; Gómez-Berrocal et al., 2019). It evaluates the subjective perception of gender norms about sexual behaviors. The scale is composed of 18 items answered on a 4-point Likert-type scale from 0 (*strongly disagree*) to 3 (*strongly agree*), and three factors: Acceptance of sexual shyness in men, Acceptance of sexual freedom in women, Acceptance of traditional gender role distribution. For each factor, the internal consistency obtained ordinal alpha values that equal 0.73, 0.70, and 0.90, respectively. In this sample and for each factor, the values were 0.72, 0.68, and 0.86 for men, and 0.75, 0.67, and 0.91 for women.
- The Spanish Global Measure of Sexual Satisfaction (GMSEX; Lawrance et al., 2011; Sánchez-Fuentes et al., 2015). It evaluates overall sexual satisfaction in a relationship using five seven-point bipolar subscales: *Very bad/Very good*; *Very unpleasant/Very pleasant*; *Very negative/Very positive*; *Very unsatisfying/Very satisfying*; *Very worthless/Very valuable*. Its Cronbach's alpha coefficients are 0.92 for men and 0.93 for women (Sánchez-Fuentes et al., 2015). In this sample, its ordinal alpha values were 0.94 for men and 0.95 for women.

## Procedure

The study was previously approved by the Human Research Ethics Committee of the University of Granada. The target population was defined in the inclusion criteria of the study. Participants were recruited from the general Spanish population by incidental sampling to obtain a balanced proportion of men and women, and also across age groups (18–34; 35–49; 50 years old or older), between March 2018 and February 2019. The

evaluation in the paper-and-pencil format (86.6% of the sample) and the online format (13.4% of the sample) was used. Both procedures showed no differences in the responses in terms of information on general behaviors (Carreno et al., 2020) or sexual behaviors (Sierra et al., 2018). The evaluation format presented low or non-existent correlations with the other analyzed variables. The participants who completed questionnaires in paper and pencil format were approached using snowball sampling techniques in educational, community, and leisure centers. Firstly, we requested the approval of the center, which was informed on the objective of the research. The questionnaires were managed by a trained evaluator, and the participants answered in small groups or individually, which were returned in sealed envelopes. The online questionnaires were created on the LimeSurvey platform. The URL to access was distributed through social networks (Facebook®, Twitter®, WhatsApp® groups, and e-mail). The IP address was controlled and automatic responses were avoided by answering a security question consisting of a random arithmetic question. The participants accepted an informed consent form which specified the overall objective of the study. Anonymity and confidentiality were guaranteed, and their participation was voluntary without compensation.

## Data Analysis

First, gender differences by a Student's *t*-test for two independent groups (i.e., men and women) were calculated for the scores of the SDS indices for Sexual Freedom (ID-SF) and Sexual Shyness (IDS-SS). The results revealed gender differences in both the IDS-SF ( $t = 5.22$ ;  $p < 0.001$ ) and the IDS-SS ( $t = 6.03$ ;  $p < 0.001$ ). Due to the found differences, we decided to divide the sample into men and women separately. According to the scores of the indices, the sample of men and women was distributed into the SDS adherence types (egalitarian, man-favorable, woman-favorable) for the SF and SS areas. Second, by using an ANOVA for men and women, the differences for all the variables were calculated by typologies of adherence to SF and SS. Finally, we examined the degree to which sexual satisfaction could be explained by the different variables (personal, interpersonal, social) with multiple linear regression using the stepwise method

**TABLE 1 |** Sociodemographic characteristics of the participants.

Variables	Total (N = 1194)	Men (n = 610)	Women (n = 584)		
	M (SD)	M (SD)	M (SD)	t/ $\chi^2$	Cohen's d
Age	40.63 (15.67)	41 (15.36)	40.25 (15.99)	0.83	
Age of the first sexual experience	18.15 (3.66)	17.91 (3.67)	18.41 (3.64)	–2.33	–0.14
Number of sexual partners	4.80 (11.12)	5.75 (14.72)	3.82 (5.15)	2.99*	0.18
Partner age	40.56 (15.56)	39.21(14.75)	41.95 (16.26)	–3.02*	–0.18
Length of the relationship (years)	16.60 (14.55)	16.14 (14.08)	17.08 (15.03)	–1.07	
Education level				1.42	
No studies	4.9%	4.4%	5.3%		
Primary school	15.7%	14.8%	16.6%		
High school	28.6%	29.2%	27.9%		
University	50.9%	51.6%	50.2%		

M: mean; SD: standard deviation; t: Student's;  $\chi^2$ : chi-square. \* $p < 0.005$ .

for each SDS typology of both sexual behavior areas. Independent variables were included in each step according to the significance of their correlation with sexual satisfaction. The degree of multicollinearity was assessed with the tolerance value and the variance inflation factor (VIF). When the tolerance value was  $>0.10$  and the VIF was  $<10$  for the predictor variables, there were no serious problems with multicollinearity (López, 1998; Dormann et al., 2013; Lavery et al., 2017). A  $p$ -value of 0.005 represented significant differences. This range indicates evidence according to conventional Bayes factor classifications and can reduce the probability of type I errors (Benjamin et al., 2018).

## RESULTS

### Differences in Sexual Satisfaction and Associated Variables by SDS Adherence Type and Sexual Behavior Area

In men, significant differences were found in sexual satisfaction between the different SDS adherence types in SF ( $F = 8.41$ ;  $p < 0.001$ ), with higher scores for the egalitarian typology than for the man-favorable typology ( $p < 0.001$ ;  $d = 0.44$ ). For the personal variables, significant differences were observed between the typologies in general opposition to equality in SF ( $F = 10.27$ ;  $p < 0.001$ ), with higher scores for the man-favorable typology than for the egalitarian typology ( $p < 0.001$ ;  $d = 0.44$ ). Group-based dominance in SF ( $F = 12.42$ ;  $p < 0.001$ ) and in SS ( $F = 20.20$ ;  $p < 0.001$ ) was supported with higher scores for the man-favorable typology than for the egalitarian typology ( $p < 0.001$ ;  $d = 0.47$  for SF and  $p < 0.001$ ;  $d = 0.55$  for SS), and with higher scores for the man-favorable typology than for woman-favorable typology ( $p = 0.003$ ;  $d = 0.35$  for SF and  $p < 0.001$ ;  $d = 0.43$  for SS). No differences were found in relationship satisfaction as an interpersonal variable. Finally, regarding the social variables, differences were encountered in acceptance of sexual shyness in men in SF ( $F = 5.75$ ;  $p = 0.003$ ) with higher scores for the man-favorable typology than for the egalitarian typology ( $p = 0.002$ ;  $d = 0.31$ ), and in SS ( $F = 7.85$ ;  $p < 0.001$ ) with higher scores for the woman-favorable typology than for the egalitarian typology ( $p = 0.002$ ;  $d = 0.40$ ). See Table 2.

For women, no significant differences were found in sexual satisfaction between the different SDS adherence types in the sexual behavior areas (i.e., SF and SS). Differences appeared for personal variables in general opposition to equality in SS ( $F = 15.97$ ;  $p < 0.001$ ) with higher scores for the man-favorable typology than for the egalitarian typology ( $p < 0.001$ ;  $d = 0.57$ ). Group-based dominance in SS ( $F = 25.51$ ;  $p < 0.001$ ) was supported with higher scores for the man-favorable typology than for the egalitarian typology ( $p < 0.001$ ;  $d = 0.74$ ), and with higher scores for the man-favorable typology than for the woman-favorable typology ( $p < 0.001$ ;  $d = 0.50$ ). For sexual excitation in SS ( $F = 6.18$ ;  $p = 0.002$ ), the man-favorable typology obtained higher scores than the egalitarian typology ( $p = 0.002$ ;  $d = 0.36$ ). No differences were found in relationship satisfaction as an interpersonal variable. Finally among the social variables, differences were encountered in acceptance of sexual shyness in

men in the SS ( $F = 8.07$ ;  $p < 0.001$ ), with higher scores for the woman-favorable typology than for the egalitarian typology ( $p = 0.001$ ;  $d = 0.37$ ). See Table 3.

### Regression Models

As coefficients can be interpreted analogously to correlation coefficients (0.10 small, 0.30 moderate, and  $>0.50$  large; Cohen, 1992), all the effect sizes were between small and medium, except for satisfaction with the couple's relationship.

Table 4 presents the regression models of sexual satisfaction in men. In the SF area, the egalitarian typology model explained 60% of the variance of sexual satisfaction ( $F = 93.80$ ;  $p < 0.001$ ). Those variables with predictive power were relationship satisfaction ( $\beta = 0.70$ ) and age ( $\beta = -0.13$ ). In the man-favorable typology, the model explained 60% of sexual satisfaction ( $F = 199.91$ ;  $p < 0.001$ ) with the variables relationship satisfaction ( $\beta = 0.71$ ) and age ( $\beta = -0.23$ ). Finally in the woman-favorable typology, the model explained 39% of sexual satisfaction ( $F = 104.36$ ;  $p < 0.001$ ), where relationship satisfaction was the only variable with predictive power ( $\beta = 0.62$ ).

In the SS area, the egalitarian typology model explained 53% of the variance of sexual satisfaction ( $F = 135.86$ ;  $p < 0.001$ ) by relationship satisfaction ( $\beta = 0.68$ ) and age ( $\beta = -0.20$ ). The man-favorable typology model explained 50% of sexual satisfaction ( $F = 81.08$ ;  $p < 0.001$ ), including relationship satisfaction ( $\beta = 0.65$ ) and sexual inhibition due to threat of performance failure ( $\beta = 0.14$ ). Finally, the woman-favorable typology model explained 54% of the variation of sexual satisfaction ( $F = 144.52$ ;  $p < 0.001$ ) with relationship satisfaction ( $\beta = 0.74$ ) as the only predictor variable.

Table 5 offers the results of the regression models of sexual satisfaction in women. In the SF area, the egalitarian typology model explained 46% of the variance of sexual satisfaction ( $F = 117.29$ ;  $p < 0.001$ ), with the predictor variable relationship satisfaction ( $\beta = 0.66$ ). The man-favorable typology model accounted for 49% ( $F = 51.36$ ;  $p < 0.001$ ) with relationship satisfaction ( $\beta = 0.66$ ) and age ( $\beta = -0.23$ ). Lastly, the predictive model of the woman-favorable typology explained 55% of sexual satisfaction ( $F = 45.71$ ;  $p < 0.001$ ), including relationship satisfaction ( $\beta = 0.66$ ) and age ( $\beta = -0.18$ ).

In the SS area, the egalitarian typology model explained 54% of the variance of sexual satisfaction ( $F = 156.03$ ;  $p < 0.001$ ) through relationship satisfaction ( $\beta = 0.71$ ) and sexual inhibition due to threat of performance failure ( $\beta = 0.12$ ). The man-favorable typology model accounted for 52% of sexual satisfaction ( $F = 47.50$ ;  $p < 0.001$ ) through relationship satisfaction ( $\beta = 0.65$ ), general opposition to equality ( $\beta = -0.19$ ), and age ( $\beta = -0.18$ ). Finally in the woman-favorable typology, the predictive model explained 46% of sexual satisfaction ( $F = 46.80$ ;  $p < 0.001$ ) through relationship satisfaction ( $\beta = 0.61$ ) and age ( $\beta = -0.21$ ).

## DISCUSSION

The study objective considers different SDS adherence types in two sexual behavior areas (sexual freedom and sexual shyness) to examine, according to the Ecological Theory

**TABLE 2 |** Differences in sexual satisfaction and the variables associated by the sexual double standard adherence types in the sexual freedom (SF) and the sexual shyness (SS) areas in men.

	Typologies of SDS adherence in SF					Typologies of SDS adherence in SS				
			Egalitarian (n = 259)	Man-favorable (n = 186)	Woman-favorable (n = 165)			Egalitarian (n = 242)	Man-favorable (n = 244)	Woman-favorable (n = 123)
	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Sexual satisfaction	8.41	<0.001	30.01 (5.66) <sub>a</sub>	27.64 (5.01) <sub>a</sub>	28.98 (5.94)	3.09	0.046	29.62 (5.83)	28.25 (6.55)	28.99 (6.15)
Personal variables										
General opposition to equality	10.27	<0.001	17.08 (7.78) <sub>a</sub>	20.69 (8.67) <sub>a</sub>	18.72 (8.51)	5.42	0.005	17.51 (7.97)	19.98 (8.52)	18.82 (8.35)
Support for group-based dominance	12.42	<0.001	23.15 (7.86) <sub>a</sub>	26.95 (8.17) <sub>ab</sub>	24.06 (8.22) <sub>b</sub>	20.20	<0.001	22.48 (7.78) <sub>a</sub>	27 (8.48) <sub>ab</sub>	23.51 (7.77) <sub>b</sub>
Sexual excitation	0.89	0.412	15.59 (3.58)	15.85 (3.97)	16.08 (3.78)	1.85	0.159	15.76 (3.82)	15.59 (3.9)	16.38 (3.47)
Sexual inhibition due to the threat of performance failure	4.22	0.015	11.72 (5.59)	10.99 (2.55)	11.44 (2.69)	2.02	0.133	11.59 (2.76)	11.25 (2.64)	11.79 (2.27)
Sexual inhibition due to the threat of performance consequences	1.83	0.161	9.05 (2.62)	8.71 (2.81)	9.27 (3.02)	0.95	0.387	9.22 (2.79)	8.88 (2.70)	9.06 (2.85)
Interpersonal variables										
Relationship satisfaction	3.83	0.022	30.76 (5.37)	29.42 (5.81)	30.67 (4.76)	1.99	0.137	30.91 (5.15)	29.95 (5.54)	30.24 (5.34)
Social variables										
Acceptance of sexual shyness in men	5.75	0.003	2.82 (2.16) <sub>a</sub>	3.54 (2.43) <sub>a</sub>	3.02 (2.07)	7.85	<0.001	2.64(2.17) <sub>a</sub>	3.28 (3.38)	3.5 (2.09) <sub>a</sub>
Acceptance of sexual freedom in women	0.67	0.525	6.40 (3.06)	6.27 (2.37)	6.61 (2.84)	0.23	0.791	6.43 (3.16)	3.3 (2.63)	6.49 (2.28)
Acceptance of traditional gender role distribution	2.92	0.058	12.49 (6.06)	13.15 (5.09)	11.68 (5.83)	3.20	0.041	11.9 (6.25)	13.18 (5.57)	12.07 (5.49)

*p*-value threshold  $\alpha = 0.005$ . The same subscript letter denote significantly differ between these groups ( $p < 0.005$ ).



**TABLE 3 |** Differences in sexual satisfaction and the variables associated by the sexual double standard adherence types in the sexual freedom (SF) and the sexual shyness (SS) areas in women.

	Typologies of SDS adherence in SF					Typologies of SDS adherence in SS				
			Egalitarian (n = 280)	Man-favorable (n = 108)	Woman-favorable (n = 196)			Egalitarian (n = 271)	Man-favorable (n = 134)	Woman-favorable (n = 166)
	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F</i>	<i>p</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Sexual satisfaction	1.75	0.175	29.46 (5.96)	28.57 (7.24)	28.37 (7.17)	1.16	0.314	29.25 (6.62)	28.21 (7.28)	29.11 (6.10)
Personal variables										
General opposition to equality	4.48	0.012	15.79 (6.94)	17.95 (8.44)	17.52 (8.24)	15.97	<0.001	15.04 (6.44) <sub>a</sub>	19.44 (8.73) <sub>a</sub>	17.37 (8.20)
Support for group-based dominance	5.65	0.004	21.10 (7.94)	24.04 (8.7)	22.73 (8.26)	25.51	<0.001	20.35 (7.66) <sub>a</sub>	26.28 (8.34) <sub>ab</sub>	22.25 (7.78) <sub>b</sub>
Sexual excitation	2.95	0.053	16.36 (3.51)	16.79 (3.99)	17.18 (3.65)	6.18	0.002	16.39 (3.64) <sub>a</sub>	17.69 (3.47) <sub>a</sub>	16.54 (3.67)
Sexual inhibition due to the threat of performance failure	5.7	0.004	10.98 (2.32)	10.16 (2.76)	10.41 (2.35)	3.04	0.049	10.89 (2.45)	10.31 (2.62)	10.48 (2.20)
Sexual inhibition due to the threat of performance consequences	0.57	0.565	8.48 (3.03)	8.17 (3.02)	8.23 (3.05)	0.11	0.896	8.45 (3.01)	8.31 (3.18)	8.38 (2.98)
Interpersonal variables										
Relationship satisfaction	2.2	0.112	30.76 (5.42)	30.55 (5.97)	29.64 (6.43)	0.34	0.709	30.35 (5.61)	30.84 (5.95)	30.5 (5.54)
Social variables										
Acceptance of sexual shyness in men	0.7	0.496	2.9 (2.24)	2.98 (2.32)	3.15 (2.23)	8.07	<0.001	2.60 (2) <sub>a</sub>	3.24 (2.47)	3.41 (2.32) <sub>a</sub>
Acceptance of sexual freedom in women	0.18	0.837	5.91 (2.72)	5.95 (2.83)	6.06 (2.68)	1.63	0.196	6.05 (2.67)	6.23 (2.95)	5.69 (2.60)
Acceptance of traditional gender role distribution	0.38	0.685	12.86 (7.06)	12.24 (6.01)	12.54 (6.09)	1.19	0.306	12.65 (7.18)	12.09 (5.65)	13.25 (6.07)

*p*-value threshold  $\alpha = 0.005$ . The same subscript letter denote significantly differ between these groups ( $p < 0.005$ ).

(Bronfenbrenner, 1994), the relation of sexual satisfaction with the personal (age, social dominance orientation, propensity for sexual excitation/inhibition), interpersonal (relationship satisfaction) and social (gender norms about sexual behaviors) variables. In order to overcome the limitations of the relation between sexual satisfaction and the SDS, measures of the SDS (Álvarez-Muelas et al., 2020a) and sexual satisfaction (Sánchez-Fuentes et al., 2015) were resorted to, with clear evidence for validity in the Spanish population. Moreover, according to the findings obtained and the recommendations made in previous studies (Álvarez-Muelas et al., 2020b), SDS adherence types in two sexual behavior areas (sexual freedom and sexual shyness) were considered to be cluster factors to analyze both the differences in the pattern of responses to the personal, interpersonal and social variables (i.e., RQ1), and the predictive role of these variables in sexual satisfaction (i.e., RQ2).

To answer RQ1, differences were observed in sexual satisfaction, personal, and social variables by SDS adherence types in men and women and in both sexual behavior areas with a

medium effect size. In sexual satisfaction, differences were found for SDS adherence types in men for the SF area, with higher scores for the egalitarian typology than for the man-favorable typology. It would support the notion that sexual satisfaction in men was less when they supported the man-favorable SDS (Haavio-Mannila and Kontula, 2003; Santos-Iglesias et al., 2009), and was favored by the egalitarian posture (Haavio-Mannila and Kontula, 2003). In the Interpersonal Exchange Model of Sexual Satisfaction context (Lawrance and Byers, 1995), the benefits and costs of sexual relationships, along with the non-sexual aspects of the couple's relationship, played a key role in explaining sexual satisfaction (Sánchez-Fuentes and Santos-Iglesias, 2016). The man-favorable typology promoted men's proactivity, although the predominant role played by men during sexual activity could imply that they do not report sexual satisfaction (Dworkin and O'Sullivan, 2005) because they could perceive women's passive role as lack of sexual interest (Fischer et al., 2020). This could lead them to not carry out and meet their expectations in sexual relationships, which could be taken as a cost and would imply less

**TABLE 4 |** Models of multiple regression analysis for sexual satisfaction in men.

SDS areas	Typologies of SDS adherence	Predictors	B	SE	$\beta$	95% CI	t	p	R <sup>2</sup>
SF	Egalitarian	Relationship satisfaction	0.74	0.04	0.70	0.65, 0.82	16.52	<0.001	0.60
		Age	-0.05	0.02	-0.13	-0.08, -0.02	-3.24	0.001	
	Man-favorable	Relationship satisfaction	0.79	0.05	0.71	0.68, 0.90	14.55	<0.001	0.60
		Age	-0.10	0.02	-0.23	-0.13, -0.06	-4.76	<0.001	
SS	Woman-favorable	Relationship satisfaction	0.78	0.08	0.62	0.63, 0.93	10.22	<0.001	0.39
		Age	0.77	0.05	0.68	0.68, 0.87	15.43	<0.001	
	Egalitarian	Relationship satisfaction	0.77	0.05	0.68	0.68, 0.87	15.43	<0.001	0.53
		Age	-0.08	0.02	-0.20	-0.11, -0.04	-4.52	<0.001	
	Man-favorable	Relationship satisfaction	0.77	0.05	0.65	0.66, 0.88	14.25	<0.001	0.50
		Sexual inhibition due to the threat of performance failure	0.34	0.12	0.14	0.12, 0.57	2.97	0.003	
	Woman-favorable	Relationship satisfaction	0.81	0.07	0.74	0.67, 0.94	12.02	<0.001	0.54

SF: sexual freedom; SS: sexual shyness; R<sup>2</sup>: adjusted R-squared value. p-value threshold  $\alpha = 0.005$ .

**TABLE 5 |** Models of multiple regression analysis for sexual satisfaction in women.

SDS areas	Typologies of SDS adherence	Predictors	B	SE	$\beta$	95% CI	t	p	R <sup>2</sup>
SF	Egalitarian	Relationship satisfaction	0.73	0.05	0.66	0.63, 0.82	14.92	<0.001	0.46
		Age	-0.10	0.03	-0.23	-0.16, -0.04	-3.3	0.001	
	Man-favorable	Relationship satisfaction	0.80	0.08	0.66	0.63, 0.97	9.45	<0.001	0.49
		Age	-0.10	0.03	-0.23	-0.16, -0.04	-3.3	0.001	
SS	Woman-favorable	Relationship satisfaction	0.73	0.06	0.66	0.62, 0.84	13.18	<0.001	0.55
		Age	-0.08	0.02	-0.18	-0.13, -0.04	-3.65	<0.001	
	Egalitarian	Relationship satisfaction	0.84	0.05	0.71	0.75, 0.94	17.16	<0.001	0.54
		Sexual inhibition due to the threat of performance failure	0.34	0.11	0.12	0.11, 0.56	2.99	0.003	
	Man-favorable	Relationship satisfaction	0.80	0.07	0.65	0.65, 0.95	10.72	<0.001	0.52
		General opposition to equality	-0.16	0.05	-0.19	-0.26, -0.06	-3.10	0.002	
	Woman-favorable	Age	-0.08	0.03	-0.18	-0.13, -0.03	-3	0.003	0.46
		Relationship satisfaction	0.68	0.06	0.61	0.55, 0.80	10.6	<0.001	
		Age	-0.08	0.02	-0.21	-0.12, -0.03	-3.46	0.001	

SF: sexual freedom; SS: sexual shyness; R<sup>2</sup>: adjusted R-squared value. p-value threshold  $\alpha = 0.005$ .

sexual satisfaction. Indeed women conforming, in line with their traditional role, would not cushion these possible consequences for sexual satisfaction (Sánchez et al., 2012). Moreover, the greater support of exercising sexual freedom for men and women that is observed in western societies (Bianchi et al., 2000; Paul et al., 2000; García et al., 2012) could justify that evidence for this association takes place in the SF area.

Differences were also found in some personal variables: general opposition to equality, support for group-based dominance, and sexual excitation. In the social dominance orientation dimensions, higher scores were obtained in the man-favorable typology in men for both sexual areas and in women in the SS area. These results corroborate that both the men and women who support the SDS that favors men (i.e., man-favorable typology) also agree more than egalitarian people with a hierarchical gender social structure (Sidanius and Pratto, 1999). Furthermore, the SDS adherence types seemed to be associated with the sexual excitation in women in the SS area, with higher scores in the man-favorable typology compared to the egalitarian typology. The highest scores for these typologies might reflect that the more conventional socialization of gender roles would seem relevant for propensity of sexual excitation in relation to the domain that promotes recognizing and approving more decorum, chastity, and continence.

Finally in the social variables, it was found that people with different SDS adherence types differed as to how they perceived social gender norms about sexual behavior. Specifically, the acceptance of sexual shyness in men differs significantly among the SDS adherence typologies, with lower scores in the egalitarian typology in men in both areas, and in women in the SS area. The fact that egalitarian men and women (vs. man-favorable men and woman-favorable women) perceived that society does not support sexual shyness in men that much could work as a way to gain validation and support for their most democratic attitude toward the SDS (Guadagno and Cialdini, 2010). Future research should consider the role of social factors and a macropsychological approach to understand the prevalence of sexual attitudes and behaviors.

With RQ2, differences were observed in the predictive variables of sexual satisfaction according to SDS adherence types, the sexual behavior area (SF and SS) and gender. First of all, one of the personal variables that appeared more in the regression models was age, and for both men and women. Age negatively predicted sexual satisfaction, which coincided with the results reported in previous studies (Tren and Schaller, 2010; De Ryck et al., 2012; Sánchez-Fuentes and Sierra, 2015; Træen et al., 2017; Wyverken et al., 2018). Sexual interest diminished as age increased (Gott and Hinchliff, 2003), as did frequency of sexual activity, while sexual dysfunctions increased (Addis et al., 2006; Sierra et al., 2012; Arcos-Romero and Sierra, 2019). All these sexuality aspects have been associated with sexual satisfaction (Badcock et al., 2014; Sánchez-Fuentes et al., 2014, 2016; Thomas et al., 2015; Calvillo et al., 2018, 2020a). Nevertheless, the weight of age in explaining sexual satisfaction was far from significant, and was not relevant for any cases of the men with the woman-favorable typology in both areas, and with the man-favorable typology in SS, nor for the women with the egalitarian typology

in SF and SS. Future research should specifically study the extent to which the negative effect that age has on sexual satisfaction is consistent or, if conversely, internalizing more the egalitarian typology in women or making the hegemony of one gender category more sensitive over another in men can minimize or eliminate the negative effect that age has on men and women's sexual satisfaction.

Moreover, general opposition to equality also negatively predicted sexual satisfaction in women; specifically, those women with the man-favorable SDS adherence typology in SS area. Within the theory of system justification framework (Jost and Banaji, 1994), the beliefs that justify or rationalize existing inequalities perform a "palliative function," and are associated with better subjective well-being and physical health (Jost, 2019). However, the assumptions of the aforementioned theory must be qualified depending on the status of the group to which the person belongs. As women belong to the disadvantaged group in the social hierarchy established according to gender, thus when women with a man-favorable SDS adherence typology accept that hierarchy is legitimate, they might internalize their status inferiority with respect to men, which would harm their sexual satisfaction (Lick et al., 2013).

Unlike previous evidence (Lykins et al., 2012; Moyano and Sierra, 2014; Arcos-Romero and Sierra, 2020), sexual inhibition due to threat of performance failure positively predicted sexual satisfaction. Instead no evidence was found for the predictive capacity of sexual excitation and (Lykins et al., 2012) and inhibition due to threat of performance consequences (Moyano and Sierra, 2014). The predictive power of propensity inhibition due to threat of performance failure was both low and variable among adherence typologies according to gender in the SS area. Inhibition due to threat of performance failure promoted sexual satisfaction in men for the man-favorable typology, and also for women in the egalitarian typology. In the SS area, the fact that the men who encouraged their own group's privileges through women's sexual shyness could mean that they considered a heavier weight for themselves. This could involve placing more emphasis on sexual activity with a positive impact on sexual satisfaction. For women, the egalitarian typology establishes the same criteria for evaluating sexual behavior when done by oneself or one's partner. Given this equality, concerns such as sexual performance or the ability to please one's partner appear to increase, which could have a positive impact on sexual satisfaction. Finally, sexual inhibition is considered to be an adaptation mechanism that hinders sexual response until a stimulus or the sexual situation is evaluated as not being threatening (Granados et al., 2020). These results support the role of gender roles, insofar as socialization, and learning processes could be responsible for the inhibition of gender differences (Pinxten and Lievens, 2016). So future research could consider if these evaluations made in the sexual shyness context could be taken as not being threatening depending on different forms of individual SDS adherence by men or women.

The interpersonal variable relationship satisfaction was the main predictor of sexual satisfaction in all the models, and was the only predictor in the woman-favorable typology in men in both sexual behavior areas and in the egalitarian typology

in women in SF area, which confirms the results published in former studies (Byers, 2005; Sánchez-Fuentes et al., 2015; Sánchez-Fuentes and Santos-Iglesias, 2016; Calvillo et al., 2020a). As relationship satisfaction is a component of the Interpersonal Exchange Model of Sexual Satisfaction (Lawrance and Byers, 1995), higher relationship satisfaction levels imply more sexual satisfaction for partners (Haavio-Mannila and Kontula, 2003; Byers, 2005). This study provides evidence that relationship satisfaction was the variable that more clearly explains sexual satisfaction in different forms of adherence to SDS and in both sexual behavior areas.

No predictive role was found in sexual satisfaction with gender norms about sexual behaviors. Systematic reviews performed to explain sexual satisfaction with the Ecological Theory Model have found that the predictive power of social variables is poor, and stressed that personal and interpersonal variables are the main predictors of sexual satisfaction (Sánchez-Fuentes et al., 2014; Calvillo et al., 2018). Previous research works have also demonstrated that the impact of gender norms on sexuality would be mediated by the pressure that someone is under to adapt to these norms (Sánchez et al., 2005). Accordingly, the fact that gender norms have no predictive effect on sexual satisfaction might be because we did not measure adherence to these norms, rather the interviewee's perception of society adhering to these gender norms about sexual behaviors.

This study has its limitations, which influence how its results are interpreted. Our sample was selected by performing non-probabilistic sampling of the Spanish population, which included individuals with a heterosexual orientation. So the extent to which these results can be generalized to the population and other sexual orientations must be taken into account. Given the use of explicit SDS measures, future studies could contemplate implicit measuring (Endendijk et al., 2020; Thompson et al., 2020), as well as the couple's dyad and the role that the variables applied to the couple's relationship play (e.g., time the relationship lasts, living together) to study sexual satisfaction in the couple context. Likewise, we stress the cross-sectional descriptive nature of this study, and recommend analyzing these results by a quasiexperimental methodology.

## CONCLUSION

To conclude, our results contribute to the study of sexual satisfaction for several reasons. We observed higher sexual satisfaction levels in the egalitarian typology to evaluate sexual behaviors, which means that the postures that defend the men or women hegemony would appear to make sexual satisfaction difficult. Particularly in the sexual freedom area, the men belonging to the man-favorable typology would experience less sexual satisfaction than the men of the egalitarian typology. It was found that the differences in sexual satisfaction and related variables (i.e., personal, interpersonal, and social nature) depended on both the person's characteristics, such as gender and SDS adherence type, and also on the sexual behavior area (i.e., sexual freedom and sexual shyness) referred to by the attitude toward the SDS. Moreover, and once again, this

study supports applying the Ecological Theory (Bronfenbrenner, 1994) to propose the sexual satisfaction prediction. We generally obtained more predictor variables of sexual satisfaction in women than in men. We highlight that in all explanatory models, a variable of an interpersonal nature was the main predictor of sexual satisfaction: relationship satisfaction. Our study also evidenced the role of the personal variables: age, propensity for sexual inhibition, general opposition to equality. The predictive capacity of personal and interpersonal factors have on sexual satisfaction depends on the characteristics of the person, such as gender and the type of adherence to the SDS, and the sexual behavior areas (i.e., freedom and shyness) referred to by the attitude of the double standard. The age variable turned out to be predictive in more models. Propensity for sexual inhibition due to threat of performance failure and general opposition to equality were found in the sexual shyness area, which means more variables predicting sexual satisfaction in this domain. Finally, the presented results could contribute to the clinical field if we consider the interiorization of gender roles in the sexual behavior area as a variable to bear in mind. In this way, these findings could be considered in sexual health programs through the support of egalitarian norms about sexual behavior to foster satisfactory and pleasant sexuality. Moreover, they could contribute to sexual satisfaction in sexual therapy in the couple context by promoting positively related variables and inhibiting those that are negatively associated with such therapy to improve heterosexual couple's sexual health. In this way, sexual inhibition due to the threat of performance failure has a role positive in sexual satisfaction in the sexual shyness area, whose interpretation and intervention depends on SDS adherence types and gender.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The Ethics Committee on Human Research of the University of Granada in Spain. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

AA-M: data curation, formal analysis, methodology, software, resources, investigation, original draft preparation, writing, review, and editing. CG-B: conceptualization, formal analysis, project administration, resources, investigation, original draft preparation, writing, review, and editing. JS: conceptualization, funding acquisition, project administration, supervision, investigation, original draft preparation, writing, review, and



editing. All authors contributed to the article and approved the submitted version.

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# Abusive Sexting in Adolescence: Prevalence and Characteristics of Abusers and Victims

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Sexting has been defined as sending, receiving, or forwarding sexually explicit messages, images, or photos to others through digital platforms, and can assume more consensual or more abusive and violent forms. This study aims to explore the prevalence of abusive sexting in Portuguese adolescents and the psychological characteristics of sexting abusers in terms of emotional and behavioral problems, potential markers of psychopathy, childhood trauma and maltreatment, and different forms of aggression. A cross-sectional study was conducted with 4,281 participants, aged 12–20 years (2,264 girls and 2,017 boys), of whom 204 (4.8%) engaged in abusive sexting behaviors and 182 (4.3%) self-identified as being a non-consensual sexting victim. Abusive sexting was more common among boys and middle adolescents, and abusive sexting victims were more likely to be children of single-parent families. Engaging in abusive sexting and being a victim of abusive sexting were also related to behavioral and emotional problems, callousness, experiences of neglect and abuse in childhood, and various forms of aggression. Implications for future research and intervention are discussed.

**Keywords:** sexting behavior, violence, adolescence, sexual behavior–psychology, sexuality, cyber abuse

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## INTRODUCTION

Nowadays, adolescents use personal technological devices for all types of social interactions, including sexual exploration and behavior. An adolescent practice of receiving public attention is the self-production of sexual images. Sexting can be described as sending or publishing sexually provocative text messages and images, including nude or half-nude photographs or videos, *via* mobile phones or the Internet (Mitchell et al., 2012; Cooper et al., 2016; Alonso and Romero, 2019). Sexting can also include receiving sexual texts and images of others, or exploiting image content or sexting behavior of others, by forwarding or sharing images (Drouin et al., 2013; Klettke et al., 2014; Cooper et al., 2016).

This practice can be seen as a normal and contemporary form of sexual expression and intimate communication within romantic and sexual relationships (Cooper et al., 2016; Englander, 2019; Barroso et al., 2020c), but also as a way of self-expression, exploration, and establishment of identity (Dir et al., 2013). In addition, images can be taken between friends, for example, as a joke (Cooper et al., 2016), or to increase popularity and acceptance within the peer group (Abeele et al., 2014). Some studies have observed that sexting is not always associated with other types of sexual harassment (Ross et al., 2019). While some studies report similar rates of self-producing



and sending sexual images between genders (Dake et al., 2012; Rice et al., 2012), others have found different prevalence rates for girls and boys, with either boys being more likely to engage in sexually revealing self-exposures (Jonsson et al., 2014), or girls engaging more in sexting behaviors (Mitchell et al., 2012; Reyns et al., 2013; Martinez-Prather and Vandiver, 2014; Gregg et al., 2018).

If, on the one hand, sexting can be seen as a normative, consensual component of the exploration of sexuality during adolescence, on the other hand it may constitute a behavior of aggression and violence associated with various problems, such as risky sexual behavior or an increased likelihood of online victimization (Gámez-Guadix et al., 2017; Gámez-Guadix and de Santisteban, 2018; Marengo et al., 2019; Longobardi et al., 2020). The way the text message is performed and the use of sexual images can determine the legality of the adolescent's behavior. Sexual abuse may occur based on the dissemination of photos or videos of a person without their consent, and/or by forcefully exposing a person to sexual material, by, for example, forcing someone to watch movies or videos of people having sex (Barroso et al., 2020a,b). From a conceptual point of view, what technically defines the presence or absence of sexual violence, as well as the nature of the interaction and relationship in question, is consent, equality, and coercion (see Rich, 2003; Barroso, 2016). Therefore, consensual sexting (voluntarily sending sexual content) has been distinguished from non-consensual or abusive sexting (when an image is incorrectly used and sent without permission), being the latter a form of sexual violence (Walker et al., 2011; Alonso and Romero, 2019).

Given the heterogeneous nature of sexting, it is important to understand the different motivations that may underpin different sexting behaviors (Strohmaier et al., 2014; Bianchi et al., 2016). Sexting motivations related to sexual and social goals are more often listed, and experimental sexting sources are commonly considered (Drouin and Tobin, 2014; Walrave et al., 2015; Bianchi et al., 2016, 2017). Lee et al. (2016) suggest the most common reason to participate in sexting is related to peer pressure and coercion, specifically among girls. Higher social competence has been described as negatively related to engaging in all sexting behaviors, but particularly more for receiving and forwarding than for sending and receiving, and especially more for girls than for boys (Casas et al., 2019). Additionally, negative outcomes of sexting are much more common among certain groups, namely young teenagers or pre-teenagers, and those who experience negative pressure or coercion to sext, especially outside an established relationship (Rice et al., 2014). Recently, a study from Van Ouytsel et al. (2019) showed that sexual minority adolescents are more likely to experience, but not to perpetrate, abusive sexting behaviors. In line with this, the Cooper et al. (2016) review about sexting in adolescents identified four principal motivations for sexting, namely, (a) flirting and trying to get the romantic attention of a potential partner (Dir et al., 2013; Temple and Choi, 2014), (b) expressing normal sexuality within a dating relationship (Renfrow and Rollo, 2014), (c) experimenting with sexuality and identity (Chalfen, 2009; O'Sullivan, 2014), and (d) responding to pressure from one's partner or friends

to conform to perceived normal behavior in the peer group (Walrave et al., 2014).

Identifying the factors that facilitate sexting among adolescents will help to achieve a better understanding of sexting in general, and of abusive sexting in particular, and also why adolescents engage in such risky behaviors. Among the studied correlates of sexting (Abeele et al., 2014; Hudson and Marshall, 2017), research has identified the influence of engaging in other sexual behaviors (Smith et al., 2014), the will to sext (van Oosten et al., 2017), a perceived need to seek popularity (Abeele et al., 2014), participating in cybergossip (Ringrose et al., 2013), and social competence (Bauman, 2015). Certain personality traits also seem to increase the likelihood of engaging in sexting: although most studies in this field were conducted with university students (see Whiteside and Lynam, 2001; Saulsman and Page, 2004; Ferguson, 2011; Settles et al., 2012; Delevi and Weisskirch, 2013; Dir et al., 2013), studies with adolescents showed relations between sexting and higher levels of sensation seeking (Van Ouytsel et al., 2014), as well as impulsivity (Temple et al., 2014). Similarly, a longitudinal study (Alonso and Romero, 2019) with adolescents from 12 to 19 years showed that adolescents who practice sexting are more likely to score higher on depression, impulsivity, and vulnerability. Thus, it is possible that adolescents who are more emotionally vulnerable may use sexting as a way to gain acceptance from their peers. In addition, the inability to control impulses can contribute to sending messages, photos and videos, without considering the possible consequences.

Internet addiction problems have been related to perceived maternal availability, cognitive reappraisal, and callousness traits (Trumello et al., 2018). In addition, some authors have shown interest in the study of factors associated with sexting in several dimensions such as family communication (Bianchi et al., 2019) and personality traits (e.g., honesty-humility, conscientiousness, emotionality, and extraversion; Morelli et al., 2020). However, there are few studies about factors that influence abusive sexting, namely if these factors may be associated with childhood traumas, psychopathic traits, or emotional problems.

The current study is innovative in this field, as it explores specifically abusive sexting, both in the perspective of the abuser and the victim, respectively, when the adolescent sends sexual pictures of another person, without their consent, or experiences cybervictimization because sexually explicit pictures or videos of themselves were shared online with other people without consent. Accordingly, the purpose of the current study was to examine the prevalence and demographics of abusive sexting behaviors and abusive sexting victimization in a wide sample of Portuguese adolescents, and to explore the associations between abusive sexting and a set of psychological adjustment variables related to antisocial behavior and/or aggressive behavior perpetration (Moffitt, 1993; Loeber et al., 2008; Farrington, 2009). Sexting abusers are compared to adolescents who have not participated in such behaviors, and victims are compared with peers who have not had such an experience, in terms of emotional and behavioral problems, potential markers of psychopathy, childhood trauma and maltreatment, and different forms of aggression. The examination of links between abusive sexting and

personal characteristics may provide crucial information for the identification of at-risk youth and the provision of timely and targeted prevention interventions.

## METHOD

### Participants

Data were drawn from the Interpersonal Violence Prevention Program (PREVINT)<sup>1</sup> (Barroso et al., 2018). PREVINT is an original psychological intervention program designed to prevent the development and expression of aggression in adolescence. Previously to the intervention process, the project collected data from 4,281 youth (ages 12–20;  $M_{age} = 14.51$ ,  $SD = 1.83$ ; 2,017 boys and 2,264 girls) attending 52 public middle- and high-schools, in rural and urban areas, from various districts of the country, both mainland and islands. Roughly half of the participants came from working-class families (51%). According to the developmental stages of adolescence and young adulthood (Steinberg and Morris, 2001; Johnson et al., 2009), participants were classified as: early adolescents (12–13 years,  $n = 1,449$ , 33.8%), middle adolescents (14–16 years,  $n = 2,060$ , 48.1%), and late adolescents (17–20 years,  $n = 772$ , 18.0%). Regarding their socioeconomic status, they were classified as being from working-class families ( $n = 1,217$ , 28.4%) or middle- or upper-class families ( $n = 3,064$ , 71.6%). Most were children of married (or the legal equivalent) couples ( $n = 3,097$ , 72.3%), while the others were children of divorced (or the legal equivalent) or widowed single-parent households ( $n = 1,184$ , 27.7%).

## MEASURES

### Social Desirability Scale

Social desirability scale (EDS-20; Almiro et al., 2016) is a self-report measure, with 20 items of dichotomous response (yes/no), validated for the age groups in this sample. Example items include “Have you ever detested someone?” and “Have you ever taken advantage of someone?” Prior to data analyses, all participants were screened for social desirability, ruling out adolescents who scored over  $M = 14.73$ , as they showed a tendency to transmit socially desirable responses rather than choosing responses that are a true reflection of their behaviors or feelings (Grimm, 2010). Cronbach’s alpha for total scale was .80.

### Abusive Sexting

Adolescents were asked two questions regarding sexting behaviors: (a) abusive sexting: “Have you ever shared sexually explicit images or videos of other people without their consent?”; and (b) abusive sexting victimization: “Have sexually explicit images or videos of yourself ever been shared with other people without your consent?”. Answers were rated as 0 = No, 1 = Yes.

### Youth Self Report

Youth self report (YSR; Achenbach and Rescorla, 2001; Portuguese version: Gonçalves et al., 2007). The YSR is a

self-report questionnaire designed for school-age children and adolescents (ages 11–18) to obtain self-ratings of emotional, behavioral, and social problems. Items are rated on a three-point scale (0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true), based on the preceding 6 months. In this study, the syndromes Anxious/Depression (13 items; e.g., “I feel worthless or inferior”;  $\alpha = 0.85$ ), Social Problems (11 items; e.g., “I don’t get along with other kids”;  $\alpha = 0.78$ ), Opposition (Rule Breaking) Behavior (16 items; e.g., “I cut classes or skip school”;  $\alpha = 0.60$ ), and Aggressive Behavior (17 items; e.g., “I destroy things belonging to others”;  $\alpha = 0.84$ ) were used. According to the criteria suggested by Ponterotto and Ruckdeschel (2007) regarding the adequacy of internal consistency measures, and considering the marginal alpha value of Opposition Behavior subscale ( $\alpha = 0.60$ ) and the number of items (16 items), we decided to remove this scale from statistical analysis.

### Inventory of Callous-Unemotional Traits

Inventory of callous-unemotional traits [ICU; Essau et al., 2006; Portuguese version by Pechorro et al. (2014)]. The ICU is a questionnaire designed to assess callous and unemotional traits on a 4-point scale ranging from 0 (“Not at all true”) to 3 (“Definitely true”). This measure has been used with clinical and community samples of youth ranging from early adolescence to late adolescence/emerging adulthood (age range = 12–20 years). Three subscales were used: Uncaring (eight items; e.g., “I hide my feelings from others”;  $\alpha = 0.86$ ), Callousness (11 items; e.g., “I do not care who I hurt to get what I want”;  $\alpha = 0.72$ ), and Unemotional (five items; “I feel bad or guilty when I do something wrong”;  $\alpha = 0.43$ ). Although a low value of alpha could be due to a low number of questions (Nunnally, 1978), we decided to remove this scale from comparative statistical analysis.

### Childhood Trauma Questionnaire

Childhood trauma questionnaire [CTQ; Bernstein et al., 2003; Portuguese version by Dias et al. (2013)]. The CTQ is a 28-item questionnaire aimed to quantify self-reported childhood trauma history in adolescent and adult populations (from 12 years old). Responses are measured on a 5-point Likert scale from 1 (“Never true”) to 5 (“Very often true”). Childhood trauma was measured using five subscales: Emotional abuse (e.g., “I thought that my parents wished I had never been born”;  $\alpha = 0.81$ ), Emotional neglect (e.g., “I felt loved”;  $\alpha = 0.82$ ), Sexual abuse (e.g., “I believe that I was sexually abused”;  $\alpha = 0.89$ ), Physical abuse (e.g., “I believe that I was physically abused”;  $\alpha = 0.83$ ), and Physical neglect (e.g., “I don’t have enough to eat”;  $\alpha = 0.60$ ). Each subscale contains five items, and an additional three items are intended to measure any tendency to minimize or deny the abuse.

### Reactive-Proactive Aggression Questionnaire

Reactive-proactive aggression questionnaire (RPQ; Raine et al., 2006; Portuguese version by Pechorro et al., 2017). The RPQ is a 23-item self-report measure that distinguishes between reactive

<sup>1</sup><https://www.prevint.pt/en>

and proactive aggression, with items scored on a frequency scale ranging from never (Score = 0) to often (Score = 2). Reactive aggression is characterized by high emotional activation, impulsivity, and hostility (e.g., “*Reacted angrily when provoked by others*”), and proactive aggression is characterized by a tendency toward instrumental, planned, non-empathetic, and cold strategy behavior (e.g., “*Had fights with others to show who was on top*”). Cronbach's alphas are .92 for the proactive subscale and .83 for the reactive subscale. This instrument has been used with samples of youth (ages 6–18 years), and adults (ages above 18 years).

## Buss–Perry Aggression Questionnaire-Short Form

Buss–Perry aggression questionnaire-short form [BPAQ-SF; Buss and Perry, 1992; Bryant and Smith, 2001; Portuguese version by Pechorro et al. (2016)]. The BPAQ measures four aspects of human aggression, with 12 items scored on a 5-point scale (from 1 = “Extremely uncharacteristic of me” to 5 = “Extremely characteristic of me”). The scales are: Physical Aggressiveness (three items; e.g., “*There are people who pushed me so far that we came to blows*”;  $\alpha = 0.77$ ), Verbal Aggressiveness (three items; e.g., “*My friends say that I’m somewhat argumentative*”;  $\alpha = 0.75$ ), Anger (three items; e.g., “*I have trouble controlling my temper*”;  $\alpha = 0.74$ ), and Hostility (three items; e.g., “*Other people always seem to get the breaks*”;  $\alpha = 0.79$ ). This instrument has been used with participants with ages of 11 years old and above.

## Procedures

The participants were students from Portuguese schools. In addition to the institutional authorization from the Portuguese Ministry of Education, all participants were informed of the goals of the study and the confidentiality and anonymity of their responses were guaranteed. The research protocol was approved by University of Trás-os-Montes and Alto Douro Ethics Committee. Written consent was collected from participants’ parents/legal guardians. Data were collected through computer-assisted self-reports on school computers (or smartphones, when authorized) during regular classes by using an Internet-based survey hosted on a secure institutional server. Participation in this research was voluntary and did not imply any monetary payment or delivery of material goods.

## Data Analyses

Frequencies, proportions, and chi-square tests were calculated to evaluate associations between engaging in abusive sexting and abusive sexting victimization, as well as differences by sex, age, and family background. Standardized residuals were analyzed to identify significant deviations of observed counts from expected frequencies. Student *t*-tests were calculated to analyze differences between sexting abusers and non-abusers and abusive sexting victims and non-victims. Cohen’s *d* statistics were calculated to determine effect sizes: with values of 0.20, 0.50, and

0.80 representing small, medium, and large effects, respectively (Cohen, 1988).

## RESULTS

### Prevalence and Sociodemographic Factors

From a total of 4,281 participants who completed the questionnaires, 204 (4.8%) reported abusive sexting behaviors, i.e., sending unauthorized sexually explicit images or videos of others, and 182 (4.3%) self-identified as being an abusive sexting victim, i.e., sexually explicit images or videos of themselves were shared without their consent. There was a significant association between engaging in abusive sexting and being an abusive sexting victim,  $\chi^2(1) = 132.15$ ,  $p < 0.001$ . Adolescents both engaged in and victims of abusive sexting were more frequent than expected ( $n = 41$ ). In addition, there were less cases than expected in being a sexting abuser but not a victim ( $n = 163$ ), as well as in being a victim, but not an abuser ( $n = 141$ ).

**Table 1** presents the associations between sociodemographic variables and abusive sexting behaviors, as well as abusive sexting victimization. A significant difference between the observed and expected frequency of abusive sexting behaviors was found in boys and girls: a higher number of sexting abusers was found for male adolescents ( $n = 143$ ) than for female adolescents ( $n = 61$ ). Although the number of abusive sexting victimization cases was higher for girls ( $n = 100$ ) than for boys ( $n = 82$ ), the association between gender and abusive sexting was not significant for victimization experiences.

There was also a significant association between age and engaging in abusive sexting: early adolescents (12–13 years;  $n = 46$ ) were less likely and middle adolescents (14–16 years;  $n = 116$ ) were more likely to engage in abusive sexting behaviors. The inspection of standardized residuals indicated no significant difference between expected and counted frequencies of sexting abusers in late adolescents ( $n = 42$ ). The number of abusive sexting victims was higher in middle adolescents ( $n = 97$ ) than in early adolescents ( $n = 52$ ) and late adolescents ( $n = 33$ ). However, the association between age and abusive sexting victimization was not statistically significant.

No significant associations were found between family socioeconomic status and engaging in abusive sexting, nor abusive sexting victimization. Finally, no significant association was found between the parents’ marital status and being a sexting abuser, but the association was observed for being an abusive sexting victim. Children of single-parent families were more likely than expected ( $n = 67$ ) to be a victim of sexting than children of married couples.

### Group Differences for Psychological Adjustment Variables

Systematic differences were found between adolescents who engaged in abusive sexting and those that did not, as

shown in **Table 2**, for most of the studied psychological adjustment variables. When compared to those who did not engage in such behaviors, sexting abusers reported: significantly higher levels of aggressiveness, social problems, anxiety and depression; significantly more frequent experiences of emotional abuse, emotional neglect, sexual abuse, and physical neglect in childhood; significantly higher levels of callousness and lower levels of uncaring (but not unemotional) traits; significantly more frequent proactive and reactive aggression; and described themselves as significantly more physically and verbally aggressive, angry, and hostile. Such differences were also observed for the victims of abusive sexting, with the exception of uncaring traits, where no differences were found between groups. It is worthy to notice that the greatest differences between groups for abusive sexting was found in aggressiveness, proactive aggression, and physical aggression, and the least differences were found for traumatic experiences of emotional abuse in childhood, anxiety and depression, and anger. For abusive sexting victimization, differences were typically less expressive, compared to the ones observed for abusive sexting; nonetheless, the differences were higher in emotional abuse and sexual abuse, and lower in callous traits and anger.

## DISCUSSION

The current study examined the prevalence and associations of engaging in abusive sexting and abusive sexting victimization and psychological adjustment variables in a sample of Portuguese adolescents. The prevalence of abusive sexting behaviors (4.8%) and victimization (4.3%) was lower than reported in prior

studies (e.g., Gámez-Guadix et al., 2017; Gámez-Guadix and de Santisteban, 2018), which was expected as prior research focused on general and consensual forms of sexting. The prevalence in abusive sexting in boys and girls is not consistent with what has been known for general sexting (Casas et al., 2019), as in the current study boys were more likely than girls to engage in abusive sexting. These gender differences were also found in earlier studies, where sexting presented different patterns in girls and boys (Burén and Lunde, 2018; Casas et al., 2019). Family socioeconomic background was irrelevant for abusive sexting, but parental marital status was not, as the children from single-parent households were at a higher risk of being a victim of abusive sexting.

Abusive sexting was related to behavioral and emotional problems, which is consistent with prior research that identified mental health issues as correlates of sexting (Gámez-Guadix et al., 2017; Gámez-Guadix and de Santisteban, 2018). Prior studies suggested an association between sexting behaviors and personality characteristics, such as conscientiousness and extraversion (Temple and Choi, 2014; Gámez-Guadix and de Santisteban, 2018). Callous and unemotional traits were also related to abusive sexting. To our knowledge, this is the first study that has identified such a relation, suggesting that abusive sexting in adolescents may be related to personality-related variables, which are more stable and therefore of a worse prognosis for abusers. It is known that callous and unemotional traits are associated with aggression, bullying, and other antisocial behaviors (Ang and Goh, 2010). The association between sexting and such traits may be explained by a lack of empathy, not caring about others, and not feeling remorse.

In this study, abusive sexting was related to childhood experiences of physical, emotional, and sexual neglect and

**TABLE 1 |** Prevalence of abusive sexting behaviors and abusive sexting victimization.

	Engaging in abusive sexting behaviors			Abusive sexting victimization		
	No n (%)	Yes n (%)	$\chi^2$	No n (%)	Yes n (%)	$\chi^2$
<b>Sex</b>						
Male	1,874 (92.9)	143 (7.1)	45.41 <sup>a***</sup>	1,935 (95.9)	82 (4.1)	0.32 <sup>a</sup>
Female	2,203 (97.3)	61 (2.7)		2,164 (95.6)	100 (4.4)	
<b>Age</b>						
Early adolescents (12–13 years)	1,403 (96.8)	46 (3.2)	12.26 <sup>b**</sup>	1,397 (96.4)	52 (3.6)	2.62 <sup>b</sup>
Middle adolescents (14–16 years)	1,944 (94.4)	116 (2.7)		1,963 (95.3)	97 (4.7)	
Late adolescents (17–20 years)	730 (94.6)	42 (5.4)		739 (95.7)	33 (4.3)	
<b>Family socioeconomic status</b>						
Working-class	1,156 (95.0)	61 (5.0)	0.23 <sup>a</sup>	1,155 (94.9)	62 (5.1)	2.97 <sup>a</sup>
Middle and upper-class	2,921 (95.3)	143 (4.7)		2,944 (96.1)	120 (3.9)	
<b>Parents' marital status</b>						
Married or equivalent	2,951 (95.3)	146 (4.7)	0.01 <sup>a</sup>	2,983 (96.3)	114 (3.7)	8.78 <sup>a**</sup>
Single-parent, divorced or equivalent, or widowed	1,113 (95.2)	56 (4.8)		1,102 (94.3)	67 (5.7)	

<sup>\*\*</sup> $p < 0.01$ , <sup>\*\*\*</sup> $p < 0.001$ . <sup>a</sup> $df = 1$ , <sup>b</sup> $df = 2$ .



**TABLE 2 |** Group differences for psychological adjustment variables in abusive sexting behaviors and abusive sexting victimization.

Psychological adjustment variables	Engaging in abusive sexting behaviors				Abusive sexting victimization			
	No <i>M (SD)</i>	Yes <i>M (SD)</i>	<i>t</i> (3596)	Cohen's <i>d</i>	No <i>M (SD)</i>	Yes <i>M (SD)</i>	<i>t</i> (3596)	Cohen's <i>d</i>
Aggressiveness (YSR)	9.10 (5.31)	12.23 (7.42)	−7.51***	0.49	9.13 (5.35)	11.91 (7.23)	−6.27***	0.44
Social problems (YSR)	4.64 (3.71)	6.37 (4.95)	−5.96***	0.40	4.64 (3.72)	6.49 (4.86)	−6.02***	0.43
Anxiety and Depression (YSR)	7.67 (5.17)	9.03 (6.34)	−3.38**	0.24	7.63 (5.17)	10.01 (6.20)	−5.60***	0.42
Emotional abuse (CTQ)	8.18 (3.83)	9.04 (4.48)	−2.91**	0.21	8.11 (3.74)	10.75 (5.48)	−8.46***	0.56
Emotional neglect (CTQ)	9.78 (4.73)	11.08 (5.55)	−3.56***	0.25	9.78 (4.75)	11.20 (5.25)	−3.65***	0.28
Sexual abuse (CTQ)	5.85 (2.55)	6.82 (3.92)	−4.77***	0.29	5.83 (2.53)	7.37 (4.17)	−7.18***	0.44
Physical neglect (CTQ)	6.81 (2.76)	8.25 (3.73)	−6.65***	0.44	6.83 (2.79)	7.93 (3.45)	−4.77***	0.35
Callousness (ICU)	11.56 (5.28)	14.13 (5.63)	−6.32***	0.47	11.64 (5.29)	12.72 (5.89)	−2.49*	0.19
Uncaring (ICU)	15.85 (5.52)	14.16 (5.23)	3.99***	0.32	15.80 (5.52)	15.00 (5.59)	1.77	0.14
Proactive aggression (RPQ)	3.42 (4.37)	7.14 (5.97)	−10.86***	0.71	3.52 (4.45)	5.54 (5.82)	−5.51***	0.39
Reactive aggression (RPQ)	7.25 (4.12)	9.44 (5.05)	−6.86***	0.48	7.30 (4.15)	8.63 (4.98)	−3.90***	0.29
Physical aggression (AQ)	4.90 (2.37)	6.55 (3.13)	−8.90***	0.59	4.94 (2.40)	5.92 (3.11)	−4.92***	0.35
Verbal aggression (AQ)	6.08 (2.60)	7.17 (3.23)	−5.43***	0.37	6.10 (2.60)	6.91 (3.05)	−3.82***	0.26
Anger (AQ)	6.93 (2.99)	7.72 (3.10)	−3.42**	0.26	6.94 (2.98)	7.77 (3.40)	−3.42**	0.26
Hostility (AQ)	7.25 (3.17)	8.28 (3.32)	−.24***	0.32	7.25 (3.17)	8.33 (3.32)	−4.17***	0.33

\* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

abuse, suggesting that such past experiences may shape adolescents' proneness to disregard interpersonal respect and trust. Previous research suggests that adolescents who engage in abusive sexting behavior have histories marked with more frequent physical and sexual abuse experiences (Jonsson et al., 2014). Yoder et al. (2018) suggested that youth exposed to violence or adversity in their homes may engage in sexting because they are in an emotionally disinhibited state.

Finally, abusive sexting was related to various forms of aggression, including reactive and proactive aggression, and hostility, anger, and physical and verbal aggression. This finding validates the suggestion that abusive sexting can be considered as an expression of aggressive behavior, and that it will probably co-occur with other manifestations of aggression in adolescence. In other words, these results suggest that the psychological characteristics presented by these young abusers could be explained as another manifestation of general antisocial tendencies. Prior research has already shown an association between verbal aggression and physical aggression (Beckmann et al., 2017), and that physical aggression specifically in dating violence may be related to sexting (Dake et al., 2012). According to Englander (2012), adolescents in abusive sexting reported more often histories of dating violence in high-school, compared to both youth who sexted in the absence of coercion and those who did not sext at all.

Taken altogether, these findings suggest that sexting abusers are at a higher risk of emotional and behavioral problems. However, this is not only the case for abusers, but also for victims. The current study found that victims of abusive sexting also presented higher levels of intra- and interpersonal problems, also experienced more abuse and neglect in the past, and also engaged more frequently in aggressiveness, when compared to youth who did not have such an experience.

Albeit the contributions of this study, it is not without limitations. First, the cross-sectional design of this study limits inferences about causality. Future research could explore the temporal dynamics between abusive sexting and victimization and mental health issues, by employing longitudinal designs that follow participants from the transition from childhood to adolescence, and from adolescence into young adulthood. Second, this study relied solely on self-reported measures, which can lead to shared method variance and reporting bias. In the future, it would be valuable to include multi-informant data and observational or qualitative methods to strengthen our understanding of adolescents' experiences of abusive sexting and victimization. Third, the current study did not control for factors which may impact the results, such as dating and sexual experience. Future studies could further explore if abusive sexting occurs in the context of a dating relationship or if it is related to online deviant behavior, such as catfishing (i.e., pretending to be another person), inappropriate use of shared images, or even online theft or hacking personal presence online. Fourth,

although participants were screened for social desirability, it is not guaranteed that all participants were all straightforward with their experiences of engaging in abusive sexting behaviors and especially in victimization. A cross-validation of the findings could be valuable with a new dataset, exploring the stability of prevalence and personal variables linked to abusive sexting across different samples. Finally, the current study did not explore other forms of sexting, including sending or receiving sexually explicit texts, and how and with whom do the adolescents exchange sexts with (e.g., a group of peers, adults, posting on social media platforms). Such details of abusive sexting could be explored in future studies.

Despite the limitations that may be identified, the current study contributes to research that attempts to describe and analyze abusive sexting in adolescence, by exploring the experiences of adolescents from a South-European country, and focusing on a particularly relevant type of sexting with close relations to cybervictimization. The findings suggest that abusive sexting, although not as widespread as more consensual forms of sexting, warrants further attention and research, as it is a damaging experience for adolescents' psychological adjustment, both for abusers and for victims. The present study has important implications for clinicians and counselors in an intervention process, particularly concerning childhood experiences of abuse and neglect, associated with abusive sexting behaviors and especially with victimization.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Universidade de Trás-os-Montes and Alto Douro. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

## AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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# Treatment of Traumatized Sexuality

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Based on therapeutic meetings with individuals who have experienced sexual violence and abuse, the challenge is how do we help these couples to establish sexual relationships on their own terms, without interference of defence or coping strategies they have used to protect themselves against the overwhelming experiences of violence or abuse in the past? This article will focus on therapeutic work with such couples and how to interact with them and support their efforts to establish satisfying sexual relationships, based on sexological experience as well as experience from work with traumatization. The basis for our treatment is a modified version of William Masters and Virginia Johnson's approach. The technique of sensate focus is central, modified by trauma theory, including the understanding of dissociation, and the need to integrate memories from different levels: somatic, emotional, and cognitive. The traumatized client needs special attention to the experiences of predictability and safety and respect due to their history of being transgressed against. The therapists must be aware of the issue of dissociation; different dissociated inner parts can play different roles in the interaction between client and therapist. While couples therapy is a necessary frame for this therapy, the therapist often needs to work with issues unique to each individual. Each partner must be able to identify their own responses and their own sexual needs and preferences. It may therefore be valuable to have a co-therapist. The central goal is for the clients to identify responses to stimulation as a here and now experience in a setting that feels safe and welcome.

**Keywords:** sexuality, sexual health, sexual dysfunctions, sexual behavior, psychological factors

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## INTRODUCTION

Traumatic reactions resulting from sexual violence and abuse have been a subject of therapeutic treatment for several decades, especially since post-traumatic stress disorder (PTSD) was introduced as a diagnosis in DSM-III in 1980 (APA, 1980). However, many therapies focus only on coping with the traumatising experience and conclude treatment once the original trauma has been processed, without helping the clients to establish sexuality on their own terms. Psychological treatment alone is only minimally effective in rehabilitation of clients' sexuality, and it is therefore recommended that sex therapy be added (Maltz, 2002; Almås and Landmark, 2010; Landmark et al., 2012; O'Driscoll and Flanagan, 2016).

Additionally, too little attention has been paid to the silence imposed upon individuals who have experienced violence and abuse, which contributes to their sexual challenges. Silence may be imposed either by the abuser or by society (or both), given the general lack of openness

regarding sexuality, and adding to *traumas of retention*. Feelings of guilt, and of having participated in the abuse, can contribute to retention of guilt and continued silence.

Treatment aimed to establish/re-establish adult sexuality on the individual's own terms will be described in the following. The treatment approach will be based on modified sex therapy in combination with trauma therapy (Almås and Benestad, 2004a,b; Masters and Johnson, 1970; Kaplan, 1974; Hertoft, 1980, 2002; Langfeldt, 1993; van der Kolk et al., 1996; Schnarch, 1997/1998; Rothschild, 2000; Clement, 2002; White, 2004; Lundberg and Löfgren-Mårtenson, 2010; Porges, 2011; Ecker et al., 2012; van der Kolk, 2014/2015; Almås and Benestad, 2017). Some of these authors are Scandinavian contributors to the Nordic sexological tradition, which may be unknown to many, but which will be introduced below.

## TREATMENT OF SEXUAL PROBLEMS

Sex therapy is based on physician William H. Masters and psychologist Virginia E. Johnson's methods of treatment of sexual problems in couples (Masters and Johnson, 1966, 1970), and Helen Singer Kaplan's modification of this theory towards the outpatient treatment of sexual problems among individuals as well as couples (Kaplan, 1974). In Scandinavia, these methods were introduced by Preben Hertoft and his colleagues at the Sexological Clinic at the National Hospital of Copenhagen (Hertoft, 1976, 1980, 1987), Thore Langfeldt in Norway (Langfeldt, 1993), and Per Olov Lundberg in Sweden (Lundberg and Löfgren-Mårtenson, 2010).

Preben Hertoft recommended that the treatment of sexual problems should be considered as an element of an interdisciplinary, holistic approach. Before implementing sex therapy techniques, in most cases, the client is provided a physical examination, and the relational and individual factors are explored. Sex therapy is based on a combination of knowledge about sexual physiology and sexual responses as well as methods for the modification of responses. In addition, many therapists find it necessary to consider dynamic issues related to the individual's history of development, established patterns of sexual arousal, interplay between the partners involved, current stresses in the client's environment, individual motivation and capacity, knowledge about, and attitudes towards sexuality in general, as well as the client's ideas of the ultimate goals of the treatment (Hall, 2008; Brotto et al., 2012; Goodbout et al., 2020; Gewirtz-Meydan and Ofir-Lavee, 2021). The bio-psycho-social model described by Engel (1977, 1980) offers a useful perspective for many sexologists and has become the gold standard for sexologists.

## PRECONDITIONS FOR SEX THERAPY

In order to establish a safe therapeutic space, the therapists must feel safe and comfortable concerning their therapeutic expertise as well as with the clients' sexological challenges. Many therapists report that they lack a satisfactory level of

professional competency regarding sexuality and, therefore, avoid discussing this aspect of their clients' problems (Træen and Schaller, 2013). Many clients present symptoms of underlying, often hidden sexual problems and challenges, but avoid bringing these to the therapist's attention, even as numerous clients wish for their therapists to broach the subject of sexuality (Almås, 1983; Træen and Schaller, 2013).

Clients may have different needs when it comes to talking about sexuality. We find it useful to introduce this possibility by providing careful permission to introduce individual needs according to the PLISSIT model (Annon and Robinson, 1976). In the model, Permission (P) is the first level to approach sexual problems. On this level, most sexual problems are solved simply by having permission to be sexual. The next level is Limited Information (LI), where more problems may be solved through conveyance of knowledge related to the challenges that the clients experience. Some clients will need Specific Suggestions (SS), which may include sexological counselling and basic sex therapy. Only a minority of all sexological clients will need Intensive Therapy (IT), where specialized psychotherapeutic or medical skills are required. Therapists must recognise, however, that all levels of intervention should be available, especially for traumatised clients.

Many clients are not ready for sex therapy, even if they seek treatment due to sexual problems, as observed, for example, in the following cases:

Sandra had been abused by her father, his friends, and her schoolmates during most of her childhood. She sought therapy because of lack of sexual desire. When we talked about the reasons for having sex, she said that she had never felt any positive sexual feeling in her body and that everything that had to do with sexuality was associated with degradation, pain, and nausea. "*For me, it is only violence!*" she said.

In such situations, extensive work is needed before it is possible to get close to the feelings of sexual desire or enjoyment. This should be pursued in individual therapy. It may be a way to go from violence to pleasure!

Anna had a painful condition in her pelvis since she was 13 years old. She had never had any positive feelings in her genital region; everything that she could sense was connected with pain. She sought therapy because she wanted to be normal.

When Greta was 7 years old, she was invited to touch her uncle's penis in the bathroom. She was curious and touched it. Immediately she understood that she had crossed a boundary and that she could not run to her parents and tell them what had happened. Later, when she had the words for it, she said that was when she got the feeling that "*I was a whore!*"

John, at the age of eight, was taken aside by a "nice lady" who took him to the woods and abused him sexually. Later in life, John felt that he had taken part in something so abominable that, again and again, through emotion-driven trespassing actions towards others, he would prove to himself that he really was as mean as his intrapersonal narrative presented him to be.

Diana had experienced over and over again situations, where her mother, in many – at times subtle – ways, exposed herself to Diana and also touched her in ways that were violating.

For Diana, this became so unbearable that as she grew up and got a clearer picture of her mother's behaviour, she had to move her mother out of her sphere of significant others in order to shelter herself from the disturbing memories.

There are many narratives that tell various stories about sexuality. Some patients have been able to explore sexuality on their own terms, as feelings have emerged through accidental self-stimulation, exploration with other children or teenagers, falling in love, secretly exploring books and films with sexual content, or other sources of sex education, of varying accuracy. Alternatively, some, like Diana, find ways to protect themselves while also realising that they have a sexuality of their own that calls to be explored.

The therapist must be aware that the story the client has to tell may be surprising, unusual, involve shame and guilt, and even be a secret that the client has never dared to share with anyone. In order to build a therapeutic alliance, therapists must prove themselves worthy of being told this story. When one as a therapist gets invited to know such a story, one must regard it as a valuable gift to be treated with the utmost respect.

It is also useful to remember that when a therapist takes time to explore how the sexual history of the client has developed, they must realise that their therapeutic skills are important, that the therapist will require everything they know, and that they must fully value their therapeutic competence. It may be necessary to possess the *skills needed for intensive therapy* in accordance with the PLISSIT model. In addition, it is usually necessary to add *sexological knowledge* in order to work with bodily reactions, sexual responses, relational wounds, and self-hurt, and to help clients become aware of positive sexual feelings, acknowledge them, and, hopefully, be able to enjoy them.

## AVOID RETRAUMATISATION

Individuals who started their sexual life by being traumatised will often fall into a pattern of recurrent traumatising. It is important to identify how the trauma could repeat itself and ensure that the treatment does not turn into a repetition of the original trauma. There are examples, where individuals have experienced that the assigned treatment has staged revisitations of the trauma. In the worst of cases, this has been a reality, meaning that the therapist has actually been an abuser, but it is bad enough for the client to live with a subjective experience of not being able to escape the trauma, leaving them with the message, *You are an eternal victim!*

Revisitation of the trauma is more likely to occur in situations, where the rules of therapy are unclear, under circumstances that are secret, and in conditions, where areas of responsibility are not clearly defined. Traumatized clients are often extremely sensitive with regard to rules, limits, contracts, and mutual areas of responsibility. Many have been trained for years in alertness and are able to sense betrayal or neglect, even when these do not exist.

It is striking how some clients go from one trauma to another. The lack of an ability to shelter themselves from situations that may become threatening may be an important factor contributing

to such repetitions. They tend to stay in situations when others would have left, being victims of an underlying need to satisfy other people's needs. Sometimes they may experience others, including the therapist, as real or potential violators. Therapists, like anyone else, may become the victim of projected identification and take on the role of the violator; the likelihood of this increases when the therapists are not aware of their own countertransference. Retraumatization may occur in the form of therapists' lack of respect for appointments, abuse of power, unclear social lines between the therapist and the client, and in the worst case, sexual abuse. As far as the treatment goes, there are various challenges related to early sexual traumas. The body seems to live in denial as long as it needs to do so. Once sufficient safety has been established, and the ability to endure pain is sufficiently developed, the individual may recall traumatic experiences spontaneously or as a result of a random incident. Let us underline that we are sceptical about the therapeutic necessity of provocation of potential traumas with the help of hypnosis or guided association, as the therapist may well contribute to the development of false memories in such cases. Lack of autobiographical memory and/or of integrated cognitive schemas for the formation of opinions, continuous dissociation, identification as a victim, and experience of helplessness and betrayal may render the client highly susceptible to suggestions and constructed explanations that are out of proportion to the real incidents, which may have caused the problems. The therapist must wait until the client is ready to talk about the trauma. It is similar to a splinter in the finger: when the body is ready to get rid of it, it will come out smoothly and easily, accompanied by some infected matter.

In the initial acute phase of processing sexual abuse, there is usually no point in discussing the client's current feelings toward sexuality. It is important to distinguish the story of abuse from that of personal sexuality. When individuals explore their former experiences of abuse, it is crucial for development in therapy that they place these experiences in the past and as belonging to the abuser's lack of understanding of boundaries. In order for the client to explore their own sexuality, it is important that they feel the right to have their own boundaries and the possibility of both acknowledging and defining their own physical feelings and sexual needs. It may be difficult for many clients to identify the story of abuse as different from their own sexual story early in therapy.

Here, our focus is on sex therapy with couples, but many clients also require an individual approach. Sometimes it is necessary to stop therapeutic work with the couple in order to work with individual issues. Most often, the traumas took place long before the partner entered the abuse victim's life. Hence, the partner must have "ice in the veins" and wait for the time to be ripe. Our approach focuses on developing new sexual patterns, different from the sexual experiences connected with abuse or violence, thereby avoiding the role of a victim. During treatment, the focus is shifted from the history of abuse to the story of sexuality on one's own terms. We attempt to extract the individual's own sexual story from their life story, and finally the story of the couple that is developing as an integral part of the relationship. Many clients who have been

subjected to abuse and have received considerable treatment feel that attention has been focused on them as the source of all problems. As a result, they often feel responsible for any problem that the couple may be experiencing; they also carry the burden of the couple having to go to therapy. To avoid this, when we initiate sexual therapy, we emphasise that the treatment aims at processing the couple's sexual interplay. When one partner has experienced sexual abuse, both partners may have been influenced by the original trauma in such a manner that inexpedient sexual patterns may have been established.

In order to begin sex therapy, it is usually an advantage if the client:

- has identified and processed previous traumatic history,
- is reasonably safe and free from high levels of stressors in the current life situation, and
- is ready to establish healthy sexuality with their current partner.

Similarly, the therapist must:

- feel comfortable talking about sexual issues,
- have a satisfactory level of sexological knowledge and experience, and
- be able to employ every aspect of their general therapeutic expertise.

It is also important to recognise the influence of the culture in which the client is situated. In therapy, family cultures may be important to explore, in order to identify unconscious patterns learnt by each partner in their respective families. For example, some clients are used to strong expressions of emotion, while their partners may experience these as signs of hostility and separation.

Further, culture often imposes silence on powerful emotions and experiences related to sexuality and that imposes an even greater silence on the experiences of sexual violence and abuse. Clients experiencing this process may therefore lack words, and it is important to be patient and allow the clients to find their own ways of expressing their experiences.

## ESTABLISH A SAFE SPACE IN A NEW ROOM

We regard the therapist's office as a training arena, where it is safe to address difficult and challenging topics. Most people who enter the therapy room regard their life situation as critical and feel the need to establish a subjective territory, while at the same time experiencing their history of abuse as a dark force that has taken away their ability of self-determination. This dark force is often present in the therapist's office and must always be clarified, defined, and defused or neutralised when it appears. For many, the therapist's office is the first place, where they have felt safe to talk about themselves. Initially, the therapist guarantees safety, and the therapeutic work consists of assuring the client that this sense of security is developing and becoming a part of the client's autonomy. The starting point for security is the therapist's own level of expertise, professionalism, and respect for the client's autonomy and integrity. An important part of this competence is to

separate the individual's story of abuse from the story of their sexuality.

*Tom: It's good that this part of therapy takes place in a different room, it makes it easy to separate my stories – this is a completely different one.*

## RESPECT AND SAFETY

It is taken for granted that respect and safety are to be the basis of all forms of treatment. Yet we have heard far too many accounts from clients who have dissociated in the therapy room and been unable to tell their stories. Instead, they have presented physical symptoms, aversive reactions, anxiety, depression, or aggression. Needless to say, this is often supported by the therapists' ways of questioning, what the therapists overhear, and what they are able to extract from the conversation.

*Jenny: So many years went by before I could start talking about it. I can still feel the straps from the psychiatric ward around my wrists.*

Following a medicalised, psychiatric tradition, therapists have often been more concerned about symptoms and diagnoses than the personal stories behind the symptoms. Many clients tell stories about being medicated by either having a prescription, such as for Viagra, put in their hands with no further follow-up or having gotten various kinds of psychotropic drugs for curbing their reactions.

*Tom: I got a prescription for Viagra, and I thought at that moment, "Well, that's the end of sexuality for this guy."*

Safety means creating a climate in which it is possible for the client to leave behind a certain amount of the presently undesirable reactions that they have developed for self-protection. It also means creating a space for developing new stories, which affirms an individual's ability to remain standing in spite of the storms they have been subjected to in the past. The development of these "stories of victory" occurs simultaneously with the clients gaining new perspectives on their own life.

## CLEAR AGREEMENTS AND BOUNDARIES, AND A CLEAR DIVISION OF RESPONSIBILITY

Individuals who have been subjected to serious abuse are often vulnerable and interpret unclear signals as signs of danger.

*Jenny: Since you have not brought up what we agreed to talk about last time, I'm starting to feel insecure. Maybe you do not know what you are doing?*

If the therapist hesitates to work out a plan for treatment regarding how the therapy will progress, the client might believe that their therapist lacks concern about their problems. If the plan remains unclear, the client may see this lack of clarity



as an invasion of their privacy. In cases where the therapist does not assume clear responsibility for treatment and make it clear that communication on painful topics and sexual matters is welcome, the client might begin sparing the therapist discomfort by withholding unpleasant information – the same information that may be essential for creating a picture of the client's real problems.

## TIME

When is the right time to work with sexuality? For some clients, sexuality must be addressed early in therapy, while others need to establish a safe feeling of self and integrity in order to address sexual issues.

Emma: *I would never have been able to speak about this ten years ago, when I started therapy. It's good to have gotten the chance to process it and create a life before I got to work on this.*

Kari's partner: *It's good that we did not get an appointment before now. Last year, she was so far down that she had a hard enough time just working through her depression.*

The development of the process at a safe pace takes time.

Tom: *It was only when I came here with my lack of sexual desire and you asked me about my sexual history that I realized I had to tell you about my abuse. It's taken me more than forty years to get that far!*

Nora: *When I talked to the other participants in the group about sexuality, it was like opening up a secret room that we all wanted to enter but were afraid to go into!*

## WHO IS THE EXPERT?

Regarding processing sexual trauma and establishing new sexuality based on the clients' terms, it is understood that the therapist is the expert. This expertise lies in the knowledge of treatment techniques, familiarity with the possibility of retraumatization, and experience with the therapeutic development and maturation processes. Being an expert does not mean having knowledge about what is good sexuality for a particular client, nor does it mean having knowledge about how the particular individual will reach a goal that may be satisfactory to them. Rather, it concerns being able to relate to each individual's unique story with knowledge regarding sexual development and the necessary therapeutic skills.

It is often necessary to use several therapeutic approaches simultaneously (Almås and Benestad, 1993). At times, we have observed new approaches developing through our interactions with the clients. For instance, during the treatment of an engineer, we tried to determine his approach to solving an apparently impossible problem by asking him what he did when he had a problem at his work? "I just add a new dimension," he replied.

This simple method became one we could use both with him and with many other clients.

## ENTERING COUPLES THERAPY THROUGH INDIVIDUAL THERAPY

Individual therapy is used, where there are problems that concern the privacy of one of the individuals in the couple, for instance, earlier sexual experiences with other partners. Sometimes we have to stop couples therapy in order to focus on individual issues that may appear, like individual turn-on patterns, issues in the individual's history, infidelity, or bodily problems. Usually we recommend that trauma therapy is concluded before we start working with sexuality in the couple; we also recommend a consolidation period between the two different treatment processes.

We often say that we do not treat the couple; we treat *individuals* who constitute couples. This means that our primary aim is not to keep individuals in partnerships, but to attempt for both individuals to leave the therapy room as intact individuals, irrespective of whether or not they continue as a couple. We find it useful to employ a systemic approach, where the system involves the body, the individual, the couple, and the culture to which they belong. We have used systemic models described by the biologist Ludwig von Bertalanffy (von Bertalanffy, 1976), as well as ideas developed by Humberto Maturana and Francisco Varela (Maturana and Varela, 1992).

We also find the bio-psycho-social approach described by Engel (1977, 1980) useful, as sexual problems might require expertise from different professions. This model acknowledges therapeutic resources and limitations, proposing the different kinds of experts who can contribute synergistically to each other's expertise. For psychotherapists, it may occasionally be necessary to include information from gynaecological examinations, hormone analyses, general physical examinations, or psychomotor skills evaluations.

This was observed in the case of Eva, who expressed a strong sense of being unclean. "Now, where are people cleaned?," the therapist asked. After a few exchanges, the answer was "A priest cleans people." A wise priest was subsequently contacted, and the cleaning process commenced as the client also continued therapy.

Individuals who have learned about sexuality through abuse often have an extremely low level of consciousness regarding their own wishes and needs. In these cases, it may be necessary to work through a phase of individual therapy in order to raise their awareness of their wishes and needs.

We use what we call the S-O-I model for this type of work. The model relates to the interplay among three aspects: *subject*, *object*, and *instrument*. The model is set up as a triangle in which the three aspects create the three sides.

The *subject side* includes the individual's own wishes, needs, ideas, driving forces, desires, and impulses. The *object side* describes how the individual presents oneself as an object to the world, how other people regard the individual as an object, and how the individual becomes an object to oneself.

The *instrument side* concerns the individual's instrumental functions: physical function, skills, and talents.

These three sides interact with each other. We often observe that the object and instrument aspects take up a great deal more space than the subject aspects. It is, therefore, often necessary to raise awareness of and expand an individual's sense of being a subject. Among other things, this is accomplished by raising their awareness of their own sexuality: sexuality is to be *discovered*, sexuality is to be *accepted*, and sexuality is to be *valued* (Almås, 1987). The object aspects must serve the subject, and must, to a lesser degree, be controlled by real or imagined demands and forces coming from the outside.

The aims of individual therapy can be described as follows:

Subjective experience of sexuality.

Subjective experience and interpretation of physical sensations.

General consciousness-raising of personal sensory preferences.

Integration of sexuality into the individual's personal history.

Discussion of guilt and shame.

Identification of the sexual culture: different perceptions of the meaning of sexuality including personal perceptions.

Identification of sexual stimuli: personal preferences.

Identification of oneself as a sexual subject: what kind of sexual person am I?

Experience of being the owner of one's own sexuality.

## SENSORY WORK

We work on raising the client's sensory awareness in both individual and couples therapy. Bodily senses are important preconditions for sexuality. Clients are given homework that includes getting to know their senses one by one.

Before we begin exploring the senses in sex therapy, we examine the client's feelings about the sexual, sensual, and erotic culture around them. They are encouraged to ask themselves, "What does sexuality mean to me?" Some people find sexuality to be all about performance, that one must be a sexual object; many clients have no regard for themselves as a sexual subject with their own wishes and needs.

This form of "culture watching" is designed to raise the client's awareness not only about their own but also about other people's sexuality. At the very least, it gives them the opportunity to gain a broad spectrum of insight into the fact that sexuality and sensuality exist in them and in the world around them.

During the first sensory week, the theme is the sense of *seeing*: "what do I see, what do I notice, what do not I like to see, how do I make sense of my visual sensory impressions?" Many may surprise themselves, and sometimes they become surprised by their surroundings. This task gives us the opportunity to discuss sensory impressions, as individuals become aware of their preferences in a somewhat neutral manner.

What about *scent*? A scent could be far away or nearby. Exploring the sense of *smell* can include everything from perfumes, food, things, and other people to the smell of a partner's clothes and body.

In the same vein, comparing food and sensual eating is more than a metaphor; it is a physical analogy. To explore the sense of *taste*, we ask, "What is your favourite dish?" If the answer is, "all food is equally good," we know that we have a great deal of work in store regarding sensory consciousness-raising. People like to be on solid ground, where it is possible to use several senses including their own subjective experience. Food provides not only a safe opportunity to distinguish between good and bad but also to rank the good and the bad.

We continue by encouraging a week of being aware of *listening*: what do you like to listen to? What do different voices sound like? What music do you like? What can our ears comprehend of sexual culture and erotic expressions in the surroundings that are both close and farther away?

One of our clients had a special experience when it came to listening. She felt that her boundaries were trespassed when her neighbour made too much noise when she wanted to sleep before her night shift, and she asked him to be quieter. The surprising thing was that she was not even aware of boundaries when it came to other senses. If a man looked at her in a particular way, she made herself available for him. When it came to smell or taste, she was more aware of what other people liked than what she liked. She usually followed other people's preferences, except when it came to sound. We found that the abuse had never been related to what she heard; there were no sounds.

The next sense to be explored is *movement*: what kind of movement do you like? In terms of workout, do you like running, swimming, or dancing? What kind of dancing do you like?

One of our clients found that she liked tango! She liked the music, the way the dancers dressed, and the way they moved. She started to dress more in a tango style, and, to her surprise, her partner followed her by developing a more relaxed style, using black t-shirts under his jackets, letting his hair grow a little longer, and taking tango lessons with her. This also became a route to their sexuality through the sensuality of tango!

The sense of *touch* is for many the most intimate sphere of sensation. In exploring touch, we ask our clients to explore what kinds of touch they like and dislike. What is comforting, what is offensive, what is loving, and what is erotic touching? Anyone who has been touched on other people's terms needs time and awareness-raising in order to discover their own preferences regarding how, where, and when they like to be touched. Diana, whose mother had been constantly trespassing her boundaries, hated hugs, especially if the hugger was a woman.

Subjective sensory competency is the foundation of developing personal sexuality, and the senses themselves nourish an individual's desire and the level of sexual arousal. The senses must be made conscious and trained in order to be used for the subject's service, as sexual abuse far too often leads to the senses being used to satisfy other people's needs.

## COUPLES THERAPY

In couples therapy, where one partner has been sexually traumatized, we have found it useful to have two therapists. It might be necessary to provide a great deal of support and

attention to one of the partners for limited periods of time during therapy, and it is therefore advantageous to have a second therapist who can focus on the other partner when this occurs.

It is important to emphasise that the two partners have their individual histories, which are the individual basis for interacting as a couple.

It is a general experience that there must be a basic attraction between the partners for sex therapy to be meaningful. Many people want to live together as couples without having the necessary emotional preconditions. Therapy offers to create conditions conducive for individual wishes and needs to be met. However, if the basic wish to be intimate is not present, no amount of therapy can help to develop a satisfying sexual relationship.

## SEXUAL HISTORY, DIFFERENT FROM ABUSE HISTORY

Couples therapy begins with a discussion with both partners in which the therapists explain the therapeutic procedure and discuss the preferred therapeutic options with the couple.

At this stage, both partners are encouraged to write down their sexual histories and send them as letters to the therapists. We make it clear that they are to write their own sexual story, and that these stories are personal, private, and not to be shared with each other. In other words, they are not supposed to read each other's letters. Even in good couple relationships, it is important to be allowed privacy, especially when it comes to one's sexual history. Clients are asked to send their letters to the therapists to allow sufficient time to read them before the subsequent session. We also tell them that these letters are their property and that they can ask to have them returned when therapy has concluded.

For those who have been subjected to sexual abuse, we make it clear that they are to write *the history of their sexuality as separate and different from their history of abuse*. During the development of their personal history, they can also use aids, such as pictures and other stories, from their family or friends. We usually need to spend some time asking them what kinds of sexual bodily feelings they experienced before the abuse began, their common physical sexual responses, and the times they had fallen in love and enjoyed their own sensory experiences and preferences.

One of the great taboos that therapists may have to deal with is that clients may have been exposed to *forced learning*, that is, that they have responded sexually in the abuse situation and in that way learned a sexual arousal pattern that may include fantasies of violence and/or abuse. When they feel safe, some clients disclose sexual arousal patterns that they regard as loathsome, associated with both guilt and shame. Secret fantasies can be powerful but can lose their power when they are shared. We regard arousal patterns as a language; we learn from what we are exposed to. Sometimes we need to learn a new language, for example, by developing new fantasies. One of the main goals of sex therapy is to leave unwanted patterns behind and develop new ones.

Some of our clients never experienced sexuality on their own before the abuse began. In these instances, we can use

the exploration of preference through their senses and also develop and explore new sensory experiences in order for them to establish their own sexuality.

For example, Sandra felt that having sexual feelings in her body was a bodily betrayal because she felt that these feelings were within the domain of the abuser. Slowly she learned to have experiences through her senses, including sexual feelings that she could recognise as her own.

The next step in couples therapy always consists of individual sessions with one therapist and one client during which we discuss the individual's sexual life story. It is important that the therapist is careful not to slip into the history of abuse and instead helps the client to separate the two stories.

During this conversation, themes may be clarified, and it is also made clear what shall not be shared during the sessions where the couple is together, even if both therapists need to be informed. One obvious problem arises in the form of instances where one or both partners have a secret sexual partner on the side. In such cases, this must be discussed, and other relationships ended before continuing therapy.

## MODIFICATION OF SENSATE FOCUS

When we are ready to move forward, we meet with the couple again, and provide instructions regarding sensate focus. Sensate focus is a therapeutic exercise developed and described by William Masters and Virginia Johnson (Masters and Johnson, 1970). When working with couples that have been traumatised, this exercise usually needs to be modified (Courtois, 1997).

The risk that traumatised individuals will slide back in time (*time slide*) when touched by their partner and make associations with abuse is often quite high. We, therefore, recommend that the here-and-now orientation be strengthened by practicing sensate focus with open eyes. It may also be necessary to take short breaks in order to orient oneself to the here-and-now situation. The partners learn how to reaffirm their presence, distinguished as a preferred partner. In order to strengthen the contact between the physical and the mental processes, we also recommend that they take turns writing letters and words on each other's backs, in order to strengthen the relationship between cognition and body.

Time confluence, or *time sliding* may be clarified by asking, for example, "How old do you feel when these feelings of fear or anger come over you?" Not only do we make distinctions in time, but we also attempt to distinguish between "the adult I" and "I as a child": "If you slide backwards now, do you have an adult present with you – is it the adult I that is present?"

## ESTABLISHING SEXUALITY ON ONE'S OWN TERMS

Working with adult sexuality involves relating to the physical memory patterns that are present. Preben Hertoft describes sensate focus as *a probe to catathymic areas*, meaning that

individuals easily come in contact with their emotionally vulnerable areas through these exercises.

When working with sexually traumatized individuals, it is important to place extra emphasis on the here-and-now experience, because every sexual situation can easily send the individual who has experienced abuse back to the traumatizing experience. Even a light physical touch can evoke painful past images or conflicted physical sensations, as can smells, sounds, and other sensations. Many individuals describe feeling uncomfortable having another person's body touching their own. The sight of a penis can evoke painful memories, as can the smell of semen; even a partner's naked body can awake painful associations. Learning to focus on what one is actually feeling here-and-now during sensate focus is, therefore, a significant part of therapeutic work.

## WORKING WITH LANGUAGE

The client's language is often fumbling in nature:

*It's difficult to find the right words – difficult to express them. It's been difficult for a long time – have not understood it. Touch and intimacy in a purely physical sense is difficult. I start physically rejecting the other person.*

The therapist's task is to help the clients to develop their language using complete sentences. The therapist's office becomes a training ground for the development of sexual language; as a result, therapists must be able to move among several linguistic modes. We use concrete words for sexual organs and sexual functions. At times we use refined language, at other times earthier expressions. For example, we might say, "there is a huge gap between no sex at all and intercourse," a sentence, which in another context or in relation to another individual may be phrased as, "There is much between nothing and fucking."

## USE OF METAPHORS

Not least because of guilt, shame, and the fact that many individuals who have been subjected to abuse remain stuck in a victim's role, allusions play a significant part in the language we use. By using a language where we say, "the abuse has nailed you to a cross, and eventually your partner also came to hang on these nails," thoughts are awakened not only about the victim but also about where the guilt should be placed. Language and metaphors are offered to clients. Significantly, metaphors are meant to clarify or open, and not to circumvent.

*Circumventing metaphors:* Such as those used in films from the 1950s, where waves breaking on the sands were used to illustrate sexuality.

*Clarifying metaphors:* Using tastes typically appreciated more by adults than children, such as coffee, alcohol, or olives, as

metaphors, we emphasize not only that sexuality is to be learned but also that physical maturation is necessary for this to occur. *Opening metaphors:* These serve the cause of reflection. We consider it essential that clients receive recognition regarding how we comprehend them and their problems. Opening metaphors are a type of feedback in metaphorical format about what we have understood with respect to what clients have presented to us.

For example, we might say, "What I'm hearing makes me think about what it's like to bake bread: The dough has to rise before it can be put in the oven." When a client either grasps the metaphor or stresses that it is not appropriate to the situation because actually, the situation is such and such, the metaphor has served an opening, consciousness-raising purpose. For some clients, metaphors make no sense, and we just avoid using them.

## DISTINGUISH BETWEEN HERE-AND-NOW AND BACK-WHEN

When turning one's attention to the individual's capacity for mastery in relation to their current life challenges, it is wise for the therapist to focus on the here-and-now in working with the problems, as the client's ability to approach more sensitive parts of their personal history improves. If the therapist moves forward too quickly, the client might withdraw through depersonalization or dissociation, their level of anxiety may increase, and they may go along without truly being present. Ideally speaking, one should move forward so quickly that the individual affected is barely aware of having limits unpleasantly exceeded and without being overwhelmed by the pain this implies. It is essential that

The therapist establishes a safe feeling of a here-and-now situation. The client be safe in the knowledge that the trauma will not repeat itself.

The client feels like an adult who is different from who they were as a child.

The client feels this difference verbally, emotionally, and physically and is always be aware of the possibility of time sliding.

## INTERACTION WITH PARTNER

It is important to not only acknowledge that abuse also affects one's partner, but also raise awareness regarding precisely *how* this happens (Hendricks and Hendricks, 1992).

*It's so difficult getting through to her. It's like she sees me through a stack of slides that represent her abusers – her father, other men. It's like she does not see me, who I am.*

The individual who has been subjected to extensive and early sexual abuse often notices that the part of their sexuality that comprises deeper feelings becomes filtered through their experience of abuse.

Some clients may have had positive sexual experiences before becoming established with a regular partner and feel that their problems first came to the surface when their relationship



moved into a deeper phase. The partner may, therefore, start feeling responsible for their problems:

*But my partner has not reacted that way to previous partners.*

It is a normal part of our experience with the outside world that what we undergo in the present is affected by our previous experiences. A pleasurable experience may be intensified by previously pleasurable experiences; a feeling of sorrow may be intensified by previous sorrows. Sensate focus is a potent tool for distinguishing feelings that are connected with former, negative experiences from the purer experience of what is happening *now*. Initially, a partner often gets regarded as the abuser or a person who, in some ways, resembles the abuser. During the course of therapy, however, the partner becomes extracted as a unique individual who is different from the abuser.

*It's like his body is becoming more like my own, I can see myself in it and love it.*

*It's two different things – what happened back then has nothing to do with this.*

*It's important we see that sexuality is much more comprehensive than just intercourse; we notice that it comprises a much larger share of our emotional life.*

Sometimes we have to schedule individual sessions in order to process portions of the abuse that led to traumatization. When this occurs and couples therapy is postponed, the partner may feel set aside, feeling that once again, everything in their relationship concerns their partner who has been subjected to abuse. At this point, it is important to make them feel secure that this is a brief interlude during which the traumatized partner has to do more work in relation to their own past before the couple's story can be further developed in the therapist's office.

## WORKING WITH GUILT AND SHAME

Strong emotions of guilt and shame are often associated with repressed feelings. For example:

*There's something wrong with me that I do not dare talk about, or*

*It's my fault that it happened; if the others had known this, they would've blamed me, too.*

It is important to expose these emotions and talk about them, but not necessarily explore them in depth in this setting. Many clients have never dared to talk about these feelings with others. Nonetheless, whenever shame is brought to awareness, clients often see how unreasonable it is. It is easier to see that the abuse did not happen because there was "something wrong" with someone, but because the abuser had the power to take advantage of the situation.

An abuse victim may feel shame and guilt because their body sexually responded to stimulation during abuse.

The general idea is that because the body had a sexual response, this must have been willed by the victim. The client must learn that the body can react without subjective participation; it can even react with orgasm during rape. This split between physical responses and subjective experience has been described by Laan et al. (1995) and discussed through a systematic review of research (Chivers et al., 2010).

Feeling overpowered and powerless can be especially hurtful when the individual who has been subjected to abuse is a man. Society dictates that men are not supposed to give in to power, even when they are truly being overpowered. It is often necessary to go deeper into our cultural understanding of what it is to be a man in order to provide the client space and permission to be powerless in a situation where he had no other option, and additionally, where he perhaps had a great need for adult contact.

Guilt often involves self-accusations: *Why did not I say no? Why did not I leave?* The clients project their adult capacity onto the child. We and they must recognize that they lacked the ability to get away at that time. During such cases as this, empty chair exercises may be useful. These exercises derive from gestalt therapy; in them, one distinguishes between the adult "I" and the childhood "I" in order to create communication between the two.

It may also be valuable to see the unique area of vulnerability that may be present before and while the abuse was taking place (Wyatt et al., 1993). It is common that feelings of guilt and shame disappear once the client understands the abuser's ability to pick them out precisely as a person with an especially great need for contact and safeguarding at that particular place and time.

We have chosen a therapeutic strategy of maintaining a certain distance with respect to feelings of guilt and shame. We regard them as feelings associated with traumatization, not with the individual who has been traumatized. By identifying these feelings in the here-and-now situation, we risk contributing to time-confluence and thereby mix up the abusive history with the current sexual experiences.

It is quite often obvious that the abuse is felt to be a kind of powerful "infection," an unmanageable dark shadow or heavy burden in the lives of those affected. A victimized person may be treated like "a fragile egg," which others must be careful not to handle too roughly. We can, through these examples, see that the abuse is infectious, and an increasing number of people become *nailed to the same cross*. As time passes, more and more people are hanging on these nails. In therapy, we see that traumas can be handed down through generations: no one remembers any longer when the trauma started, but feelings of shame may be transferred from one generation to the next.

## DEVELOPMENT IN THERAPY

The therapeutic process is often slow, but can, at times move very quickly. There must be time for maturation, building

alliances, acknowledgement, reflection, and epiphanies. In order for new learning and acknowledgement to take place, new mental and physical processes must be developed and integrated, new synapses developed in the central nervous system, and new patterns of reaction and action formed (Rossi, 1986; LeDoux, 1996; Aleksander, 1997; Damasio, 1999, 2010/2012).

Sensate focus is gradually expanded in conjunction with both parties' experience of being safe. In most cases, we follow the classic pattern in the instruction of sensate focus: first, caressing the entire body with the exception of breasts and genital organs, thereafter including breasts, and later on, outer genital organs, then undemanding intercourse (the penis is in the vagina, without moving – in heterosexual couples) before they reassume control of their own sexuality (sometimes this even happens without the therapists having given instructions to move forward).

In some instances, we have deviated from this pattern or made variations on themes. However, we have experienced that too great a deviation can result in our giving in to clients' resistance and that we as therapists lose control. The desired effect remains elusive because we become trapped by the clients' inexpedient power struggles.

Examples of deviations that have worked in a positive manner:

*Caressing certain body parts:* This has been justified by a situation in which it was impossible to find enough time for full sensuality training. In order to have any possibility of physical contact, this became a technique that the couple developed themselves and eroticised to a high degree.

*Classified boundaries:* The couple was given charts of the human body and the woman, who in this case had been subjected to abuse, created her own boundaries regarding where she felt it was safe to be touched by her husband.

Examples of deviations, which, although they did not work at an optimal level, were perhaps necessary:

In a case, where it was the husband in a heterosexual couple who was traumatised, *the couple agreed that he will always be the one who takes initiative to do the exercises:* This was justified by the fact that she always had to take initiative earlier, and that she had no motivation to give him something positive without knowing that she would receive something in return. The problem with this solution is that we, as therapists, may become part of the couple's power struggle, and might lose therapeutic freedom with respect to creating lasting change.

While it is important for therapists to show respect for the abuse itself, it is equally important that they do not dwell on the consequences of it when there is no longer any threat of abuse. This is a significant part of the therapeutic process. In order to move forward, it is necessary to make it clear that there is no danger of the abuse being repeated. It is our task as therapists to make sure that we do not become responsible for new episodes of abuse. It is equally important that processing the abuse itself during previous

rounds of therapy leads to a safe life situation for the client. While one is leaving the victim's role behind, the alternative positive story, the story of victory must be emphasised:

*It's like sinking down and looking at a new, beautiful underground world where both she and I are present.  
It's incredibly wonderful to see her pleasure.*

At the close of therapy, we would like the following goals to have been achieved:

Acceptance of sexual feelings as they arise here-and-now.  
Feeling of owning one's own sexuality.  
Well-functioning boundaries during sexual interplay.  
Positive feelings about sexuality.

## CONCLUSION

Treatment aimed at re-establishing sexuality is ordinarily implemented when the traumatic experience has been processed and a safe life situation has been established and consolidated. Sometimes our clients bring up the need to work with their sexuality; sometimes they are happy that we ask them. Some clients come for sex therapy after finishing trauma therapy with other therapists, because they want to experience satisfying sexuality.

During couples therapy, both partners, as individuals, are at the centre of therapeutic interventions. While most principles from sex therapy may be used, it is necessary to also draw on principles from trauma therapy and body therapy. This will involve working with the interaction between cognitive, emotional, and bodily reactions. Trauma theory is of help in entangling complicated responses that may once have been a way to survive, but eventually have become obstacles to good sexual experiences. Therapists must pay extra attention to the danger of retraumatisation. Many clients who have undergone retraumatisation from healthcare providers show an admirable amount of trust by entering into a new round of therapy.

It may be useful to modify the instructions of sensate focus to avoid time sliding and contribute to re-learning sexual emotions and reactions.

It is fundamental to distinguish between back-then and here-and-now, maintaining the difference between these two perspectives at all times. Clients' experiences of acknowledgement are often expressed as statements like "*Oh my goodness, it happened twenty years ago!*"

It is important as well that clients themselves use appropriate words to describe old experiences and new response systems, see how they differ, and assume ownership of the new responses developed through therapy. The therapist's task is to actively make the conditions optimal for these new experiences and to curb reactions that belong to their clients' former abusive situations. Finally, it is important that therapists create opportunities for change in the therapy room. There is a type of magic that we,

as therapists, simply must respect: *If an Angel passes through this room, it must feel welcome!*

## DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## AUTHOR CONTRIBUTIONS

EA and EB: development of the therapeutic approach, discussion on principles and learning from therapeutic practice,

implementation of theory and research. EA: lead author. EB: second author. Both authors contributed to the article and approved the submitted version.

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# Desire, Familiarity, and Engagement in Polyamory: Results From a National Sample of Single Adults in the United States

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Coupledness and notions of intimacy and family formation with one committed partner are hallmarks of family and relationship science. Recent national surveys in the United States and Canada have found that consensually non-monogamous relationships are common, though prevalence of specific types of consensual non-monogamy are unknown. The present research draws on a United States Census based quota sample of single adults ( $N = 3,438$ ) to estimate the prevalence of desire for, familiarity with, and engagement in polyamory—a distinct type of consensually non-monogamous relationship where people typically engage in romantic love and sexual intimacy with multiple partners. Results show that 1 out of 6 people (16.8%) desire to engage in polyamory, and 1 out of 9 people (10.7%) have engaged in polyamory at some point during their life. Approximately 1 out of 15 people (6.5%) reported that they knew someone who has been or is currently engaged in polyamory. Among participants who were not personally interested in polyamory, 1 out of 7 (14.2%) indicated that they respect people who engage in polyamory. Few sociodemographic correlates emerged; no differences in prevalence were found based on political affiliation, income, religion, geographic region, or race/ethnicity. Sexual minorities, men, and younger adults reported greater desire to engage in polyamory (compared to heterosexuals, women, and older adults, respectively). Men and people with lower education backgrounds were more likely to have previously engaged in polyamory (compared to women and people with higher education backgrounds, respectively). Given that emotional and sexual intimacy is an important part of most people's lives, understanding the varied ways in which people navigate their intimate lives is critical for the fields of relationship, sexuality, and family science.

**Keywords:** consensual non-monogamies, consensual non-monogamous relationships, polyamory, polyamorous relationships, sexuality, family, romantic relationships

## INTRODUCTION

Coupledness and notions of intimacy and family formation with one committed partner are hallmarks of family and relationship science. Investigations of diverse intimate relationships—long-term cohabitation, blended families, and even affairs—abound within family and relationship science literature (e.g., Bumpass et al., 1991; Treas and Giesen, 2000; Schmitt, 2005; Carr and Springer, 2010). However, these inquiries almost exclusively focus

on monogamous relationships, including predictors of longevity or divorce and instances of serial monogamy. In Western science, we tend to conceptualize romantic love as limited to only one person (a zero-sum allotment of love), yet we appear to view familial and platonic love as endless (Burleigh et al., 2017; Moors et al., 2019). Although there are a variety of ways in which people navigate their intimate lives, theories of human development and intimacy often implicitly assume that a preference for monogamy is universal (Seltzer, 2000; Conley et al., 2017; Moors et al., 2017). This rose-tinted scientific lens for monogamy raises the questions: How common is desire for and engagement in polyamory—a relationship structure in which partners engage in multiple loving and sexual relationships? How common is it to personally know someone who is/has engaged in polyamory? Do people respect polyamory as a relationship option?

While many people around the globe engage in serial monogamy, remarkable transformations in relationship and family demography have occurred over the past several decades (Glick, 1988; Fisher, 1989; Finkel et al., 2014; Foster, 2016). At the nexus of this change is the new reality of contemporary intimacy that has received limited attention by researchers, clinicians, and policymakers: A sizable portion of adults in the United States and Canada have been or are currently involved in consensually non-monogamous relationships (e.g., swinging, open, and polyamorous relationships; Haupt et al., 2017a; Fairbrother et al., 2019). Approximately 1 out of 22 people (4–5%) who are currently in a romantic relationship identify as part of a consensually non-monogamous relationship (4–5%; Fairbrother et al., 2019; Levine et al., 2018; Rubin et al., 2014). When asked about an ideal relationship type, approximately 1 out of 9 people (11.9%) indicate consensual non-monogamy (Fairbrother et al., 2019). Looking at lifetime prevalence, 1 out of 5 people (19.6–21.9%) have engaged in some form of consensual non-monogamy (Haupt et al., 2017a,b; Fairbrother et al., 2019). To put this into perspective, previous engagement in consensual non-monogamy is as common as owning a cat or speaking a language other than English at home in the United States (Newport et al., 2006; DeNavas-Walt et al., 2017).

Within the past couple of years, scholars have begun to shed light on national-level interest and engagement in consensual non-monogamy. What remains unknown is desire for and engagement in *specific* types of consensually non-monogamous relationships, such as polyamory. One study suggests that the general public's interest in polyamory appears to be on the rise. Through an analysis of hundreds of thousands of people's Internet searches, Moors (2017) found that seeking out information about polyamory has markedly increased over the past 10 years in the United States. Coinciding with the general public's interest, media representation of polyamory has emerged over the past several years—from TV and film representation (e.g., Showtime's *Polyamory: Married and Dating*; Netflix's *Insecure*; Professor Marston and the Wonder Women) to mainstream news coverage (e.g., *New York Times*, *BBC*, *Buzzfeed*). However, understanding prevalence for desire, previous engagement, and familiarity remains unknown.

The goal of the present study is to establish prevalence estimates and understand sociodemographic correlates for (1) lifetime engagement in polyamory, including challenging

and positive experiences, (2) willingness to engage in polyamory, (3) frequency of personally knowing someone who is/has engaged in polyamory, and (4) positive affect toward polyamory among people who have/would not personally engage in it. To our knowledge, this is the first study to focus on people's desire for, engagement in, and familiarity with polyamory using a demographically representative sample of adults in the United States. Examining prevalence of polyamory will advance our understanding of how Americans are transforming their intimate and family lives. In the next section, we provide an overview of typical relationship agreements for each of the common sub-types of consensual non-monogamy.

## CONSENSUAL NON-MONOGAMY: BOUNDARIES AND DEFINITIONS

Intimate relationships can be thought of as boundaries that people mutually agreed upon. Some people agree to be romantically exclusive (social monogamy) and sexually exclusive (sexual monogamy), whereas others may agree on varying levels of romantic and/or sexual openness (consensual non-monogamy; Conley et al., 2013; Gray and Garcia, 2013). At the core of consensually non-monogamous relationships are the consenting agreements to engage in varying degrees of romance and sex with more than one partner. That is, all partners involved make agreements to engage (or not) in concurrent romantic and/or sexual relationships (Conley et al., 2013; Moors et al., 2017). These relationships differ from infidelity or “cheating,” for this reason consensual non-monogamy is often referred to as ethical non-monogamy. Common forms of consensual non-monogamy include open relationships, swinging relationships, and polyamorous relationships. Swinging and open relationships tend to have boundaries that encourage sex with multiple concurrent partners but limit emotional intimacy or romantic love with these partners. Typically, people who engage in swinging partake in sexual activity with their partner (e.g., group sex, swapping partners; Buunk and van Driel, 1989; Matsick et al., 2014). People who engage in open relationships typically engage in sexual activity independently from their partner (Kurdek and Schmitt, 1986). Although, threesomes with one's partner may be common among people in various types of consensually non-monogamous relationships, particularly for open relationships (Lehmiller, 2018; Scoats et al., 2018). While romantic love is typically “off-limits” for people engaged in swinging and open relationships, friendships appear to be common (Kimberly and Hans, 2017; Wood et al., 2018). Thus, it would be inappropriate to categorize these types of consensually non-monogamous relationships as solely “no strings attached” sexual relationships.

Distinct from swinging and open relationships, agreements in polyamorous relationships typically encourage romantic love and sexual activity with multiple concurrent partners (Barker, 2005; Moors et al., 2017). In the context of polyamory, romantic love and emotional closeness is often viewed as endless rather than limited to only one person (Moors et al., 2019). Polyamorous relationships are structured in a variety of ways, including one or two “primary” partners (often the focal or longest relationship

partner) and additional “secondary” partner(s) (often referred to as hierarchical polyamory; Barker, 2005; Sheff and Tesene, 2015; Balzarini et al., 2019a). Polyamorous relationships may also take the form of triads (three person relationships), quads (four person relationships), or “V”s (Munson and Stelbourn, 1999; Barker, 2005). Moreover, some polyamorous relationships are not open for everyone, *per se*, as “polyfidelity” refers to remaining sexually and romantically exclusive to a specific multi-person relationship. In addition, some people practice “mono-poly” relationships where one partner identifies as monogamous and the other partner has romantic/sexual relationships with multiple people (Sheff, 2016). Although the prevalence of people who identify as asexual and engage in polyamory is unknown, romantic/emotional intimacy without sexual intimacy can also exist within polyamory (Klesse, 2006; Scherrer, 2010).

## INTEREST AND ENGAGEMENT IN CONSENSUAL NON-MONO GAMY

As mentioned above, previous engagement in consensual non-monogamy among people in the United States and Canada is common (Haupt et al., 2017a; Fairbrother et al., 2019). Moreover, consensual non-monogamy is practiced by a wide range of people. In a study of two large demographically representative samples of single United States adults ( $N = 3,905$  and  $N = 4,813$ ), Haupt et al. (2017a) found few sociodemographic predictors of lifetime engagement in consensual non-monogamy. Specifically, past engagement in consensual non-monogamy did not vary significantly by age, education level, income, religion, political affiliation, geographic region, or race/ethnicity. Only two sociodemographic differences emerged. Men, compared to women, were more likely to have previously engaged in consensual non-monogamy (OR 1.66–1.83 times more likely). Moreover, lesbian, gay, and bisexual individuals had previously engaged in consensual non-monogamy at a higher frequency than heterosexual individuals (OR 1.59–2.02 times more likely). This pattern of results for gender as well as non-significant findings for age, income, and race/ethnicity were also found in a nationally representative sample of Canadian adults (other sociodemographic factors were not assessed; Fairbrother et al., 2019).

To provide a more nuanced understanding of previous engagement in polyamory, we also asked people about their experiences in these relationships, including reasons why people may have found polyamory challenging or if they would engage in polyamory again in the future. Qualitative research has documented two commonly mentioned challenges among people engaged in consensually non-monogamous relationships: managing jealousy and navigating multiple emotional bonds (Ritchie and Barker, 2006; Aguilar, 2013; Sheff, 2015; Rubinsky, 2018). For instance, people engaged in polyamory mention that they experience jealousy about their partner's partners, however, they often describe jealousy in mild terms (developed new words such as “shaky” to describe this feeling; Ritchie and Barker, 2006). Similarly, some people describe difficulty having to unlearn traditional dating scripts (e.g., exclusivity,

possessiveness) and, instead, engage in transparent and honest emotional relationships (Aguilar, 2013). Thus, in the present study, we investigated whether people experienced possessiveness and difficulty with emotions in the context of polyamory. To our knowledge, the present study is the first to capture whether people who have engaged in polyamory (or any type of consensually non-monogamous relationship) would do so again in the future.

While research on lifetime prevalence of consensual non-monogamy has provided much needed insight into diverse expressions of intimacy, research has yet to examine future intentions. In addition to understanding lifetime prevalence of polyamory in the present study, we probed whether people desire to engage in polyamory. Recent research using convenience samples has examined willingness or desire to engage in consensual non-monogamy (e.g., Moors et al., 2015; Cardoso et al., 2020). Moors et al. (2015) found that among heterosexually identified people who had never engaged in consensual non-monogamy, men expressed greater willingness than women to engage in all three popular consensual non-monogamy sub-types. In this study, people rated their willingness to engage in various consensual non-monogamous arrangements (e.g., may have sex and romantic relationships with whomever, but there must be no secrets) on a 7-point Likert scale. Looking at people who reported willingness ratings of 4 and above (somewhat to extremely), up to 31% of men and 16% of women expressed moderate-to-high levels of willingness (Moors et al., 2015). In another study, Moors et al. (2014) found that desire to engage in consensual non-monogamy was high among sexual minorities. Specifically, differences did not emerge based among bisexual men and women or gay/lesbian men and women. Looking at willingness to engage in different sexual practices, a nationally representative study of United States adults found sizable proportions of people (ranging from 11.6 to 22.1%) indicated that engaging in group sex, threesomes, and swingers parties were somewhat or very appealing (Herbenick et al., 2017). Moreover, men were more likely than women to express greater interest to engage in these three sexual practices. Although interest in sexual practices is not a direct assessment of willingness, these estimates help provide a proxy to interest in some types of consensual non-monogamy (e.g., swinging). Indeed, recent research has documented that positive attitudes toward consensually non-monogamous relationships predict greater willingness to engage in these relationships (Cardoso et al., 2020).

## POSITIVE AFFECT TOWARD CONSENSUAL NON-MONO GAMY AND PERSONAL NETWORKS

In the present study, we also examined whether people knew someone who is or has been in a polyamorous relationship as well as positive attitudes toward polyamory. Stigma toward people engaged in consensually non-monogamous relationships is well documented. Compared to monogamous relationships, consensually non-monogamous relationships are perceived as low in relationship quality, less committed, immoral, and harmful to children (Moors et al., 2013; Grunt-Mejer and Campbell, 2016;

Rodrigues et al., 2018). Less understood, however, is if people who are not personally interested in polyamory hold positive attitudes toward polyamory. This type of positive affect could be considered a proxy to being an ally. In the present study, we assessed whether people who were not personally interested in polyamory respected this type of relationship option. In addition, we also examined whether people knew someone in their personal network who had or is currently engaged in a polyamorous relationship. To our knowledge the present study is the first to assess prevalence of personally knowing someone who practices polyamory.

## PRESENT STUDY

The purpose of the present study was to establish prevalence estimates and investigate preferences for polyamory based on a United States Census-based national quota sample of single adults (unmarried or not in a current long-term relationship). While many married Americans may have engaged in polyamory, our focus on single adults allows for widely applicable results, as most United States adults are single for a substantial duration of time (U.S. Census Bureau, 2020). We sought to investigate how sociodemographic factors (e.g., gender, age, religion) were related to each study aim: (1) to establish lifetime prevalence of polyamorous relationships, including challenging and positive experiences related to polyamory and desire to engage in polyamory again in the future, (2) to investigate willingness to engage in polyamory, (3) to identify the frequency of personally knowing someone who is/has engaged in polyamory, and (4) to understand positive affect toward polyamory among people who have/would not personally engage in it.

Given that approximately one-fifth of adults in the United States have engaged in consensual non-monogamy during their lifetime (Hauptert et al., 2017a), we anticipate that engagement in polyamory, a sub-type of consensual non-monogamy, will be also be relatively common (though, a smaller proportion than one-fifth). We also anticipate that estimates of willingness to engage in polyamory will be greater than lifetime prevalence. Additionally, as previous research has consistently shown that gender and sexual orientation are related to previous and current engagement in consensually non-monogamous relationships (Hauptert et al., 2017a,b; Levine et al., 2018; Fairbrother et al., 2019), we expect that men (compared to women) and sexual minorities (compared to heterosexual individuals) will have engaged in polyamory at some point during their life at a higher frequency, and will express greater interest to engage in polyamory.

Further, we explore the frequency of personally knowing someone who has practiced polyamory, as well as various challenges (e.g., possessiveness) and positive experiences (e.g., future relationships will only be polyamorous) reported by people who have engaged in polyamory. Because these are both exploratory investigations, we do not have specific predictions.

Last, we do not have theoretical reasons to anticipate differences based on age, education level, household income, religious affiliation, race/ethnicity, or geographic region. Similar

to previous United States and Canada national-level research on consensual non-monogamy (e.g., Hauptert et al., 2017a; Fairbrother et al., 2019), we anticipate that few sociodemographic differences in lifetime prevalence and willingness to engage in polyamory will emerge.

## METHOD

### Data Collection

Data were collected as part of the annual *Singles in America* (SIA) study<sup>1</sup>. Inclusion criteria for the study included: being at least 18 years old, fluent in English, and single relationship status (i.e., unmarried and single, defined as not seeing anyone or dating casually). SIA is sponsored by the relationship company Match; however, participants were *not* recruited or in any way drawn from the Match population or subsidiary sites. Participants were recruited exclusively by ResearchNow (Dallas, TX, United States), using independent opt-in Internet research panels for population-based cross-sectional survey. Panelists were initially drawn from a diverse pool of established participants who have been continuously recruited over several years from variety of venues, including paper and electronic mailings, referrals, corporate partnerships, and internet recruitment. Participants were recruited from these opt-in research panels, with recruitment targeting based on demographic distributions (i.e., age, gender, ethnicity, region, income) reflected in the most recent Current Population Survey conducted by the United States Bureau of the Census. The current study also included augmented oversampling of certain demographic categories, specifically gay men and lesbian women.

Research panelists within the sample frame received a recruitment message inviting them to participate for financial remuneration. Remuneration was determined by ResearchNow; the average compensation standard per time spent on the survey was approximately \$5.00 USD. Participants received slightly different compensation depending on how needed their particular demographic subgroup was for the sample, which was monitored and balanced in real-time. To screen for inclusion criteria and ensure data quality, research panelists were required to verify their identity through a certification process, which employs validation technologies in real-time to identify and screen out false, duplicate, unengaged, and unqualified respondents that may attempt to take a survey. Additionally, panelists were screened to ensure survey engagement, with those straight-lining responses or moving too quickly through panels removed. Participants completed the full survey, meaning there is no missing data. All data were collected over the Internet. Data access and analysis procedures were approved by [redacted for blind review] University's Institutional Review Board.

### Questionnaires

The Singles in America survey included a wide variety of questions related to participants' attitudes and behaviors around

<sup>1</sup>A fully-detailed account of the methods for every wave of SIA can be found at [www.kinseyinstitute.org/research/SIA.php](http://www.kinseyinstitute.org/research/SIA.php)



dating and relationships, in addition to information about demographic characteristics. For the purposes of the present study, the following subset of demographic items were examined: gender, age, sexual orientation, education level, household income, religious affiliation, political affiliation, race/ethnicity, and region. To assess desire, previous behavior, and attitudes toward polyamory, all participants were asked, “When it comes to polyamorous relationships (in a committed, sexual and romantic relationship with multiple people at the same time), which of the following are true for you?” Next, they were presented with the following 11 statements (see below). Participants responded by checking boxes next to all applicable statements. Checked boxes were coded as 1, unchecked as 0.

- (1) I have been in a polyamorous relationship and I would be in another.
- (2) I have been in a polyamorous relationship and I would not be in another.
- (3) I have tried polyamory and found that I was too possessive to cope with it.
- (4) I have been polyamorous but found that all of the emotional side effects were too difficult to navigate.
- (5) I have never been in a polyamorous relationship but I would consider one.
- (6) I have never been in a polyamorous relationship but I want to try it.
- (7) I will only consider polyamorous relationships.
- (8) I have fantasized about being in a polyamorous relationship.
- (9) I would consider a polyamorous relationship if it was more socially acceptable.
- (10) I know someone who has had/is in a polyamorous relationship.
- (11) I respect polyamorous people but I could not do it myself.

To examine previous engagement in polyamory, we combined statements 1–4 to create an index of people who have tried polyamorous relationships (i.e., if they checked any of those 4 boxes, they were given a ‘1’ whereas if they did not check any, they were coded as ‘0’). Statements 5–9 were combined in the same way to create an index of people who indicated some desire to try or be in polyamorous relationships. Statement 10 was assessed individually to understand who has been exposed to polyamorous relationships in their personal social networks. Last, statement 11 was assessed individually to understand positive attitudes with people in polyamorous relationships, particularly for individuals who do not hold interest in personally engaging in these relationships. Note that 52 participants (0.9%) selected options that were contradictory at face-value (e.g., people who reported that they would not be in another polyamorous relationship, but also reported that they would consider only polyamorous relationships in the future). Because this was such a small subset of our sample, and because people’s feelings toward entering into polyamorous relationships in the future may be more complex than a yes or no, we chose to retain these individuals in the analyses.

## Participants

Extensive demographic information for participants ( $N = 3,438$ ) is presented in **Table 1**.

## RESULTS

Below we describe our statistical approach to examine links between sociodemographic factors and each study aim: (1) previous engagement in polyamory, (2) willingness to engage in polyamory, (3) personally knowing someone who is/has engaged in polyamory, and (4) positive affect toward polyamory among people who have/would not personally engage in it. Next, we report national level frequencies of attitudes, desire, and behaviors related to polyamory followed by sociodemographic correlate analyses.

### Statistical Approach

To examine sociodemographic correlates of prior engagement in polyamory, willingness to engage in polyamory, knowing someone who has had or is currently in a polyamorous relationship, and positive affect toward polyamory among who are not personally interested in polyamory, we conducted four binary logistic regressions similar to the models conducted in Hauptert et al. (2017a). Predictor variables included gender (coded as  $-0.5$  = women,  $0.5$  = men), age (mean-centered), sexual orientation (coded as  $-0.67$  = heterosexual,  $0.33$  = bisexual/gay/lesbian for LGB vs. heterosexual contrast; coded as  $0$  = heterosexual,  $-0.5$  = gay/lesbian,  $0.5$  = bisexual for bisexual vs. gay/lesbian contrast), education level (mean-centered), household income (log-transformed for positive skewness), religious affiliation (5 codes, one for each affiliation; e.g.,  $0.5$  = atheist,  $-0.5$  = all others), political affiliation (Republican =  $-0.5$ , Democrat =  $0.5$ ), race/ethnicity (4 codes, one for each ethnicity; e.g.,  $0.5$  = White,  $-0.5$  = all others), and region (4 codes, one for each region; e.g.,  $0.5$  = Midwest,  $-0.5$  = all others). Note that because of cells equaling less than 20 participants, we did not include people who identified as South Asian or Middle Eastern, as Buddhist/Taoist, Hindu, or Muslim, or those who selected ‘other’ for their ethnicity or religious affiliation. Because we conducted a large number of comparisons on a large sample, we set the significant criterion for our tests to  $p \leq 0.001$  to protect against Type I error (see Cohen, 1992).

### Frequencies: Desire, Previous Engagement, Familiarity, and Positive Affect

Across the overall sample, 16.8% of participants reported desire to try or be in a polyamorous relationship, 10.7% reported previous engagement in polyamory, and 6.5% reported knowing someone who has been or is currently in a polyamorous relationship. Among participants who had previously engaged in polyamory, a sizeable portion (30.4%) would be in a polyamorous relationship again. Among participants who have previously engaged in polyamory, 21.1% indicated that they were too possessive to cope, and 32.8% indicated that the emotional aspects of polyamory

**TABLE 1** | Sample demographics.

Variables	Mean or % of sample ( <i>N</i> = 3,438)
Age	<i>M</i> = 42.93, <i>SD</i> = 17.42
<b>Gender</b>	
Men	42.1%
Women	57.9%
<b>Region</b>	
Midwestern United States	21.6%
Northeastern United States	18.3%
Southeastern United States	34.9%
Western United States	25.2%
<b>Ethnicity/race</b>	
Black/African American	17.6%
East Asian	4.5%
Hispanic/Latino	12.2%
Middle Eastern	0.4%
Native American/Alaskan Native	1.7%
South Asian	1.2%
White/Caucasian	67.2%
Other ethnicity	1.2%
<b>Sexual orientation</b>	
Bisexual	4.5%
Gay or lesbian	8.3%
Heterosexual	87.2%
<b>Religious affiliation</b>	
Agnostic	8.9%
Atheist	7.8%
Buddhist/Taoist	1.3%
Christian	62.1%
Hindu	0.3%
Jewish	4.1%
Muslim	0.7%
Spiritual but non-religious	9.5%
Other religion	5.3%
<b>Education level</b>	
High school diploma	10.7%
Vocational/technical degree	2.9%
Some college	21.9%
Associate's degree	10.2%
Bachelor's degree	35.0%
Graduate/professional degree	19.3%
<b>Household income</b>	
Less than \$15,000	14.6%
\$15,000–\$29,999	21.4%
\$30,000–\$44,999	18.6%
\$45,000–\$59,999	16.2%
\$60,000–\$74,999	10.0%
\$75,000–\$99,999	9.9%
\$100,000–\$149,000	6.5%
\$150,000 or more	2.8%
<b>Political viewpoint</b>	
Democrat	35.8%
Republican	64.2%

were difficult to navigate. Among people who indicated that they are not personally interested in polyamory, 14.2% reported

positive attitudes toward people in polyamorous relationships; see Table 2.

## Sociodemographic Correlates: Desire, Previous Engagement, Familiarity, and Positive Affect

**Previous engagement in polyamory.** All regression coefficients are presented in Table 3. Only gender and education level were significantly related to past engagement in polyamory at the  $p \leq 0.001$  level. Men were over twice as likely as women to report prior engagement, along with people with lower education levels (vs. higher levels).

**Desire to engage in polyamory.** All regression coefficients are presented in Table 4. Gender, age, and sexual orientation (heterosexual vs. gay/lesbian/bisexual) were significantly related to desire to engage in polyamorous relationships. Men were nearly three times more likely to report desire than were women. Younger people were more likely than older people to report desire for engagement (although, this was a relatively small effect). In addition, people who identified as a sexual minority were over twice as likely as heterosexual participants to report desire to engage in polyamory.

**Knowing someone who is/had engaged in polyamory.** All regression coefficients are reported in Table 5. Age and sexual orientation (heterosexual vs. gay/lesbian/bisexual) were significantly related to exposure to people engaging in polyamory in one's personal social network. Younger participants were more likely to report knowing someone practicing polyamory (or has in the past), and those identifying as sexual minorities were nearly twice as likely as heterosexual participants to

**TABLE 2** | Percentages of prevalence of polyamory: Previous engagement, desire, familiarity, and positive attitudes.

Construct	% of sample ( <i>N</i> = 3,438)
<b>Previous engagement in polyamory</b>	10.7%
I have been in a polyamorous relationship and I would be in another	30.4%
I have been in a polyamorous relationship and I would not be in another	29.3%
I have tried polyamory and found that I was too possessive to cope with it	21.1%
I have been polyamorous but found that all of the emotional side effects were too difficult to navigate	32.8%
<b>Desire to engage in polyamory</b>	16.8%
I have never been in a polyamorous relationship but I would consider one	6.9%
I have never been in a polyamorous relationship but I want to try it	4.0%
I will only consider polyamorous relationships	2.4%
I have fantasized about being in a polyamorous relationship	4.9%
<b>Know someone who is/has engaged in polyamory</b>	6.5%
<b>Respect polyamory (but not personally interested)</b>	14.2%

Percentages do not sum to total; participants could select multiple options. Indices were created if at least one option was selected.

report knowing someone who had or is currently engaged in polyamory.

**Positive affect toward polyamory among people who were not personally interested in polyamory.** All regression coefficients are reported in **Table 6**. Age, sexual orientation (heterosexual vs. gay/lesbian/bisexual), and political affiliation were significantly related to positive affect toward polyamory among people who did not have personal interest in polyamory. Younger (vs. older) participants, sexual minorities (vs. heterosexuals), and Democrats (vs. Republicans) were more likely to report that they respect people who practice polyamory (even if they were not personally interested in polyamory).

## DISCUSSION

Given the centrality of relationships and family, changes in these patterns have powerful implications for social life. Adding to a growing body of research on diverse expressions of intimacy and family life, we examined previous engagement in polyamory, willingness to engage in polyamory, personally knowing someone who engages in polyamory, and positive affect toward polyamory in a national sample of United States adults. We expanded previous research on the prevalence of consensual non-monogamy in several novel ways. Our results are the first to document prevalence estimates related to polyamory in particular. Specifically, we found that willingness to engage in

polyamory and previous engagement in polyamory is common. Approximately 1 out of 6 people desire to engage in polyamory and 1 out of 9 people have engaged in polyamory at some point during their life. To help put this into perspective, desire to engage in polyamory is as common as how many Americans would like to move to another country (Espipova et al., 2018), and previous engagement in polyamory is as common as holding a graduate degree in the United States (United States Census Bureau, 2019). Moreover, approximately 1 out of 15 people know someone in their social network who is currently or has in the past engaged in polyamory. Among people in the present study who were not personally interested in polyamory, 14.2% of people reported that they respect people who engaged in polyamory. That is, the majority of people who were not personally interested in polyamory did not indicate positive attitudes toward polyamory.

We also found that desire to engage and previous engagement in polyamory is common among people from a range of diverse racial, political, income, religious, and geographic backgrounds. In fact, we found few links between sociodemographic factors and desire or previous engagement in polyamory. Of the few differences documented, people who identified as lesbian, gay, or bisexual (compared to people who identified as heterosexual) and men (compared to women) were more likely to report desire to engage in polyamory and previous engagement in polyamory (consistent with our hypotheses). Lesbian, gay, and bisexual individuals may be more inclined to desire polyamory because questioning a heteronormative model of

**TABLE 3 |** Correlates of previous engagement in polyamorous relationships.

Variable	OR	95% CI	p
Intercept	0.86	—	<0.001
Gender	2.16*	1.72–2.73	<0.001
Age	0.99	0.99–1.00	0.087
Sexual orientation: Gay/Lesbian/Bisexual vs. Heterosexual	0.99	0.70–1.38	0.935
Sexual orientation: Bisexual vs. Gay/Lesbian	0.79	0.42–1.48	0.461
Education level	0.88*	0.82–0.95	0.001
Household income	1.37	0.89–2.11	0.153
Religious affiliation: Agnostic	0.73	0.43–1.22	0.726
Religious affiliation: Atheist	0.95	0.57–1.59	0.857
Religious affiliation: Christian	0.70	0.48–1.02	0.062
Religious affiliation: Jewish	0.98	0.51–1.86	0.942
Religious affiliation: Spiritual	0.83	0.51–1.36	0.465
Political affiliation: Republican vs. Democrat	0.88	0.68–1.14	0.321
Race/ethnicity: White	0.61	0.39–0.95	0.027
Race/ethnicity: Black/African-American	1.01	0.62–1.64	0.978
Race/ethnicity: East Asian	1.12	0.62–2.02	0.714
Race/ethnicity: Hispanic/Latino	0.80	0.49–1.29	0.354
Geographical region: Northeastern United States <sup>a</sup>	1.13	0.81–1.57	0.464
Geographical region: Midwestern United States	0.78	0.55–1.10	0.155
Geographical region: Southern United States	0.96	0.71–1.29	0.764

<sup>a</sup>The response category “Western United States” was left out of analyses for redundancy.

\* $p \leq 0.001$ .

**TABLE 4 |** Correlates of desire to engage in polyamorous relationships.

Variable	OR	95% CI	p
Intercept	0.42	—	0.027
Gender	2.97*	2.43–3.63	<0.001
Age	0.98*	0.98–0.99	<0.001
Sexual orientation: Gay/Lesbian/Bisexual vs. Heterosexual	2.17*	1.69–2.78	<0.001
Sexual orientation: Bisexual vs. Gay/Lesbian	0.55	0.35–0.87	0.010
Education level	0.94	0.89–1.01	0.075
Household income	1.07	0.74–1.53	0.733
Religious affiliation: Agnostic	0.89	0.57–1.37	0.583
Religious affiliation: Atheist	1.58	1.03–2.42	0.034
Religious affiliation: Christian	0.69	0.49–0.96	0.028
Religious affiliation: Jewish	0.99	0.57–1.75	0.982
Religious affiliation: Spiritual	0.91	0.59–1.41	0.683
Political affiliation: Republican vs. Democrat	0.81	0.65–1.01	0.814
Race/ethnicity: White	0.86	0.60–1.25	0.433
Race/ethnicity: Black/African-American	1.36	0.91–2.04	0.135
Race/ethnicity: East Asian	0.93	0.54–1.59	0.781
Race/ethnicity: Hispanic/Latino	1.16	0.79–1.71	0.447
Geographical region: Northeastern United States <sup>a</sup>	1.10	0.82–1.47	0.512
Geographical region: Midwestern United States	1.12	0.84–1.49	0.427
Geographical region: Southern United States	1.11	0.86–1.43	0.435

<sup>a</sup>The response category “Western United States” was left out of analyses for redundancy.

\* $p \leq 0.001$ .

relationships encourages considering alternative relationships styles (Klesse, 2016). Moreover, given engagement in consensual non-monogamy is higher among lesbian, gay, and bisexual people (compared to heterosexuals; Hauptert et al., 2017a,b), having familiarity with or learning norms about consensual non-monogamy may reduce stigma toward these types of relationships among people. In terms of men's, relative to women's, high willingness to engage in polyamory, some scholars suggest that this reported desire is an artifact of gendered dating norms (Moors et al., 2015) while others suggests this finding illustrates evolutionary mechanisms for human mating (Mogilski et al., 2017). We also found that younger people, compared to older people, were more likely to indicate willingness to engage in polyamory (inconsistent with our predictions). Desire to try polyamory among younger adults could be related to younger adults' tendency to hold progressive values (e.g., sex positive views, diversity values; Regnerus and Uecker, 2011; Parker et al., 2019), and potentially to younger adults being the target audience for various media that have recently depicted polyamory.

In terms of previous engagement, we found that men were more likely than women to have previously engaged in polyamory at some point during their life (consistent with our hypotheses and previous research on consensual non-monogamy; Hauptert et al., 2017a; Fairbrother et al., 2019). Inconsistent with our predictions, however, was that people who identify as a sexual minority or as heterosexual are equally likely to have previously engaged in polyamory. Although previous research indicates that

sexual minorities are more likely (compared to heterosexuals) to engage in consensual non-monogamy (Hauptert et al., 2017a), this was not found when looking at polyamory specifically. Perhaps among sexual minorities, higher levels of previous engagement in consensual non-monogamy may be related to engagement in open relationships (which could drive the difference based on sexual orientation when looking at all consensually non-monogamous relationships). Earlier research that used convenience sampling have documented that gay men, in particular, tend to use the term 'open relationship' and focus on sexual relationships with other partners (e.g., Blasband and Peplau, 1985; Kurdek and Schmitt, 1986). Inconsistent with our predictions, we found that people with lower education levels (high school and some college) were more likely than people with higher educational levels to have previously engaged in polyamory. This finding is also inconsistent with speculations from researchers that people with higher education levels may have had more exposure to information about polyamory or more financial stability to pursue multiple relationships (Sheff and Hammers, 2011). In the United States, approximately 33% of people have earned higher levels of education (a bachelor's degree or higher; U.S. Census Bureau, 2019). Thus, most people in the United States, have completed some college or high school. The finding that lower education levels are associated with previous engagement in polyamory could reflect that the majority of people in the United States hold high school diplomas or some college experiences (as opposed to college and beyond experiences).

**TABLE 5 |** Correlates of knowing someone who has tried polyamory.

Variable	OR	95% CI	p
Intercept	0.11	–	<0.001
Gender	1.42	1.06–1.91	0.020
Age	0.98*	0.97–0.99	<0.001
Sexual orientation: Gay/Lesbian/Bisexual vs. Heterosexual	1.87*	1.31–2.66	0.001
Sexual orientation: Bisexual vs. Gay/Lesbian	1.10	0.58–2.09	0.775
Education level	1.13	1.02–1.25	0.016
Household income	0.99	0.58–1.69	0.961
Religious affiliation: Agnostic	0.72	0.39–1.35	0.309
Religious affiliation: Atheist	1.30	0.73–2.33	0.375
Religious affiliation: Christian	0.58	0.36–0.94	0.026
Religious affiliation: Jewish	0.99	0.47–2.11	0.983
Religious affiliation: Spiritual	1.06	0.59–1.90	0.844
Political affiliation: Republican vs. Democrat	1.10	0.78–1.53	0.596
Race/ethnicity: White	1.19	0.70–2.00	0.521
Race/ethnicity: Black/African-American	1.30	0.72–2.32	0.382
Race/ethnicity: East Asian	1.05	0.49–2.25	0.910
Race/ethnicity: Hispanic/Latino	1.21	0.70–2.09	0.487
Geographical region: Northeastern United States <sup>a</sup>	0.97	0.64–1.49	0.900
Geographical region: Midwestern United States	1.08	0.72–1.63	0.716
Geographical region: Southern United States	0.97	0.66–1.41	0.853

<sup>a</sup>The response category "Western United States" was left out of analyses for redundancy.

\* $p \leq 0.001$ .

**TABLE 6 |** Correlates of "I respect polyamorous people but I couldn't do it myself."

Variable	OR	95% CI	p
Intercept	0.22	–	<0.001
Gender	0.91	0.73–1.12	0.370
Age	0.99*	0.98–0.99	<0.001
Sexual orientation: Gay/Lesbian/Bisexual vs. Heterosexual	1.68*	1.29–2.20	<0.001
Sexual orientation: Bisexual vs. Gay/Lesbian	1.23	0.75–2.02	0.417
Education level	1.10	1.03–1.18	0.008
Household income	0.78	0.53–1.13	0.189
Religious affiliation: Agnostic	1.40	0.91–2.17	0.130
Religious affiliation: Atheist	1.11	0.70–1.76	0.651
Religious affiliation: Christian	0.77	0.54–1.11	0.162
Religious affiliation: Jewish	0.89	0.49–1.59	0.687
Religious affiliation: Spiritual	0.92	0.59–1.44	0.714
Political affiliation: Republican vs. Democrat	1.61*	1.26–2.05	<0.001
Race/ethnicity: White	1.14	0.78–1.66	0.495
Race/ethnicity: Black/African-American	1.03	0.68–1.57	0.889
Race/ethnicity: East Asian	0.96	0.56–1.66	0.888
Race/ethnicity: Hispanic/Latino	1.18	0.79–1.75	0.419
Geographical region: Northeastern United States <sup>a</sup>	0.87	0.64–1.17	0.344
Geographical region: Midwestern United States	0.99	0.74–1.32	0.944
Geographical region: Southern United States	0.77	0.59–1.00	0.050

<sup>a</sup>The response category "Western United States" was left out of analyses for redundancy.

\* $p \leq 0.001$ .



A common stereotype about consensual non-monogamy is that these relationships yield high jealousy and are challenging (Moors et al., 2013; Grunt-Mejer and Campbell, 2016). Indeed, qualitative research has documented that similar themes are expressed by people in consensually non-monogamous relationships, especially those new to them (e.g., Aguilar, 2013). In the present study, we found that between 21 and 33% of people who had previously engaged in polyamory experienced issues with their own possessiveness and difficulty with navigating their related emotions. Although these are sizable minorities, we have no way of knowing whether jealousy is more prevalent in polyamorous versus monogamous relationships, as there are no population-based studies of jealousy available. However, prior research using large convenience samples have documented that people engaged in monogamy report higher levels of jealousy than people engaged in consensually non-monogamous relationships (e.g., Conley et al., 2017). Moreover, research has shown that jealousy is a common experience in monogamous relationships. Jealousy is one of the leading predictors of divorce in longitudinal studies (Amato and Rogers, 1997), and using data from the General Social Survey, researchers found that between 32 and 46% of separated or divorced women reported that their ex-husbands were sexually jealous and/or possessive (Brownridge et al., 2008). Further, research conducted using twin studies has suggested that the propensity for romantic and sexual jealousy is somewhat heritable, indicating a person-level factor independent of any relationship arrangement (Walum et al., 2013). Although multi-partner relationship dynamics may provide more varied instances that could facilitate jealousy than would monogamous relationships, jealousy is likely present in all relationship types.

In terms of familiarity with polyamory, sexual minorities and younger adults were more likely to report that they knew someone who is/was engaged in a polyamorous relationship (compared to heterosexual individuals and older adults). Given that sexual minorities are more likely to have previously engaged in polyamory and other forms of consensual non-monogamy (e.g., Haupt et al., 2017a), it is not surprising that they are more likely than people who identify as heterosexual to know someone in their network who practices polyamory. Moreover, lesbian, gay, and bisexual individuals are less likely to adhere to rigid gendered norms surrounding dating, including desire for monogamy and marriage (Moors et al., 2014). There is also evidence that consensual non-monogamy is less stigmatized among lesbian, gay, bisexual, and queer people (Moors et al., 2013, 2014), and indeed, we found that sexual minority participants were more likely than heterosexual participants to indicate that they respect people engaged in polyamory. Specifically, these people who indicated that they were not personally interested in polyamory, but respect it as a relationship option. Future research could explore whether familiarity is linked with holding positive attitudes toward polyamory (akin to research on attitudes toward sexual minorities; Herek and Glunt, 1993), as well as with socio-demographics related to more socially liberal attitudes, as we found with younger participants and those who identified as Democrats. Another research direction could be to explore the extent to which people who are or have engaged

in polyamory hold positive or negative views about polyamory. Recent research suggests that people engaged in consensual non-monogamy can hold self-stigmatizing views about their relationships style, similar to the psychological phenomena of internalized homophobia (Moors et al., in press).

In the next section, we provide a high-level overview of the growing area of scientific inquiry on consensually non-monogamous relationships. Beyond the scope of this paper is a critical review of the current literature. Instead, we provide context of some of the current research and how this body of work can be applied to relationship, sexuality, and family science. For further insight on theoretical and research implications of understanding consensually non-monogamous relationships, see reviews by Brewster et al. (2017), Conley et al. (2017), and Moors et al. (2017). For insight on inclusive research practices related to consensual non-monogamy, see Moors (2019).

## Future Directions and Implications for Relationship and Family Science

Finding a soulmate is central to mass media depictions of family life as well as social science theories of marriage and family. In fact, most people idealize monogamy and uphold a set of cultural assumptions that monogamous relationships are optimal and that monogamous romantic relationships should take priority over other relationships (known as mononormativity; DePaulo and Morris, 2005; Moors and Schechinger, 2014; Pieper and Bauer, 2014). That is, most people hold the belief that an exclusive coupled relationship is a “natural” part of the human experience and, subsequently, sexual behaviors outside of monogamous coupling are pathologized (a core concept related to queer theory; e.g., Rubin, 1984; Pieper and Bauer, 2014; De las Heras Gómez, 2019). The belief that monogamy is optimal is also an (implicit) assumption appears in many contemporary social science theories of intimacy, such as attachment theory and the investment model of relationships (e.g., Moors et al., 2015; Conley et al., 2017). One area ripe for future research is expanding relationship concepts and frameworks to include consensually non-monogamous relationship and family arrangements (see Olmstead, 2020, for a review focused on adolescence).

As found in the present study, societal views toward consensual non-monogamy tend to be negative and stigmatizing. Likewise, people engaged in consensual non-monogamy report a range of stigmatizing experiences based on their relationship (e.g., rejection from family and friends; child custody issues) and, often, hide their relationship style (Pallotta-Chiarolli, 2010; Sheff, 2015; Kimberly and Hans, 2017). These negative evaluations of consensual non-monogamy appear to be erroneous stereotypes. Research that has examined relationship qualities among people engaged in consensual non-monogamy and monogamy has generally found that people in both types of relationships report similar levels of relationship quality and psychological well-being (e.g., trust, commitment, love, depression; Rubel and Bogaert, 2015; Conley et al., 2017; Mogilski et al., 2017; Moors et al., 2017; Balzarini et al., 2019b). In some cases, people in consensually non-monogamous relationships report greater quality (e.g., lower jealousy, higher sexual satisfaction) and unique benefits, such as

personal growth and diversified need fulfillment (Conley et al., 2017, 2018; Moors et al., 2017).

Furthermore, a growing body of research focused on relationship processes among people engaged in polyamory has documented a similar pattern of healthy relationship functioning. In terms of jealousy, people engaged in polyamory tend to experience low levels and use new words to describe mild forms of jealousy, such as “shaky” (Ritchie and Barker, 2006). Drawing on interpersonal relationship frameworks, Mitchell et al. (2014) investigated how meeting seven different needs (e.g., autonomy, closeness, emotional support, security) with a given partner affects relationship satisfaction and commitment with both relationship partners among people engaged in polyamory. Overall, need fulfillment across all needs were consistently high with both partners; moreover, the extent to which one partner met someone’s needs was unrelated to satisfaction or commitment with another partner. A similar pattern of results was found when looking at attachment dynamics and relationship quality among people engaged in polyamory (Moors et al., 2019). Specifically, Moors et al. found that people engaged in polyamory exhibited high levels of security with both of their partners (levels higher than established norms). Moreover, there was no association between avoidance and anxiety with one specific partner and the relationship functioning (e.g., satisfaction, commitment) in a different, concurrent relationship. These studies suggest that a relationship with one partner tends to function independently of a relationship with another partner, as both relationships were considered fulfilling, satisfying, and secure (essentially without influencing each other). In the context of the present studies’ findings, a future avenue to explore is the association between attachment bonds and reasons why some people thrive in polyamorous relationships while others experience jealousy or difficulty with navigating their emotions.

In the context of parenting, longitudinal sociological research illustrates the varied ways in which children raised by parents engaged in polyamory thrive (Sheff, 2011, 2015). For instance, children of parents engaged in polyamory report that they enjoy receiving attention from a variety of adults and sharing a diverse range of interests with adults in their lives (Sheff, 2010, 2015). In addition to benefits mentioned by children, parents engaged in polyamory expressed that multiple co-parents (or partners) helped with childrearing and household responsibilities. Although drawbacks such as breakups (and children reported that they missed these adults) can occur in polyamorous family units, this can be likened to feelings of loss that children of monogamous children experience when faced with divorce and separations. One limitation of the present study

is that we did not examine whether people were parents and their experiences with or interest in polyamory. Future research could explore the extent to which people who are parents desire to or are engaged in polyamory.

To our knowledge, this study is the first to obtain information about the prevalence of polyamory, including previous engagement, desire, and familiarity, using a large United States national sample. Our study sheds light on the commonness of interest and previous engagement in polyamory among Americans. At the same time, our study focused on the experiences of people who are currently single, which limits the generalizability of our findings to people who are in relationships (including obtaining an estimate of current engagement in polyamory). Future research will benefit from understanding current engagement in polyamory as well as other specific types of consensual non-monogamy. Future research could also explore potential changes in desire or engagement in consensually non-monogamous relationships (or polyamory specifically) over time. A limitation of the present study is that it captures attitudes and behaviors related to polyamory at one time point.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Institutional Review Board, Indiana University. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

All authors contributed to writing and editing the manuscript. AM led writing of introduction and discussion. AG led data analysis. JG and AG designed the survey and collected the data.

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# The East Asian Erotic Picture Dataset and Gender Differences in Response to Opposite-Sex Erotic Stimuli in Chinese College Students

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Understanding the processing of sexual stimuli has become a significant part of research on human sexuality. In addition to individual characteristics (gender and sexual orientation), empirical studies have shown that cultural factors play an important role in sexual stimuli processing. The attitudes toward sex have been reported to be more conservative in East Asian societies as compared to western countries, and significantly more sexual difficulties are observed among East Asian people. However, stimulus materials, which potentially facilitate human sexuality research on native East Asian people, are relatively not satisfactory. Erotic stimuli depicting East Asian figures are limited in the existing picture datasets. To address this issue, we present a collection of 237 erotic and 108 control pictures, accompanied by self-reported ratings of sexual arousal, pleasantness, and sexual attractiveness for opposite-sex erotic stimuli by heterosexual males and females ( $n = 40$ , divided into two equal-sized subsamples). This collection is divided into six categories, depending on their contents: dressed males (44), semi-nude males (65), nude males (64), dressed females (64), semi-nude females (52), and nude females (56). We showed gender differences in sexual arousal, pleasantness, and sexual attractiveness ratings in response to opposite-sex erotic pictures. Males reported the highest levels of sexual arousal, pleasantness, and sexual attractiveness for nude female pictures, whereas females reported the highest levels of sexual arousal, pleasantness, and sexual attractiveness for semi-nude male pictures. The erotic picture dataset may provide a useful resource of erotic stimuli that can be used as stimulus materials in experimental research on sexual function in East Asians.

**Keywords:** erotic stimuli, heterosexual, gender differences, East Asia, sex

## INTRODUCTION

Human sexual behavior is a means of reproduction and survival strategy (Hamilton, 1964), which is motivated by sexual pleasure (Tidon and Lewontin, 2004). Erotic pictures displaying real humans have been used to facilitate the research on human sexual behavior. Both facial and bodily cues reliably indicate gender, health, and fertility. Waist-to-hip ratio

(WHR) is recognized to be a signal of health in both genders (Pouliot et al., 1994) and a signal of fertility in females (Bowman and Singh, 1993). Facial features (i.e., symmetry and sexual dimorphism) are also potential indicators of health (Valko et al., 2006). Humans and other primates have been observed to show highly selective preferences for viewing the sexually relevant signals of conspecifics (Grammer et al., 2003; Deaner et al., 2005). Physiological arousal responses are supposed to follow when the sexually relevant contents are perceived to be positive. This process is considered to subsequently facilitate sexual behaviors and ultimately copulation (Walen and Roth, 1987).

A variety of methodologies have been adopted in empirical studies to investigate human sexual responses when exposed to visual erotic stimuli. Classic approaches include subjective self-report and genital response measurements on sexual arousal (Chivers et al., 2004; Rupp and Wallen, 2009), as well as neuroimaging research (Safron et al., 2007). Empirical literature has emphasized that sexual responses toward erotic stimuli are subject to individual differences (Georgiadis and Kringelbach, 2012), gender differences (Rupp and Wallen, 2008, 2009; Stolérú et al., 2012; Sylva et al., 2013), and culture differences (Yule et al., 2010). Males generally tend to report increased subjective sexual arousal when being exposed to specific categories of erotic stimuli such as nude female figures. Females do not display similar category-specific preferences when viewing a variety of erotic stimuli. Genital measurement in the presence of same and opposite-sex erotic stimuli displays the similar pattern: males showed the highest genital arousal when responding to their preferred sex, whereas female displayed comparable genital arousal irrespective of the sex of the actors (Chivers et al., 2004). Males were also reported to give higher ratings than females when asked to indicate how attractive and sexually arousing they find the visual erotic stimuli are (Money and Ehrhardt, 1972; Laan et al., 1994).

In addition to gender differences, empirical studies have revealed that sexual attitudes and difficulties are also significantly associated with culture and ethnicity. It is theorized that the strict moral standards and social expectations in modern Asian culture contribute to the suppression of sexual needs and expression, while the contemporary western culture is considered to have relatively more liberal attitude toward sexual expression and behavior (Yule et al., 2010). When compared to Caucasian-Canadian college students, Asian-Canadian college students reported significantly more conservative attitudes toward all measures of interpersonal behavior (i.e., sexual intercourse) and sociosexual restrictiveness (i.e., lifetime number of sexual partners) across gender (Meston et al., 1996). In another study on acculturation and sexual function among Canadian women, significantly more anxiety from anticipated sexual activity was reported in Asian-Canadian women than their Euro-Canadian counterparts (Yule et al., 2010). A global study of sexual attitudes and behaviors, which included 14,000 women in 29 different countries, also reported that lack of sexual interest, inability to reach orgasm, finding sex not pleasurable, pain during sex, and lubrication difficulties were higher in East Asian areas than in Europe and North America (Nicolosi et al., 2005).

Although empirical studies have proved the impact of eastern-western culture differences on human sexuality, the majority of the participants in previous studies were Euro/North American residents with East Asian Ethnicity. Native East Asian residents have not yet received extensive attention. Despite the large population in China, research regarding sexual responses with a specific focus on Chinese males and females are rather inadequate. Furthermore, the visual erotic stimuli used in past human sexuality-related experiments are not satisfactory to future research on native East Asian participants. The International Affective Picture System (IAPS), which is one of the most common recognized databases of standardized visual affective stimuli, offers a limited set of sexual stimuli in addition to a variety of images from other categories (Lang et al., 2008). Yet those sexual stimuli are argued to be outdated for experimental research (Jacob et al., 2011). Recently, increasing efforts were devoted to complementing the IAPS dataset. Jacob et al. (2011) introduced a set of 100 erotic pictures including two categories – intimate heterosexual couples and attractive single males. All images are not sexually explicit (i.e., no genitals are included). In addition, Rupp and Wallen (2009) created a set of 216 sexually explicit photographs of heterosexual couples in the process of intercourse. An erotic subset for the Nencki Affective Picture System (NAPS) featuring categories of individual males, individual females, opposite-sex couples, and same-sex couples has also been developed to facilitate future research on both gay men and lesbian women (Wierzbica et al., 2015).

However, as outlined above, the existing erotic picture databases are constituted by dominantly erotic stimuli depicting Caucasian figures. The lack of East Asian picture stimuli leaves open the possibility that East Asian participants may perceive Caucasian stimuli differently presenting a serious confounding especially in any study comparing Caucasian and East Asian participants' responses to such stimuli. Previous research has documented that individuals' discriminatory attitudes in relation to race/ethnicity are formed through throughout adolescence (Benner and Graham, 2013), which has longstanding effects on individual differences in race/ethnicity-based preferences in adulthood. These preferences may extent to the sexual realm. It has also been found that adults are prone to stereotypes regarding outgroups (Cuddy et al., 2009), and race/ethnicity-based ratings of sexual arousal to erotic stimuli have been reported among racially or ethnically diverse groups (Reed Hughes and Anderson, 2007). It is therefore important to be able to present East Asian participants with stimuli that correspond with their ethnic group. On the other hand, no other picture databases particularly depicting East Asian characters have been offered or validated. Therefore, introducing an erotic picture dataset that depict East Asian figures and investigating the sexual responses of native East Asian participants could have practical implications for future sexuality research on culture differences, and also help us to gain a better understanding of determinants of sexual response patterns in general. The erotic image dataset included in this paper is designed to address some of the limitations mentioned above. In the process of selecting visual erotic stimuli, we are primarily interested in pictures derived from non-professional collections,

depicting multiple levels of explicitness of sexual contents in a natural manner. Width, height, luminance, contrast, and color hue are adjusted across the collection. The following issues will be covered: (1) present an overview of the East Asian erotic picture dataset: subjective ratings of opposite-sex erotic pictures given by native East Asian participants with respect to multiple rating dimensions are provided and (2) explore an influence of gender on the preferred erotic stimuli. We hypothesized that the ratings would display significant differences with respect to erotic stimuli categories. When viewing opposite-sex pictures, native Chinese males and females would display different category-specific preferences for visual erotic stimuli.

## MATERIALS AND METHODS

### Participants

A total of 40 heterosexual college students (20 males and 20 females) with a mean age of 22.35 years from Nanjing University participated in the experiment. Those who are under 18 years old were excluded from the experiment. All participants were exclusively heterosexual (Kinsey 0) based on the screening process with the Kinsey Scale (Kinsey et al., 1998). Given that anxiety and depression have been found to affect individuals' sexual performance (Laurent and Simons, 2009; Rajkumar and Kumaran, 2015), the Beck Depression Inventory (BDI; Beck et al., 1961) and the Zung Self-Rating Anxiety Scale (SAS; Zung, 1971) were employed in order to control for their possible influence. The BDI scores of all participants ranged from 0 to 11, with a mean of 6.10 and a standard deviation of 2.962. The SAS scores of all participants ranged from 21 to 45, with a mean of 25.63 and a standard deviation of 9.059. There is no significant differences in BDI and SAS scores between male and female participants (BDI:  $t(38) = 0.309$ ,  $p > 0.05$ ; SAS:  $t(38) = 0.656$ ,  $p > 0.05$ ). Two participants did not finish the task and their data were excluded from data analysis. All participants have given informed consent to participate. This study was approved by the Nanjing University Institutional Review Board.

### Erotic Stimuli

The erotic stimuli were 345 digital photographs of frontal poses of normal-weight and attractive East Asian adult males and females. Based on the levels of sexual explicitness, the pictures are divided into six categories: (1) dressed male pictures (44), (2) semi-nude male pictures (65), (3) nude male pictures (64), (4) dressed female pictures (64), (5) semi-nude female pictures (52), and (6) nude female pictures (56). The control pictures (dressed ones) were acquired from non-royalty websites and the semi-nude and nude pictures were obtained from pornographic websites, which permits non-commercial use. Logos or emblems were removed and pictures showing piercing or explicit emotional facial expressions (laughing, frowning, etc.) were excluded. All models in the non-erotic category are dressed in sexually non-revealing clothing (sleeved shirt or outwear and long pants/skirts). Each male model in the

semi-nude category is dressed in underwear or shorts and displays chest (genital region is covered). Similarly, each female model in the semi-nude category wears bikini or a bra and panty set (chest and the genital region are covered). All models in the nude category clearly display chests and genital regions. The amount of pubic hair was modest and penis and breast size vary modestly across nude category. All the stimuli were adjusted into  $500 \times 800$  pixels. **Figure 1** shows examples of males and females from each category. Pictures and ratings are available on reasonable request from the corresponding author (you may also download them on this website: <https://yansongliblab.github.io>).

### Procedure

The stimuli were, with E-prime 2.0 software (Psychology Software Tools, Pittsburgh, PA, United States) displayed on a 14-inch monitor (120 Hz refresh rate) with a  $1920 \times 1,080$  resolution laptop. Participants were asked to give self-paced ratings of all the opposite-sex pictures based on three dimensions – sexual attractiveness (ranging from “sexually unattractive” to “sexually attractive”), pleasantness (ranging from “not at all pleasant” to “pleasant”), and sexual arousal (ranging from “calm” to “very excited”). In each trial, a single picture was presented to participants in the center of the computer screen and participants were required to report sexual arousal, pleasantness or sexual attractiveness ratings on seven-point scales successively. These three self-reported ratings were counterbalanced across



**FIGURE 1** | A sample image of males and females from each category.

participants. There were 173 trials for females and 172 trials for males, with a scheduled short break every 60 trials. Before the normal experiment, all participants firstly completed a practice program to get familiar with the experimental task.

## Data Analysis

Regarding females' ratings for male pictures (sexual arousal, pleasantness, and sexual attractiveness), three separate one-way ANOVAs with category (dressed vs. semi-nude vs. nude) as a within-participant factor were performed. In contrast, with regard to males' ratings for female pictures, due to a violation of homogeneity of variance, three separate Welch's heteroscedastic F tests and a Games-Howell *post-hoc* test.

## RESULTS

### The Females' Ratings for Male Pictures

#### Sexual Arousal

A significant effect of category on females' sexual arousal ratings for male pictures was found [ $F(2, 170) = 122.69, p < 0.001, \eta_p^2 = 0.59$ ; **Figure 2A**]. The *post-hoc* analysis revealed that females' sexual arousal ratings for semi-nude male pictures ( $M = 3.66, SE = 0.07$ ) were significantly higher than those for both nude male pictures ( $M = 2.54, SE = 0.07, p < 0.001$ ) and dressed ones (normally clothed;  $M = 2.01, SE = 0.08, p < 0.001$ ; **Table 1**). Moreover, the sexual arousal ratings for nude male pictures were significantly higher than those for dressed ones ( $p < 0.001$ ). These results suggest that females rated semi-nude male pictures as more sexual arousing than the other two types of male pictures.

#### Pleasantness

Similarly, there was also a significant effect of category on females' pleasantness ratings for male pictures [ $F(2, 170) = 94.49, p < 0.001, \eta_p^2 = 0.53$ ; **Figure 2B**]. The *post-hoc* analysis revealed

that females' pleasantness ratings for semi-nude male pictures ( $M = 3.62, SE = 0.08$ ) were significantly higher than those for both nude male pictures ( $M = 2.59, SE = 0.07, p < 0.001$ ) and dressed ones (normally clothed;  $M = 2.09, SE = 0.08, p < 0.001$ ; **Table 1**). Furthermore, their pleasantness ratings for nude male pictures were significantly higher than those for dressed ones ( $p < 0.001$ ). These findings indicated that females rated semi-nude male pictures as more pleasant than the other two types of male pictures.

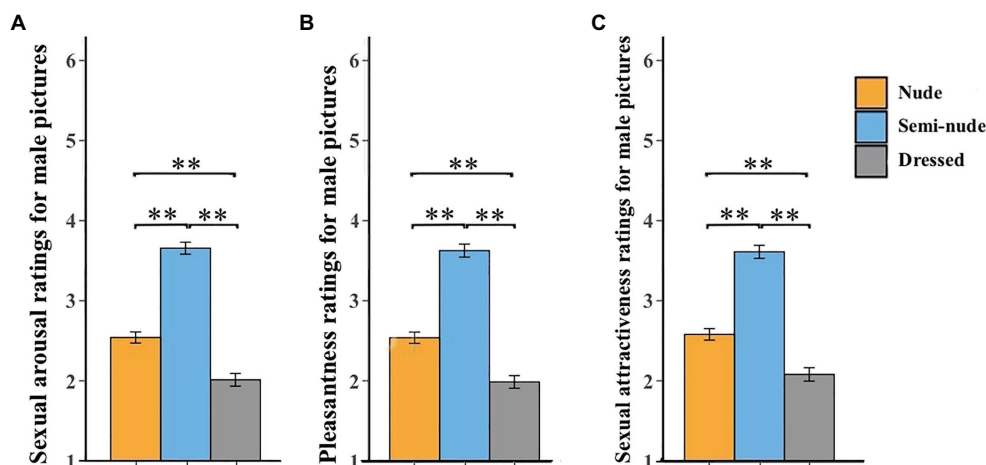
#### Sexual Attractiveness

Finally, a significant effect of category on females' sexual attractiveness ratings for male pictures was also found [ $F(2, 170) = 111.38, p < 0.001, \eta_p^2 = 0.57$ ; **Figure 2C**]. The *post-hoc* analysis revealed that females' sexual attractiveness ratings for semi-nude male pictures ( $M = 3.63, SE = 0.08$ ) were significantly higher than those for both nude male pictures ( $M = 2.54, SE = 0.07, p < 0.001$ ) and dressed ones (normally clothed;  $M = 1.99, SE = 0.08, p < 0.001$ ; **Table 1**). Additionally, females' sexual attractiveness ratings for nude male pictures were significantly higher than those for dressed ones ( $p < 0.001$ ). These results demonstrated that females rated semi-nude male pictures as more sexual attractiveness than the other two types of male pictures.

### The Males' Ratings for Female Pictures

#### Sexual Arousal

A significant effect of category on males' sexual arousal ratings for female pictures was revealed [Welch's  $F(2, 92.14) = 675.26, p < 0.001, \text{est. } \omega^2 = 0.91$ ; **Figure 3A**]. The *post-hoc* analysis revealed that males' sexual arousal ratings for nude female pictures ( $M = 5.39, SE = 0.04$ ) than those for semi-nude female pictures ( $M = 4.46, SE = 0.05, p < 0.001$ ) and dressed ones ( $M = 2.65, SE = 0.06, p < 0.001$ ; **Table 2**). In addition, males' sexual arousal ratings for semi-nude female pictures than those for dressed ones ( $p < 0.001$ ). Unlike females' ratings for the



**FIGURE 2 |** Females' ratings of sexual arousal (A), pleasantness (B), and sexual attractiveness (C) for male pictures. Error bars represent standard errors of the mean. \*\* $p < 0.01$ .



**TABLE 1 |** Females' sexual arousal, pleasantness, and sexual attractiveness ratings for male pictures.

Ratings	Male pictures		
	Nude	Semi-nude	Dressed
	(Mean $\pm$ SE)	(Mean $\pm$ SE)	(Mean $\pm$ SE)
Sexual arousal	2.54 $\pm$ 0.04	3.66 $\pm$ 0.05	2.01 $\pm$ 0.06
Pleasantness	2.59 $\pm$ 0.04	3.62 $\pm$ 0.05	2.09 $\pm$ 0.07
Sexual attractiveness	2.54 $\pm$ 0.04	3.63 $\pm$ 0.05	1.97 $\pm$ 0.07

**TABLE 2 |** Males' sexual arousal, pleasantness, and sexual attractiveness ratings for female pictures.

Ratings	Female pictures		
	Nude	Semi-nude	Dressed
	(Mean $\pm$ SE)	(Mean $\pm$ SE)	(Mean $\pm$ SE)
Sexual arousal	5.39 $\pm$ 0.07	4.46 $\pm$ 0.07	2.65 $\pm$ 0.08
Pleasantness	5.33 $\pm$ 0.07	4.38 $\pm$ 0.08	2.85 $\pm$ 0.08
Sexual attractiveness	5.27 $\pm$ 0.07	4.44 $\pm$ 0.07	2.85 $\pm$ 0.08

opposite-sex pictures, these results showed that males rated nude female pictures as more sexual arousal than the other two types of female pictures.

### Pleasantness

Likewise, there was also a significant effect of category on males' pleasantness ratings for female pictures [Welch's  $F(2, 89.42) = 473.29, p < 0.001$ , est.  $\omega^2 = 0.99$ ; **Figure 3B**]. Our *post-hoc* analysis revealed that males' pleasantness ratings for nude female pictures ( $M = 5.33, SE = 0.04$ ) were significantly higher than those for semi-nude female pictures ( $M = 4.38, SE = 0.05, p < 0.001$ ) and dressed ones ( $M = 2.85, SE = 0.07, p < 0.001$ ; **Table 2**). Additionally, males' pleasantness ratings for semi-nude female pictures were also significantly higher than those for dressed ones ( $p < 0.001$ ). Unlike females' ratings for the opposite-sex pictures, these findings highlighted that males rated nude female pictures as more pleasant than the other two types of female pictures.

### Sexual Attractiveness

Finally, a significant effect of category on males' sexual attractiveness ratings for female pictures was found [Welch's  $F(2, 93.96) = 506.81, p < 0.001$ , est.  $\omega^2 = 0.89$ ; **Figure 3C**]. Our *post-hoc* analysis found that males' sexual attractiveness ratings for nude female pictures ( $M = 5.27, SE = 0.04$ ) were significantly higher than those for semi-nude female pictures ( $M = 4.44, SE = 0.05, p < 0.001$ ) and dressed ones ( $M = 2.66, SE = 0.07, p < 0.001$ ; **Table 2**). Furthermore, males' sexual attractiveness ratings for semi-nude female pictures were higher than dressed ones ( $p < 0.001$ ). Like male sexual arousal and pleasantness ratings of female pictures, males rated nude female

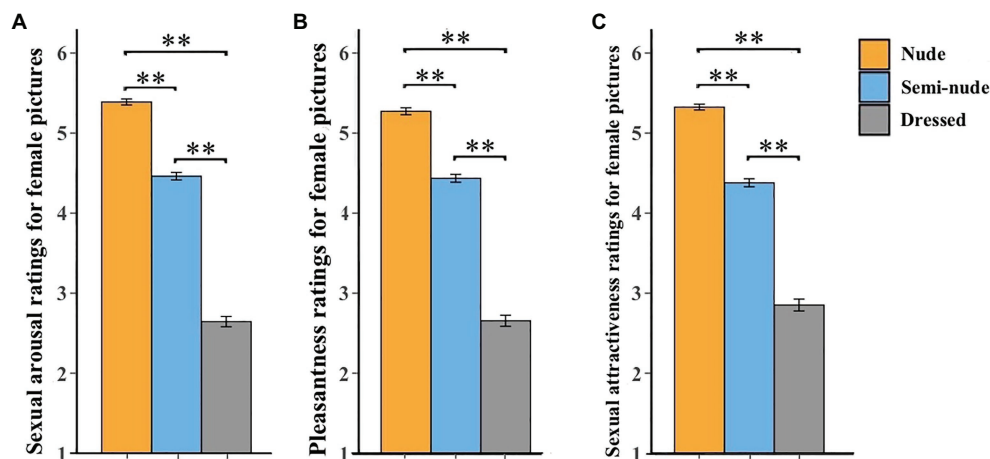
pictures as more sexual attractiveness than the other two types of female pictures, which is also distinct from female's sexual attractiveness ratings for male pictures.

## DISCUSSION

In the current work, we provide a new erotic picture database consisting of neural and erotic photographs depicting East Asian models that are broadly applicable to research in a wide variety of disciplines. These visual erotic stimuli would contribute to the development of research topics aiming to evaluate sex-related functions, especially for future studies involving East Asian samples. Despite this, it is surprising that, to date, almost no empirical studies have attempted to standardize East Asian sexual stimuli. By constructing an erotic picture database along with normative ratings of sexual arousal, sexual attractiveness, and pleasantness, we are hoping to facilitate the processes of erotic stimuli selection and experimental design for future research in human sexuality and non-White samples. Meanwhile, we investigated the sexual response among native Chinese heterosexual college students using our erotic picture dataset. A set of pictures photographing East Asian characters are collected in this study, and it will hopefully facilitate future research on native East Asian participants. In general, the findings support our hypotheses which male and female college students will display significant different preferences for picture categories when viewing both erotic and control ones. Across samples, participants displayed a categorical-specific preference, which supported sex and cultural differences in erotic stimuli processing (Rupp and Wallen, 2008; Ganesan et al., 2020).

### Gender Differences in Response to Opposite-Sex Erotic Stimuli

Our results were consistent with previous studies that males displayed preferences for specific categories of the opposite-sex sexual stimuli. Nude female stimuli received significantly higher ratings than semi-nude female stimuli and control stimuli across all three rating dimensions. In the contrast, females showed a different preference when exposed to the opposite-sex erotic stimuli. Semi-nude male stimuli received significantly higher ratings than nude male ones and control ones across all three rating dimensions. Significant lower ratings on nude male pictures seem to contradict with empirical studies in which western females did not display a preference for the intensity of the opposite-sex erotic stimuli (Chivers et al., 2004). This may presumably be due to the fact that Asians exhibited greater sexual conservatism than Whites (Morton and Gorzalka, 2013; Wu et al., 2016). Given the fact that all the participants were college students recruited from Nanjing University, and the popular believes among Asian parents that sexual behaviors can be a possible distractor of academic performances and thus should be discouraged (Yule et al., 2010), and it is possible that female college students hold more conservative attitude toward sex and extremely explicit erotic stimuli such as naked male pictures.



**FIGURE 3 |** Males' ratings of sexual arousal (A), pleasantness (B), and sexual attractiveness (C) for female pictures. Error bars represent standard errors of the mean. \*\* $p < 0.01$ .

Since the cultural suppression of sexual expression is possible to impact both heterosexual Asian females and males, a similar pattern of underrating naked female figures should be over served among males. However, it is also intriguing that males in our study reported significantly higher sexual attractiveness and arousal ratings for nude female stimuli. One possible explanation is that heterosexual males tend to watch significantly more pornographies than females. In a study carried among German students, male heterosexual students significantly report higher frequencies of pornography consumption than female students (Böhm et al., 2015). More erotic material consumption indicates that an individual is likely to have an initially positive attitude toward erotic stimuli, such as a naked human body, and mere-exposure effect tends to strengthen the attitudes further. In addition, this difference in self-reported ratings between males and females may be explained by the different mating strategies from the perspective of evolutionary psychology. Favorable attitudes toward sexual cues, such as naked female figures, facilitate male's reproduction strategy: having more sex partners and offspring. On the contrary, females are supposed to be highly selective about potential sexual partners due to greater initial investment in offspring (Trivers and Campbell, 1972). Factors other than sexuality would be taken into account and favorable attitudes toward sexual cues might not be helpful in this sense. The discrepancy in the ratings between sexes is supposed to reflect the two different mating strategies as a result.

The benefit of using our dataset is that it is possible to select stimuli based on the sex of the participants and the parameter of normative ratings, which would speed up the process of stimuli selection for studies that require stimuli with multiple erotic levels, especially clinical research related to sexual dysfunction such as premature ejaculation and sexual addiction. Our strategy to exclusively collect ratings from heterosexual participants would provide guidance for reliably detecting possible perceptual gaps between college

students and patients with sexual disorders from the same sexual orientation. Additionally, the ratings of pleasantness, sexual arousal, and sexual attractiveness can be considered as a guide to calculate sexual reward value for pictures from each category, which would be helpful for studies investigating neuropsychological mechanisms underlying sexual reward in normal and abnormal people (Li et al., 2015; Sescousse et al., 2015).

## Limitations

Despite such encouraging evidence, our study still has some limitations. First, the characters were photographed in a fairly natural manner, thus, as a tradeoff, the pictures were not perfectly standardized. Although facial expression, tones and saturation were controlled carefully by us, the characters' postures and the background of the images varied across characters. This might slightly affect eye movements if these stimuli are used in an eye-tracking experiment. Second, it is also elusive that to what extent the observed category-specific preferences would be applied from our laboratory settings to real world scenarios, due to the fact that all the stimuli are static pictures. Third, this study included a relative small sample, possibly tempering the strength of our conclusions. Replications with larger samples would be welcome. Fourth, given that aging has a powerful impact on sexual-related behavior (DeLamater and Sill, 2005; Forbes et al., 2017; Johnson et al., 2020) and all participants in this study are young college students, it is thus unclear whether the findings may be generalizable to older people. Future studies need to investigate the role of aging in processing erotic stimuli and its potential interaction with gender and culture. Finally, this study only assessed participants' ratings for these opposite-sex erotic pictures. However, it is still unknown about how participants rated the same-sex erotic pictures, making it impossible to directly compare these two kinds of ratings in our current study.

Therefore, to promote our understanding on this issue, it would be interesting to take it into account in future studies.

## CONCLUSION

Our study aims to present an East Asian erotic picture dataset that might facilitate future East Asian sexuality research. Meanwhile, when viewing the stimuli from the opposite sex, we found gender differences in ratings of sexual arousal, pleasantness, and sexual attractiveness in response to the opposite-sex erotic stimuli using this dataset. Thus, comparisons of ratings of these three dimensions of erotic pictures in different participant groups will help researchers to choose erotic stimuli dataset for the purpose of various experimental designs.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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## ETHICS STATEMENT

This study was approved by the Nanjing University Institutional Review Board. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

YL conceptualized and designed the study and provided critical revisions on it. QC and ZW performed the study and analyzed the data under the supervision of YL. QC drafted the manuscript. ZZ proofread the draft. All authors contributed to the article and approved the submitted version.

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# Post-traumatic Stress Disorder in Sexually Abused Children: Secure Attachment as a Protective Factor

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The aim of the present study was to examine the hypothesis that attachment and childhood sexual abuse (CSA) interacted such that school aged CSA survivors with insecure attachment to parents would be at an elevated risk of developing post-traumatic stress disorder (PTSD) and trauma symptoms. Participants ( $n = 111$ , ages 7–12) comprised two groups, child CSA survivors ( $n = 43$ ) and a matched comparison group of children ( $n = 68$ ) recruited from the community. Children completed the Child Attachment Interview (CAI) as well as the Trauma Symptom Checklist for Children (TSCC). There was a significant interaction between sexual abuse history and attachment security, such that sexually abused children with insecure attachment representations had significantly more PTSD and trauma symptoms than sexually abused children with secure attachment to parents. The findings show that using a dual lens of attachment and CSA can facilitate the identification of children most at risk and has important implications for understanding risk and resilience processes.

**Keywords:** attachment, childhood sexual abuse, post-traumatic stress disorder, middle childhood, secure attachment

## INTRODUCTION

Childhood Sexual Abuse (CSA) is a major public health problem and human rights issue such that 20% of women and 5–10% of men report being sexually abused as children (Norman et al., 2012). CSA is associated with an increased risk of a wide range of trauma symptoms including post-traumatic stress disorder (PTSD; Briere, 2004; Briere et al., 2008). There is growing interest in the role of attachment in the pathways to recovery and dysfunction following trauma (Mikulincer et al., 2015) and how attachment style may play a role in precipitating, perpetuating, and protecting against Post Traumatic Stress (Bonanno, 2004; de Zulueta, 2006). As Mikulincer et al. (2006, p. 8) propose: “the mental health implications of attachment-system functioning are highly pertinent to understanding a person’s psychological reactions to traumatic events.” Trauma is theorized to activate the attachment system and the need for protection, so that there is a reciprocal relationship between attachment and trauma (Lieberman and Amaya-Jackson, 2005; Mikulincer et al., 2006). Lieberman and Amaya-Jackson (2005) propose using a “dual lens” focusing on both trauma and attachment to identify protective and aggravating processes involving these two major influences on children’s

development. In order to restore a sense of security and reduce the impact of trauma, children as well as adults may seek out attachment figures or activate representations of internalized attachment figures. Secure attachment may have restorative effects after trauma and has been referred to as a protective shield (Lieberman and Amaya-Jackson, 2005). Consistent with this, Pynoos et al. (2009) argue that some PTSD manifestations may derive from the experience of threat and danger, whereas others derive from the lack of finding safety, as these systems are associated with distinct neurobiological systems.

Attachment has been shown to influence how traumatic reactions are experienced and expressed in adults (Mikulincer et al., 2015) and to impact the development of PTSD (Woodhouse et al., 2015; Barazzone et al., 2019). Attachment is associated with the number of PTSD symptoms, negative affectivity, somatization, emotional coping, attributions, and social support (O'Connor and Elklit, 2008). Furthermore, insecure attachment is associated with more severe PTSD, while secure attachment is associated with increased resilience, and may to some extent protect individuals from the negative effects of trauma (Bonanno, 2004). In adult CSA survivors, attachment security is a protective factor against the development of trauma symptoms (Aspelmeier et al., 2007) and attachment was found to mediate the relationship between CSA and trauma symptoms (Roche et al., 1999). Similarly, in adolescents, secure attachment moderates the relation between CSA and trauma symptoms (Jardin et al., 2017).

No previous studies have examined the associations between child attachment and PTSD and trauma symptoms in school-aged child CSA survivors. Studies with child CSA survivors referred for treatment show that 80% manifest some PTSD symptoms, but few meet the full criteria of PTSD (McLeer et al., 1992). Depending on the respondents (parent, child, or clinician) and how CSA criteria was defined studies indicate that 20–35% (Gospodarevskaya and Segal, 2012) or 8–19% (Maikovich et al., 2009) of child CSA survivors in the community meet PTSD criteria. Insecure attachment to parents was found to be a risk factor for child-reported depressive symptoms in school aged child CSA survivors (Ensink et al., 2019). Similar research is needed to examine interactions between CSA and attachment to understand pathways to developing PTSD and trauma symptoms.

## ATTACHMENT

Attachment security, or the subjective sense that others will be responsive to one's expression of needs for comfort and support, is thought to develop as a result of having received sensitive care from attachment figures (Bowlby, 1980). Based on early interactions between infant and caregiver, children develop cognitive-affective schema, referred to as Internal Working Models (IWM) that contains important expectations regarding the experience and expression of emotion and the responsiveness and reactions of others (Bowlby, 1980): When children's expressions of emotional need have been met consistently with empathy and assistance in regulating emotion, children

internalize the message that painful emotional experiences can be experienced, expressed, responded to and regulated. This facilitates optimal self-regulation of emotion later in development (Cassidy, 1994). In contrast, when children's needs have been rejected or ignored or when caregivers have responded inconsistently or with alarm to children's needs, children resort to defensive emotion regulation strategies, such as deactivation or hyperactivation. This may be adaptive in the short-term but can result in negative outcomes over the long-term (Cassidy, 1994). Decades of research substantiate this theorizing by documenting links between attachment security and emotion regulation in adults (e.g., Mikulincer et al., 2003; Mikulincer and Shaver, 2008).

Middle childhood remains an understudied developmental phase with regard to attachment and its links with emotion regulation (Bosmans and Kerns, 2015), but emerging evidence suggests that school-aged children with secure attachment have better emotion regulation than their insecure counterparts (Kerns et al., 2007; Borelli et al., 2010). The association between attachment and child emotion regulation is thought to depend on early parent-child interactions involving physical/emodied regulation by the parent (Shai and Belsky, 2011, 2017). These interactions serve to calibrate the infant's developing stress regulation system so that over time, emotional and physiological self-regulation is established (Fonagy et al., 2002), with the presence of the parent needed and sought only in contexts of threat or higher levels of distress. In addition, child expectancies of the parent's availability and responsiveness to distress are reflected at a representational level in IWM's of self and other. By middle childhood, processes associated with secure attachment (Campos et al., 1994) have facilitated the establishment of emotional regulation capacities through their early physiological impact on the development of the stress regulation system (Gross, 1998). At the same time, secure attachment relationships are associated with the continued support of emotional regulation through the actual availability of attachment figures and the support and protection they may provide in times of distress (Kerns, 2008; Gross, 2013). In addition, secure attachment relationships promote regulation at a representational level through expectancies and the imagined responsiveness and trustworthiness of attachment figures and others in times of need (Fonagy et al., 2007). Furthermore, attachment relationships facilitate the development of social-cognitive capacities such as mentalizing about self and others that support self-regulation and interpersonal functioning by making reactions to behavior predictable and understandable (Ensink et al., 2015, unpublished).

Traumatized children with insecure attachment may be more vulnerable to developing PTSD, because of difficulties accessing emotionally supportive interpersonal relationships and use social support to buffer the impact of trauma (Lynch and Cicchetti, 1998). In line with this the link between attachment anxiety and PTSD symptoms has been found to be mediated by low perceived levels of social support (Besser and Neria, 2012). Furthermore, research with adults show that insecure attachment may also contribute to more severe trauma symptoms and psychopathology because it is associated with non-optimal

emotion regulation strategies (Midolo et al., 2020). For example, avoidant strategies where there is a suppression of emotion and over reliance on self may result in distress being unresolved (Mikulincer et al., 2006).

To address the current gaps in the literature, the aim of the present study was to examine whether attachment security to caregivers acted as a moderator of trauma symptoms among child CSA survivors. Based on previous findings with adolescents (Jardin et al., 2017), we anticipated that children with both CSA and insecure attachment would have the highest levels of psychopathology as compared to children with CSA and secure attachment.

## MATERIALS AND METHODS

### Participants

The study protocol was approved by the university ethics committee prior to the inception of the study. All participants were recruited as part of a larger longitudinal study examining psychosocial difficulties in the context of CSA. Sexually abused children ( $n = 43$ ) and their mothers were referred to the university clinic by doctors, social services, or mental health practitioners working at community health services and hospitals in the city and surrounding regions. The community comparison group ( $n = 68$ ) was recruited through advertisements at Community Health Services and schools through pamphlets soliciting participation (as part of a comparison group) in a study on the impact of CSA. The comparison group was selected to broadly match the socio-demographic, age (within 6 months), and gender characteristics of the abused group. The demographic features of the resulting sample are described in **Table 1**. More than half (61.3%) of the participants were female and their mean age was 9.53 years

( $SD = 1.45$  years; ranging from 7 to 12 years). Reflecting the socio-demographics of the region, 98% of the participants were Caucasian. The assessments took place at the university child and adolescent consultation service. To compensate participants for their time and cost, parents were offered a modest stipend to cover their transport costs and the children were invited to select a toy or small gift.

In the child CSA survivor group, 23% had experienced vaginal or anal penetration with a penis or object and 5% had experienced violent sexual abuse. In terms of frequency of the abuse, 46% experienced CSA on two or three occasions, and 36% experienced CSA on four or more occasions and 18% experienced CSA on one occasion. Perpetrators were family members in approximately 50% of cases and of these children who had experienced intra-familial abuse, the majority (60%) had been abused by their fathers, 22% by siblings, and 18% by stepparents. Of the children who had experienced extra-familial CSA, the majority had been abused by an acquaintance (67%) or by a member of the extended family (33%). In terms of sexual abuse disclosure, in 55% of cases children denounced the CSA; in the remainder of cases, parents (mother: 19%, father: 3%) or other family members (23%) denounced the abuse.

Upon arriving at the university clinic, parents provided informed consent and children provided informed assent before data was collected for this study; the consent/assent process involved informing participants that they could withdraw from study participation at any time or refuse to participate in any part of the study. After completing the consent/assent process, children completed the CAI (Shmueli-Goetz et al., 2004, unpublished) with a trained clinical research assistant. Clinical research assistants then administered the Trauma Symptoms Checklist (Briere, 1996), an interview assessing children's trauma-related psychopathology.

**TABLE 1 |** Descriptive statistics for key study variables.

	Total		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	114.39	17.374	112.9	15.573	115.31	18.451
% Male	40%	----	----	----	----	----
Mother educational attainment	15.22	3.67	15.45	3.664	15.07	3.695
Household income	4.59	2.26	4.76	2.526	4.48	2.092
Children's stress exposure	1.47	1.47	1.40	1.41	1.5118	1.50826
% CSA-exposed	39%	----	35%	----	41%	----
% Insecure attachment	50%	----	51%	----	49%	----
Posttraumatic symptoms	46.44	8.269	45.02	7.866	47.32	8.449
Anxiety symptoms	48.66	9.783	46.73	8.176	49.86	10.542
Depression symptoms	46.94	10.559	45.88	9.76	47.61	11.047
Anger symptoms	43.84	8.541	44.17	10.195	43.64	7.408
Overt dissociation symptoms	48.4	8.409	47.02	8.119	49.26	8.533
Sexual concerns symptoms	51.95	14.631	49.98	8.615	53.18	17.304

## Measures

### Children's Abuse History

Information regarding CSA was based on medical and social work reports and information from police inquiries, including statements of admission by the abuser. Parents of comparison group children were interviewed about the child's developmental history and traumatic life events to ensure children in the comparison group did not have CSA histories. We classified children into three groupings (no CSA history, extrafamilial CSA history, and intrafamilial CSA history), wherein intrafamilial abuse referred to abuse by members of the immediate family such as a father, father-figure (including the mother's partner), a sibling, or a grandparent. This designation of extrafamilial vs. intrafamilial CSA was only employed in a set of preliminary analyses in which we examined whether the type of abuse was associated with attachment and trauma symptom outcomes.

### Children's Attachment Security

The CAI (Shmueli-Goetz et al., 2004, unpublished) is a semi-structured interview assessing children's attachment representations of their current relationships with their primary caregivers. The interview is similar in format, scope, and theoretical underpinnings to that employed in the Adult Attachment Interview (AAI; George et al., 1985, unpublished), but all of these elements of assessing attachment representations are developmentally scaled for measurement in middle childhood (ages 7–12). Children are asked to describe their relationships with their primary caregivers and to support their descriptions by providing examples of concrete relationship episodes. Trained CAI coders rate the CAI using both verbatim transcripts of CAI narratives and videotapes using 10 nine-point scales capturing different aspects of security (e.g., emotional openness, preoccupied anger, idealization, and narrative coherence). Based on these scales, coders assign children to one of four attachment categories with respect to each parent: secure, dismissing, preoccupied, and disorganized. In prior studies, most children with two caregivers receive the same classification for both (e.g., Shmueli-Goetz et al., 2008).

The CAI demonstrates concurrent validity in community, clinical, and CSA samples (Target et al., 2003; Shmueli-Goetz et al., 2008; Scott et al., 2011; Venta et al., 2014; Borelli et al., 2016a,b; Ensink et al., 2016a,b), and inter-rater reliability among expert and "naïve" coders is acceptable (e.g., Shmueli-Goetz et al., 2008; see Privizzini, 2017, for a review).

In the current study, the interviewers and coders were trained by an expert coder (first author) to reliability, who also supervised their work. All the transcripts were double coded, and where there was coder disagreement, the first author recoded the transcript and a consensus decision was reached after clarifying and examining reasons for lack of agreement (four-way classification:  $k = 0.91$ ,  $p = 0.001$ ).

### Trauma-Related Psychopathology

Children reported on their psychopathology symptoms using the Trauma Symptoms Checklist for Children (TSCC; Briere, 1996), a 54-item checklist administered in an interview format.

The TSCC was designed to measure the severity of posttraumatic stress disorder (PTSD) and associated psychological symptomatology in children aged 8–16 years and is the most widely used, standardized and normed measure of trauma related symptomatology in children (Elhai et al., 2005; Lanktree et al., 2012). The TSCC is comprised of six scales covering anxiety, depression, anger, post-traumatic stress, dissociation, as well as sexual concerns. For each item, the child indicates the frequency with which the statement pertains to her/him on a four-point scale ranging from 0 (never) to 3 (almost all the time). Raw scale scores are derived by summing the response values for all items comprising the scale, and then dividing by the number of items in the scale. A higher score reflects greater symptomatology. Alpha coefficients for clinical scales ranged from 0.77 to 0.89. Raw scores are converted to standardized  $t$ -scores.

### Data Analytic Plan

In all analyses, we used  $t$ -scores of child-reported symptoms, which are scores that are adjusted for children's sex and age norms, thereby eliminating the need to control for children's age and sex in analyses. To test study hypotheses, we used hierarchical linear regressions involving tests of interaction effects – we employed Hayes' PROCESS Macro (Model 1), which uses 5,000 bootstrapping samples to estimate the association between  $x$  and  $y$  low (–1 SD below the mean), mean, and high (+1 SD above the mean) levels of  $m$ .

In all analyses, we included as independent variables CSA exposure (CSA vs. no-CSA) and attachment classification (secure vs. insecure), as well as the interaction between abuse status and attachment classification, in the prediction of trauma-related psychopathology.

To determine the distribution of the study variables, we examined the descriptive statistics of the sample in children with intra-familial CSA as well as extra-familial CSA. Specifically, we conducted independent samples  $t$ -tests and found that the levels of child reported psychopathology across intra-familial and extra-familial CSA did not significantly differ on any scale,<sup>1</sup> allowing us to collapse CSA scores into one overall CSA group.

Next, we examined the associations between demographic and key study variables through conducting a series of bivariate correlations. Associations between CSA and attachment were determined through acknowledging attachment as a two-level variable – secure vs. insecure. Trauma related psychopathology scores were consolidated based on the six clinical subscales of the TSCC (Table 2).

To test study hypotheses, we conducted a series of hierarchical linear regressions in which we explored whether the association between children's CSA exposure and children's trauma-related psychopathology varied as a function of children's attachment security. To test interaction effects, we used Hayes' PROCESS (2012) Macro for SPSS, Model 1,

<sup>1</sup>PTSD:  $t(40) = 0.72$ ,  $p = 0.40$ ; anxiety:  $t(40) = -0.66$ ,  $p = 0.51$ ; depressive:  $t(40) = 0.13$ ,  $p = 0.99$ ; dissociation:  $t(40) = 0.68$ ,  $p = 0.49$ ; and sexual concerns:  $t(40) = 0.51$ ,  $p = 0.61$ .



**TABLE 2 |** Bivariate correlations among demographic variables and key study variables.

S. No.	2	3	4	5	6	7	8	9	10	11	12	13
1. Child age	---	0.07	0.11	-0.24*	0.00	-0.21*	-0.15	-0.14	-0.10	0.05	-0.07	0.10
2. Child sex	---	0.05	0.06	-0.04	-0.06	0.03	-0.14	-0.16	-0.08	0.03	-0.13	-0.11
3. Mother educational attainment	---	---	0.39**	-0.22*	-0.29**	-0.21*	-0.13	-0.10	-0.14	-0.10	-0.11	-0.17
4. Household income	---	---	---	-0.43**	-0.23*	-0.26**	-0.12	-0.11	-0.12	-0.19	-0.24*	-0.12
5. Children's stress exposure	---	---	---	---	0.19*	0.26**	0.05	0.08	-0.03	0.01	-0.03	0.10
6. Children's CSA exposure	---	---	---	---	---	0.36**	0.00	0.07	0.17	0.15	0.05	0.18
7. Children's attachment classification	---	---	---	---	---	---	0.14	0.13	0.197*	0.23*	0.12	0.17
8. Posttraumatic symptoms	---	---	---	---	---	---	---	0.67**	0.70**	0.49**	0.71**	0.55**
9. Anxiety symptoms	---	---	---	---	---	---	---	---	0.66**	0.53**	0.58**	0.61**
10. Depression symptoms	---	---	---	---	---	---	---	---	---	0.69**	0.61**	0.61**
11. Anger symptoms	---	---	---	---	---	---	---	---	---	---	0.44**	0.51**
12. Overt dissociation symptoms	---	---	---	---	---	---	---	---	---	---	---	0.45**
13. Sexual concern symptoms	---	---	---	---	---	---	---	---	---	---	---	---

\* $p < 0.05$ ; \*\* $p < 0.01$ .

which tabulates the slopes of  $x$  on  $y$  at  $-1$ , mean, and  $+1$  SD values of the moderator using bootstrapping.

## RESULTS

Bivariate correlations revealed that mothers of children with CSA, as well as mothers of children with insecure attachment reported lower household incomes. Children whose families reported lower levels of household income and lower maternal education, as well as children who were younger, had higher levels of exposure to stressors. Younger children were more likely to be classified as having insecure attachment and children from families with lower household incomes had more overt symptoms of dissociation. Unsurprisingly, children in the CSA-exposed group had higher levels of overall stress exposure, underscoring the need to control for stress exposure in hypothesis testing. In addition, we also controlled for household income and maternal education, given the association between these variables and key constructs of interest. Interestingly, the bivariate correlations did not reveal significant associations between either attachment classification or CSA history with child reports of psychopathology.

### Testing the Unique and Interactive Associations Between CSA and Insecure Attachment in Predicting Trauma-Related Pathology

#### PTSD Symptoms

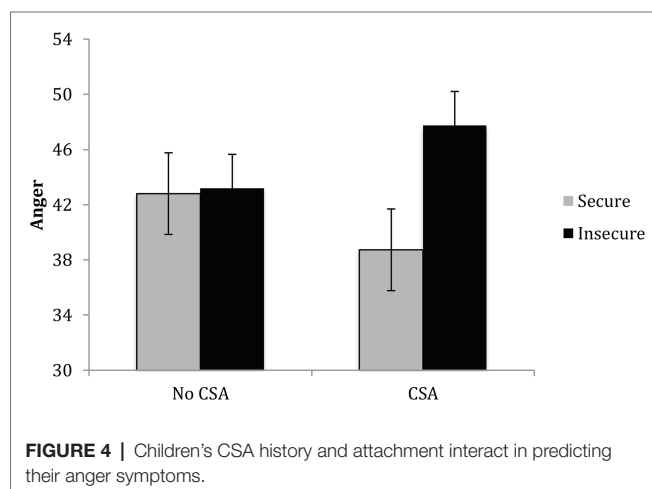
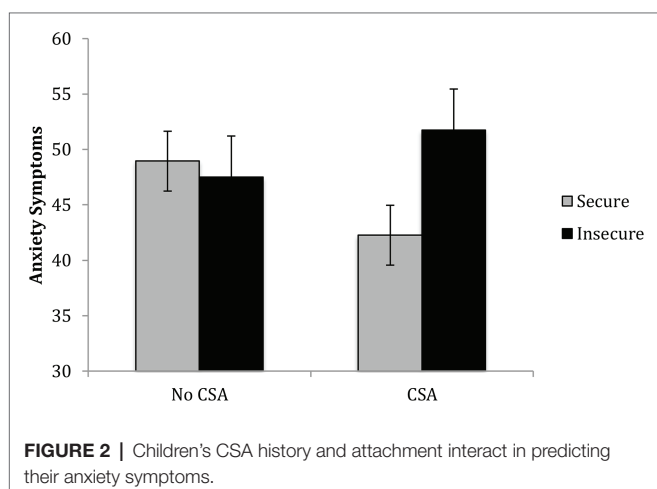
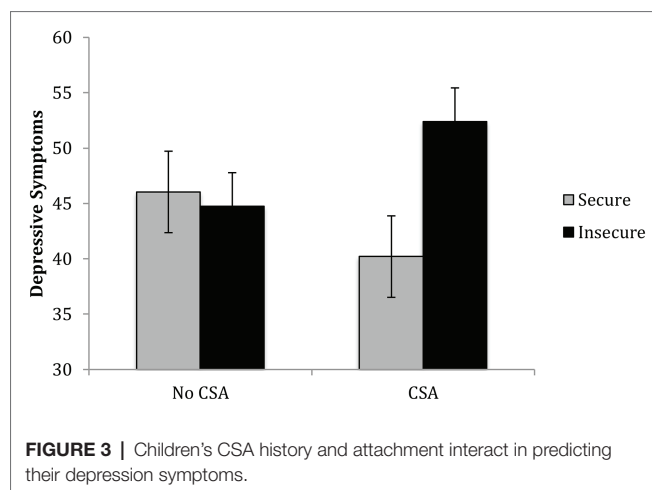
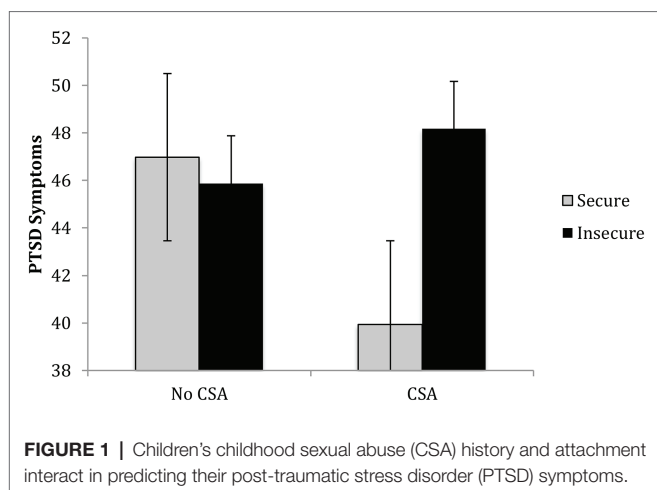
The results of regression analysis revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.09$ ,  $p = 0.14$ , the second step containing the CSA  $\times$  attachment interaction significantly contributed to the prediction of children's PTSD symptoms,  $\Delta R^2 = 0.05$ ,  $p = 0.02$ . Examination of the simple slopes revealed that CSA-exposed children showed a significant association between insecure attachment and greater PTSD symptoms,  $b = 8.23$ ,  $p = 0.01$ , whereas among comparison group children, attachment was not significantly associated with PTSD symptoms,  $b = -1.09$ ,  $p = 0.63$  (see **Figure 1**).

#### Anxiety Symptoms

The results of a regression revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.08$ ,  $p = 0.23$ , the second step containing the CSA  $\times$  attachment interaction significantly contributed to the prediction of children's anxiety symptoms,  $\Delta R^2 = 0.05$ ,  $p = 0.02$ . Among abused children, insecure attachment was associated with higher anxiety symptoms,  $b = 9.49$ ,  $p = 0.01$ , whereas among comparison group children, attachment was not associated with anxiety,  $b = -1.43$ ,  $p = 0.60$  (see **Figure 2**).

#### Depressive Symptoms

The results of a regression revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.14$ ,



$p = 0.02$ , the second step containing the CSA  $\times$  attachment interaction significantly contributed to the prediction of children's depressive symptoms,  $\Delta R^2 = 0.07$ ,  $p = 0.01$ . Among CSA-exposed children, insecure attachment was associated with higher depressive symptoms,  $b = 12.19$ ,  $p = 0.002$ , whereas among comparison group children, attachment was not associated with depression,  $b = -1.31$ ,  $p = 0.65$  (see **Figure 3**).

### Anger Symptoms

The results of a regression revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.14$ ,  $p = 0.02$ , the second step containing the CSA  $\times$  attachment interaction significantly contributed to the prediction of children's anger symptoms,  $\Delta R^2 = 0.04$ ,  $p = 0.03$ . Among CSA-exposed children, insecure attachment was associated with greater anger,  $b = 9.03$ ,  $p = 0.004$ , but among comparison group children, insecure attachment was not associated with greater anger,  $b = 0.40$ ,  $p = 0.86$  (see **Figure 4**).

### Dissociation

The results of a regression revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.13$ ,

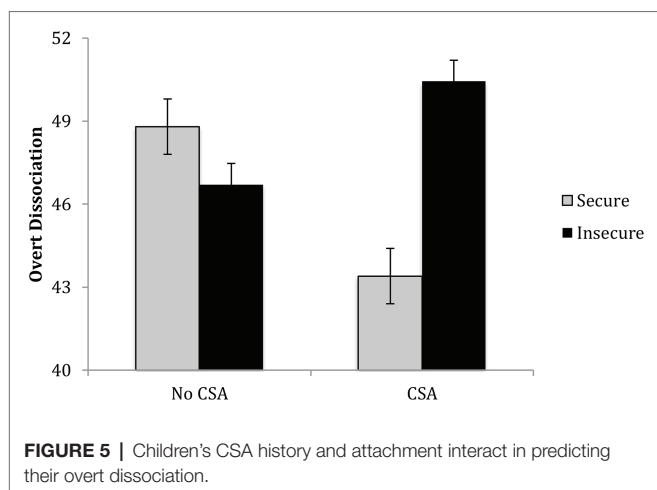
$p = 0.03$ , the second step containing the CSA  $\times$  attachment interaction significantly contributed to the prediction of children's overt dissociation symptoms,  $\Delta R^2 = 0.05$ ,  $p = 0.02$ . Among abused children, insecure attachment was associated with more dissociation,  $b = 7.05$ ,  $p = 0.02$ , but among comparison children, attachment was not significantly associated with dissociation,  $b = -2.08$ ,  $p = 0.37$  (see **Figure 5**).

### Sexual Concerns

The results of a regression revealed that after controlling for covariates and the main effects of CSA and attachment,  $R^2 = 0.05$ ,  $p = 0.46$ , the second step containing the CSA  $\times$  attachment interaction did not significantly contribute to the prediction of children's sexual distress symptoms,  $\Delta R^2 = 0.02$ ,  $p = 0.19$ .

### Multivariate Follow-Up Analysis

To account for the positive intercorrelations among the dependent variables (children's self-reported psychopathology symptoms), we followed up the individual analyses by conducting a multivariate analysis in which we included all six clinical subscales from the TSCC as dependent variables. This multivariate analysis of covariance uses a general linear



model framework and enables the inclusion of multiple categorical and continuous criterion variables in the prediction of multiple dependent variables. In this analysis, we controlled for the same three covariates and then included the main effects and the interaction term in the model. The results were almost identical to those obtained from the models involving the individual clinical scales, suggesting that the interaction of CSA and attachment significantly predicted children's PTSD,  $p = 0.02$ , anxiety,  $p = 0.02$ , depression,  $p = 0.007$ , anger,  $p = 0.03$ , and dissociation,  $p = 0.02$ , but not sexual distress,  $p = 0.20$ . That the effects emerging from this multivariate model so closely paralleled the other findings enhanced our confidence in the original findings.

## DISCUSSION

The aim of the present study was to investigate the interactions between CSA and attachment security as risk and protective factors for PTSD and other trauma related symptoms in school aged children. The findings indicate that CSA and attachment interacted so that child CSA survivors with secure attachment representations had significantly lower PTSD symptoms, while CSA survivors with insecure attachment representations were at elevated risk. This pattern was also evident for other trauma related symptoms; CSA survivors with insecure attachment representations manifested significantly more depressive symptoms, anxiety symptoms, dissociative symptoms, somatic symptoms and reported more trauma related anger. The pattern of findings was particularly striking, especially because neither CSA history nor attachment insecurity themselves were uniquely associated with child self-reported psychopathology on the Trauma Symptom Inventory. Instead, it was only in interaction with one another that the associations emerged. This pattern of effects, which was contrary to our predictions, is interesting in light of the substantial body of evidence linking both CSA and attachment insecurity independently to psychopathology within this age range (e.g., Briere et al., 2008), whereas in

the current study, neither risk factor alone was sufficient to drive an association between the two. The association between attachment and trauma symptoms was uniquely observed in the group of child CSA survivors indicating that it is in the context of trauma that attachment security is associated with how children process trauma. In the non-abused comparison group attachment was not associated with PTSD and trauma symptoms. In sum, the findings indicate that attachment moderates the relation between CSA and child reports of PTSD as well as other trauma related symptoms. This draws attention to the importance of secure child attachment relationships and IWMs for children's recovery after trauma. From a theoretical perspective the findings that CSA survivors with insecure attachment were at heightened risk of PTSD and other trauma symptoms, are consistent with propositions that secure attachment may have restorative effects after trauma and could be seen as a protective shield (Lieberman and Amaya-Jackson, 2005). It also adds to the growing body of findings that attachment influence how traumatic reactions are experienced and expressed (Mikulincer et al., 2015) and impacts the development of PTSD in adults (Woodhouse et al., 2015; Barazzone et al., 2019). In sum, it provides further evidence of the importance of "using a dual lens" on trauma and attachment (Lieberman and Amaya-Jackson, 2005) and to use an approach that considers both of these important influences on child development.

The findings that child attachment moderates the relation between CSA and child reports of PTSD and trauma symptoms, provides new evidence of the importance of attachment for school aged children exposed to trauma. The findings of the present study suggest that the protective effects of secure attachment in the context of trauma that has previously been observed in adults and adolescents are also present for children. It is in line with previous findings with adolescents showing that attachment moderates the relation between CSA and trauma symptoms (Jardin et al., 2017), as well as findings with adults that attachment security is a protective factor against the development of trauma symptoms (Aspelmeier et al., 2007), and that attachment mediated the relationship between CSA and trauma symptoms (Roche et al., 1999). The findings that child CSA survivors with secure attachment have a lower risk of manifesting PTSD and other trauma related symptoms, while child CSA survivors with insecure attachment appear particularly at risk, adds to our knowledge and helps to elucidate the processes that mediate and moderate the associations between CSA and a range of child psychological difficulties. It extends previous findings with school aged children showing that insecure attachment is a risk factor for child reported depressive symptoms in both child CSA survivors as well as in non-abused children (Ensink et al., 2020). In that study, school aged CSA survivors were found to be more likely to have insecure and disorganized attachments to parents than non-abused children, and that insecure attachment was the only factor associated with higher self-reported depressive symptoms in both child survivors of CSA and the comparison group. In addition, the findings

of the present study showing that secure attachment is associated with fewer PTSD symptoms as well as other trauma symptoms also extend the findings of a number of studies showing that children's mentalizing regarding themselves and attachment figures, an ability closely related to attachment, mediates the relationship between CSA and child outcome such as child depressive symptoms as well as externalizing symptoms (Ensink et al., 2016a, 2017).

We followed up our initial regressions by conducting a MANCOVA, which enabled us to account for the fact that we were conducting multiple analyses by controlling for all dependent variables within the same analysis. Our findings within this MANCOVA revealed that all effects remained significant with the exception of the sexual concerns effect. This leads us to conclude that the interaction between CSA and insecure attachment with sexual problems does not hold after controlling for all of the other clinical scales, suggesting that it may be weaker. We reason that this may be due to the developmental stage of the children examined in this investigation, and we wonder what pattern of effects would emerge were the study conducted with adolescents who had experienced CSA.

Given the clinical implications of the findings, it is important to consider likely processes through which attachment impact manifestations of PTSD and trauma symptoms. There are a number of possible explanations for why child CSA survivors with secure attachments report fewer PTSD symptoms as well as other trauma related symptoms. Models of pathways involving for example attachment and emotion regulation strategies have been tested in adults (O'Connor and Elklit, 2008). Similar research with children is lagging and adult models do not necessarily apply to children given that they still partially depend on parents for a sense of safety, support, understanding and help with regulating emotions when trauma overwhelms their own developing capacities for emotion regulation. Based on existing evidence, three key interconnected processes may account for why child CSA survivors with secure attachments to parents manifest fewer PTSD and trauma symptoms. Being able to access secure attachment relationships and turn to parents for safety when trauma activates children's need for safety, is likely particularly important for child recovery after trauma. Support from parents and strong peer relationships, have been shown to have important buffering effects subsequent to sexual abuse. Parental reflective functioning about the child, is known to be associated with secure child attachment, and has been shown to be associated with more positive interactions with children, and a better ability to understand and imagine what is in the child's mind and is associated with better child psychological functioning subsequent to sexual abuse (Ensink et al., 2017).

Furthermore, attachment models of the processes through which attachment impacts the health and mental health of adults put forth that secure attachment decreases vulnerability to stress because it underlies more efficient emotion regulation strategies (O'Connor and Elklit, 2008). This pathway still needs to be directly tested in children exposed to trauma. However, there is evidence that insecure attachment is associated with non-optimal emotional

regulation strategies involving upregulation or avoidance, while secure attachment is associated with an improved ability to downregulate and/or reappraise stress responses. The latter has been found to act as a protective factor against fear and physiological dysregulation (Parrigon et al., 2015) and negative reactions to life events (Feeney, 2000; Maunder and Hunter, 2001; Pietromonaco et al., 2013). Better emotion regulation and associated brain functioning has been linked to resilient functioning after childhood trauma (Daniels et al., 2012). Mentalization models of attachment is also closely associated with mentalization and social-cognition. The importance of mentalizing for child recovery after trauma has been demonstrated in a number of studies (Ensink et al., 2016a, 2017). In addition, our previous studies with school aged children with CSA indicate that mentalizing, an ability overlapping with attachment and referring to children's capacity to think of themselves and others in mental state terms, mediate the relationship between CSA and outcomes such as externalizing and depressive symptoms. Children's mentalizing has also been shown to predict cardiovascular regulation following stress (Borelli et al., 2018). Our understanding of this is that child attachment is associated with emotion regulation, underlies children's representations of self and others around which their sense of self and identity is constituted and which underlies their capacity to understand their own reactions and that of others in terms of underlying mental states. Mentalizing and the capacity to identify and verbally express affects and think about the intentions of others may be particularly important in processing and regulating fear and anger.

The present study has a number of strengths, including the use of interview measures with children to evaluate child attachment as well as child reports of PTSD and trauma related symptoms. Furthermore, the study focuses on a difficult-to-recruit but important clinical population. Further strengths include the use of a comparison group, as well as the inclusion of children with intrafamilial CSA and extrafamilial CSA. Although the sample was comparable in size to that of other studies of attachment in school-age children, it remains small to detect effects of this magnitude ( $\Delta R^2$  values between 0.02 and 0.07), indicative of small to medium effect sizes. In addition, CSA-exposed children are also more likely to experience other forms of psycho-social adversity; to address this potential confound in the associations examined in this study, we controlled for children's stress exposure, but we acknowledge that this cannot completely address the potential influence of co-occurring risk factors on children's adjustment. Further, the children in this study experienced a range of types and levels of CSA seen in a community sample, consistent with the definition of sexual abuse of Putnam (2003). This may be different from the experiences of CSA survivors put into the care of child protective services, who may have experienced severe, chronic CSA together with neglect, physical and psychological abuse. Given that the children in our sample were referred by health services rather than child protective services, it was not possible to control for possible co-occurring abuse and neglect, as this information could not be reliably collected from parents or children. We were not able to examine the role of children's disclosure of CSA or parents' reactions to children's disclosure on outcomes, which is also an area in need of additional investigation. Further research



is needed to examine attachment in different samples of children with CSA. Finally, the cross-sectional nature of the study limits the extent to which a temporal developmental sequence can be inferred.

## CONCLUSION

In sum, the findings reveal that a “dual lens” on trauma and attachment can assist in identifying protective and aggravating processes linking these two major influences on children’s developmental course. Attachment moderated the relationship between CSA and child reported PTSD and trauma related symptoms; child CSA survivors with insecure attachment to their parents reported significantly more PTSD symptoms, depression, anxiety, dissociation, and anger. Child CSA survivors with insecure attachments are at particular risk of manifesting PTSD and trauma related symptoms in contrast with child survivors with secure attachment to parents. These findings showing that child CSA survivors with insecure attachment are at elevated risk have important implications for identifying child CSA survivors most in need of treatment. As importantly, the findings suggest that attachment needs to be incorporated in our clinical formulations and treatment plans of child CSA survivors.

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## DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University Laval Ethics Committee. Written informed consent to participate in this study was provided by the participants’ legal guardian/next of kin.

## AUTHOR CONTRIBUTIONS

KE: theoretical framework, writing, conception, execution of study, and interpretation of results. JB: conception and execution of data analyses and interpretation of results. LN: principal investigator. AR: literature review and data analysis. CM: literature review and data analysis. PF: theoretical contribution. All authors contributed to the article and approved the submitted version.

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