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Examining the Treatment Relevance of the Approach-Avoidance Motivation Model for Sexual Interest/Arousal Disorder in Women and Non-Binary Individuals

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ABSTRACT

Up to 8% of cisgender women meet diagnostic criteria for Female Sexual Interest/Arousal Disorder (SIAD), a diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders*, yet treatment research for SIAD remains scarce, particularly for transgender women and non-binary individuals. The treatment relevance of the Approach-Avoidance Motivation Model for SIAD was tested in a sample of cis- and transgender women, and non-binary individuals, who either met criteria for SIAD ($n = 45$) or reported no sexual concerns ($n = 76$). Participants completed an online writing exercise previously found to increase the salience of approach or avoidance sexual motivation, or a control writing task. At baseline, and 72 hours following the writing task, they completed measures of sexual motivation, sexual desire, and partnered sexual behaviors. Participants with SIAD in the approach condition significantly increased in approach sexual motivation immediately following the manipulation but these improvements were not maintained 72 hours later. Compared to baseline, participants who wrote about an approach-motivated sexual encounter experienced a decrease in sexual desire and partnered sexual behaviors, while participants who wrote about an avoidance-motivated sexual encounter had decreased motivation but increased partnered sexual behaviors 72 hours following the manipulation. Overall, findings did not show support for the relevance of the approach-avoidance motivation manipulation for SIAD. Future studies might explore novel ways of targeting sexual motivation to address sexual difficulties.



Introduction

Sexual problems impact people of all genders and ages, with prevalence being especially high among women. Population surveys show that up to 50% of women¹ ages 16 to 74 report experiencing sexual difficulties for at least 3 months in a year (Mitchell et al., 2013). Low sexual desire is the most commonly reported sexual concern, affecting more than twice as many women (34%) as men (15%; Mitchell et al., 2013). Approximately 8% of women who report low sexual desire experience clinical levels of personal distress (West et al., 2008). Female Sexual Interest/Arousal Disorder (SIAD) is defined by the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) as absent or reduced sexual interest or arousal, persisting for at least 6 months, and causing clinically significant levels of distress for the individual (American Psychiatric Association, 2013). SIAD is expressed as any combination of at least three of the following symptoms: reduced or absent interest in sexual activity, sexual thoughts or fantasies, receptiveness or initiation of sexual activity, sexual excitement or pleasure, sexual interest/arousal in response to internal or external sexual cues, and genital sensations or non-genital sensations during sexual activity.

Limitations of SIAD Treatment Research

Recent research on treatment options for SIAD has largely focused on pharmacological interventions (for a review, see Brotto, 2017). This has been criticized due to their limitations in addressing psychological or interpersonal problems, which have long been recognized as key factors in sexual desire disorders (Diamond & Huebner, 2012; Kaplan, 1979). Research testing psychological treatments for SIAD is also limited as only a handful of randomized control trials (RCT) have been published testing the efficacy of psychological interventions for women's sexual dysfunction (Brotto, 2017).

SIAD treatment research is also currently limited to cisgender women (Frühau et al., 2013; Jaspers et al., 2016). Sexual disorders are categorized by sex assigned at birth² using binary categories of male and female in the DSM-5 (American Psychiatric Association, 2013). There are currently no clinical guidelines for the diagnosis and treatment of sexual concerns on the basis of gender³ for gender diverse groups (Cocchetti et al., 2021), even though transgender and cisgender women both experience similar rates of low sexual desire that causes personal distress (Kerckhof et al., 2019; Klein & Gorzalka, 2009; Wierckx et al., 2014). To date, the prevalence, assessment, and treatment of sexual concerns among non-binary

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¹Previous research referring to participants as women often did not specify how many cis- versus transgender individuals were in the samples.

²Sex assigned at birth refers to a set of biological traits, including reproductive/sexual anatomy, chromosomes, gene expression, and hormone levels, which are usually categorized as male, female, or intersex (Canadian Institutes of Health Research, 2020).

³Gender refers to the social roles, behaviors, and expressions of women, men, and gender diverse people, which exists on a broad spectrum (Canadian Institutes of Health Research, 2020).

individuals has not been studied. Further work is required to improve treatments for SIAD that are applicable to gender diverse individuals that can address the psychological and interpersonal aspects of sexual difficulties.

Application of the Approach-Avoidance Motivation Model

The Approach-Avoidance Motivation Model (AAMM) has previously been used to examine the role of motivation in non-sexual relationships (Elliot, 2013; Gable, 2006; Gable & Impett, 2012). This model posits that different motivations can be classified as either pursuing desired outcomes (approach motivation), or avoiding unwanted outcomes or consequences (avoidance motivation). Approach social goals are associated with more satisfying social bonds and less loneliness, while avoidance social goals are associated with more feelings of loneliness, negative social attitudes, and greater relationship insecurity (Gable, 2006). Sexual motivation has been studied extensively (for a review, see Meston & Stanton, 2017), with findings showing great diversity in the reasons why people engage in sex (one study identified 237 unique reasons; Meston & Buss, 2007). The AAMM has been applied to broadly classify reasons for sex where approach sexual motivation involves individuals engaging in sex to pursue positive outcomes, such as increasing closeness and intimacy with their partners, while avoidance sexual motivation involves engaging in sex to avert negative outcomes, such as avoiding conflict or loss of a relationship (Impett et al., 2008; Muise et al., 2013).

Approach motivation is incentive-based, while avoidance motivation is threat-based, and these types of motivation have an impact on our physical and psychological wellbeing (for a review, see Gable & Impett, 2012). Approach and avoidance motivation have been found to relate to different attentional biases, where higher approach motivation was related to automatic attentional biases toward incentive/reward cues, while higher avoidance motivation was related to greater negative attentional biases toward threat (Derryberry & Reed, 1994). This has implications for the treatment of sexual disorders given that the relationship between attention to sexual cues and sexual desire problems has been proposed for decades (Barlow, 1986). The proposed mechanisms of how sexual motivation impacts sexual outcomes have been described in the Incentive Motivation Model (IMM), which posits that sexual motivation arises from learned expectations that relate sexual stimuli to future sexual outcomes (Toates, 2014). Sexual motivation is consolidated and maintained partially by the consequences of a sexual encounter and the outcome of a sexual encounter strengthens expectations of future encounters and thereby influences sexual motivation (Toates, 2009).

The impact of approach-avoidance sexual motivation on sexual desire, sexual satisfaction, and relationship satisfaction has been studied and the application of the AAMM may inform our understanding of SIAD and its treatment (Cooper et al., 2011). There is considerable empirical support linking approach sexual goals to higher desire, sexual satisfaction, and relationship satisfaction, and avoidance goals to lower desire and satisfaction (Impett et al., 2005; Muise, 2017). Findings from a longitudinal daily diary study found that approach relationship goals buffered against declines in sexual desire

over time even at 6 months follow-up (Impett et al., 2008). A study of 446 heterosexual women with and without sexual concerns found that those with low sexual functioning were more likely to have sex for reasons related to feeling insecure as opposed to reasons related to physical pleasure (Watson et al., 2017). Women with SIAD have been found to be lower in approach goals and higher in avoidance sexual goals compared with control women and their own partners (Bockaj et al., 2019). Given the evidence that approach-avoidance sexual motivation is related to sexual outcomes such as desire, targeting sexual motivation may be a strategy for improving sexual desire individuals with SIAD.

Manipulating Sexual Motivation

Only one study has attempted to increase the salience of approach and avoidance sexual goals, which had subsequent effects on participants' sexual satisfaction and desire (Muise et al., 2017). A community sample of 396 partnered women and men ages 18 to 64 was randomly assigned to recall their most recent sexual encounter where they had engaged in sex for either approach or avoidance sexual reasons, and describe their thoughts, feelings, and motivations for this encounter for at least 5 minutes as a means to manipulate their levels of approach or avoidance motivation. Those who wrote about an approach-motivated sexual encounter reported significantly higher levels of sexual desire and sexual satisfaction following the writing task compared to avoidance and control conditions. In a second study, Muise et al. (2017) replicated their initial findings where sexual desire was significantly higher for those in the approach condition compared to the avoidance condition. Participants were then randomly assigned to either receive a psychoeducational "booster" about the benefits of approach reasons for sex and asked to focus on their approach reasons for one week following the writing task or were assigned to receive a control task. Following this, participants' level of sexual desire, sexual satisfaction, and relationship satisfaction were assessed and those who received the booster reported significantly higher sexual and relationship satisfaction compared to control participants, but sexual desire was not significantly different between conditions. These findings may be limited as a result of participants being recruited from Amazon's Mechanical Turk (MTurk) and it is unclear how participant writing task compliance was determined. Muise and colleagues did not examine the effect of manipulating sexual motivation in a clinical sample, which might have differential impacts for those with sexual concerns. The use of memory retrieval as a manipulation is applicable to the previously discussed IMM, which posits that external as well as internal sexual stimuli (such as a memory) influences sexual motivation, reward assessment, and decision-making (Toates, 2009). Applying a manipulation of approach-avoidance sexual motivation through this mechanism may help address gaps in current treatment options for SIAD.

The Current Research

Building on initial research that has successfully increased the salience of approach-avoidance sexual motivation (Muise et al.,

2017), the main objective of the current study was to experimentally manipulate approach and avoidance sexual motivation in a sample of individuals with and without SIAD who were cis- and transgender women and non-binary individuals. We aimed to measure the impact of the manipulation on sexual desire and partnered sexual behaviors assessed 72 hours following the manipulation.

Hypothesis 1. Participants randomized to the approach condition will show significant increases in levels of approach sexual motivation compared to those in the avoidance and control conditions, while those randomized to the avoidance condition will show significant increases in levels of avoidance sexual motivation compared to those in the approach and control condition.

Hypothesis 2. Participants randomized to the approach condition will show higher levels of sexual desire at 72 hours follow-up, compared to the other two conditions.

Hypothesis 3. Participants randomized to the approach condition will show higher levels of sexual behavior at 72 hours follow-up, compared to the other two conditions.

Hypothesis 4. Of those randomized to the approach condition, participants with SIAD will show greater improvements in sexual desire and sexual behavior, compared to non-SIAD participants. We proposed this as participants with SIAD may have more room for improvement compared to participants without sexual concerns.

Exploratory Gender Group Hypotheses

Potential differences between cisgender and transgender/non-binary participants were deemed exploratory given the dearth of previous literature on gender diverse groups.

Method

Participants

Participants were eligible to participate if they met the following inclusion criteria, which were assessed via telephone interview: (1) identified as a cisgender woman, transgender woman, or non-binary individual. Note that sex assigned at birth was not an exclusion criterion, meaning that non-binary individuals whose sex assigned at birth was female or male were eligible to participate; (2) were 19 years of age or older; (3) able to read and write English fluently; (4) had access to a computer with a physical keyboard (as opposed to only touchscreen) and internet; (5) were willing to temporarily download the Inquisit 6 Web Player to their computer (this was necessary for completion of an attention task. Note those findings are not described here); and (6) were or were not experiencing difficulties with sexual arousal and/or sexual desire for the past 6 months. Those expressing sexual concerns were assessed for SIAD by a trained graduate student in clinical psychology and placed into that group if they endorsed at least three symptoms accompanied with personal distress for at least six months, as outlined in the DSM-5 (American Psychiatric Association,

2013), while eligible participants for the control group did not report any sexual arousal or desire difficulties. Individuals who indicated experiencing sexual concerns but who did not meet criteria for SIAD were not included in the study.

Participants were excluded if they reported identifying as asexual, meaning they did not experience sexual attraction in any context. The asexual exclusion criterion was implemented as there have been ethical concerns around asexual individuals receiving treatment for low sexual desire due to conflation with SIAD symptom presentation (Brotto & Yule, 2017), and the goal of this study was to examine the potential treatment relevance of manipulating approach-avoidance sexual motivation for SIAD. Participants were also excluded if they were currently experiencing a major depressive episode or other psychiatric disorders that interfered with daily functioning. There were no inclusion or exclusion criteria based on relationship status, as previous work has found no significant differences between partnered and unpartnered women with SIAD in sexual functioning (Brotto et al., 2021). There were also no inclusion or exclusion criteria regarding whether participants were currently undergoing hormonal therapy.

A sample of $n = 185$ individuals consented to participate and were enrolled in the study, with $n = 179$ completing the baseline questionnaire package, $n = 170$ completing the online assessment, and $n = 163$ completing the 72-hour follow-up questionnaires. Five participants' data were excluded due to reporting no history of sexual partners in their lifetime. Two participants' data were excluded due to attempting to participate twice. Forty-two participants' data were excluded due to not following writing task instructions, specifically not writing about a sexual encounter nor describing a room (depending on the condition they were randomized to), or not writing about approach or avoidance sexual motivation; 121 participants were included in the final analyses.

Procedure

Procedures were approved by The University of British Columbia Behavioral Research Ethics Board. Participants were recruited primarily online using social media platforms (Facebook, Twitter, Instagram), as well as advertising in online community groups (e.g., Facebook LGBTQ+ groups). Participants were also recruited from a database of participants who had previously consented to be contacted via e-mail about future studies.

Interested participants completed a phone interview where a description of the study procedures was provided, and eligibility was assessed. Participants were not aware of the study's goal to manipulate sexual motivation but were told that the goal of the study was to understand how individuals' reasons for sex influence sexual wellbeing. Eligibility questions asked about gender identity, sexual orientation, age, major psychological disorders, and experience of sexual arousal and/or sexual desire difficulties. Those who endorsed sexual difficulties were asked additional questions during the phone screen to assess SIAD symptoms and self-reported severity of distress. This semi-structured clinical phone interview has been used previously to assess participants for SIAD (e.g., Brotto et al., 2021; Velten et al., 2021) and is based on DSM-5 diagnostic

criteria (American Psychiatric Association, 2013). Following the phone screen, eligible individuals were sent an electronic copy of the consent form via e-mail. Upon receiving the signed consent form, the researcher emailed participants a URL link to complete a set of online baseline questionnaires via Qualtrics Survey Software, which took approximately 30 minutes to complete.

After completion of the baseline questionnaire package, participants scheduled a time to complete an online assessment and were randomly assigned to one of three writing task conditions: (1) approach; (2) avoidance; or (3) control condition. Participants then completed an online assessment from home, which included the following tasks: (1) a writing manipulation task; (2) manipulation check questions, and measures assessing approach-avoidance sexual motivation; (3) an online attention task where participants watched a short nature film and an erotic film while periodically indicating their level of attention to the videos (findings described elsewhere). Together the online assessment tasks took approximately one hour to complete.

Seventy-two hours after the online assessment was completed participants received an online questionnaire via Qualtrics, which assessed approach-avoidance sexual motivation, sexual desire and sexual behaviors. Together the questionnaire package took about 10 minutes to complete. After the completion of the final questionnaire package participants received a debriefing form and an “approach motivation booster” from Muise et al. (2017), which was intended to allow those who did not receive the approach manipulation access to this and specifically to ensure that those in the avoidance condition were not left in a state that may be considered more negative compared to their pre-participation state. Participants received financial remuneration of \$35 CAD for participating in the study.

Materials

Motivation Manipulation

Adopted from Muise et al. (2017), participants completed a writing task manipulation where they were instructed to think about a time when they engaged in a sexual encounter for the pursuit of a positive outcome (approach condition) or to avoid a negative outcome (avoidance condition) and to describe the experience in as much detail as possible, including their thoughts and feelings about the sexual encounter, for at least 5 minutes. Participants in the approach and avoidance condition were also asked to report how long ago the sexual encounter occurred, in days. Those in the control condition wrote about the room they were in during the assessment and described another room that they were in earlier that day (based on Goldey & van Anders, 2012).

Measures

Demographics. The following demographic variables were assessed at baseline as a means of describing our sample: age, ethnicity, education, employment, income level, sex, gender identity, sexual orientation, religious affiliation, relationship status, current health status, medication use, sexual history,

history of unwanted sexual contact, and province/territory of residence (See Table 1 for response options for all variables).

Sexual Motivation. *Motivations for Sex Measure* (MSMQ; adapted from Cooper et al., 1998), is a 19-item unvalidated measure, which rates the importance of approach (e.g., *to pursue my own sexual pleasure*) and avoidance reasons for sex (e.g., *to avoid feeling guilty*) from 1 (*not at all important*) to 7 (*extremely important*). Mean scores for approach motivation and for avoidance motivation are calculated, with higher scores indicating higher levels of motivation. The MSMQ was administered at baseline, after the writing task manipulation, and at 72 hours follow up. At present, a measure of approach and avoidance reasons for sex has not been validated and the psychometric properties of the MSMQ have not been examined; however, unpublished data from an ongoing study found strong internal consistency for both the approach motivation scale ($\alpha = .91$) and avoidance motivation scale ($\alpha = .89$) in a sample of women with SIAD. Strong internal consistency was found in our sample for the approach motivation scale ($\alpha = .84$) and avoidance motivation scale ($\alpha = .91$).

Sexual Desire. The *Sexual Desire Inventory* (SDI-2; Spector et al., 1996) is a 14-item measure that assesses frequency and strength of solitary sexual desire (e.g., *How strong is your desire to engage in sexual behavior by yourself?*) and dyadic sexual desire (e.g., *During the last month, how often have you had sexual thoughts involving a partner?*), with higher sum scores indicating higher levels of sexual desire. The SDI-2 was administered at baseline and at 72 hours follow up. Previous work has found strong internal consistency for both the Dyadic scale ($\alpha = .86$) and the Solitary scale ($\alpha = .96$; Spector et al., 1996), and test-retest reliability of $r = .76$ over a one-month period (Spector et al., 1998). Strong internal consistency was demonstrated in the current sample for both the Dyadic scale ($\alpha = .89$) and the Solitary scale ($\alpha = .87$).

Sexual Behavior. The *Report of Behavior and Feelings-Desire* (RBF-D; Velten et al., 2020) is an 18-item measure that assesses the extent to which participants engaged in sexual behaviors or had the feeling of wanting to engage in sexual behaviors (responsive desire) in the past 3 days (e.g., *had sex with a primary current partner*), on a scale from 0 (*not at all*) to 5 (*5 times or more*). Factor 2 of the RBF-D, which assesses partnered sexual behaviors, was used in analyses. The RBF-D was administered at baseline and at 72 hours follow up. Internal consistency for factor 2 of the RBF-D in previous work was high $\alpha = .86$, while internal consistency ranged from $\alpha = .75 - .86$ across all factors (Velten et al., 2020). Strong internal consistency was determined in the current sample ($\alpha = .91$).

Manipulation Check. Following the writing task manipulation, participants in the approach condition were asked “To what extent did you pursue approach sexual goals in the situation that you wrote about?” and participants in the avoidance condition were asked “To what extent did you pursue avoidance sexual goals in the situation that you wrote about?” and responded on a Likert scale from 1 (*Not at all*) to 7 (*A great deal*). Participants in all conditions

Table 1. Baseline characteristics of participants with SIAD and participants with no sexual concerns.

Measure	SIAD	Non-SIAD	Total
Number of Participants	45	76	121
Age (years), mean \pm SD	32.4 \pm 8.5	30.6 \pm 8.7	31.3 \pm 8.6
Sex, N (%)			
Female	44 (97.8)	71 (93.4)	115 (95.0)
Male	0	5 (6.6)	5 (4.1)
Prefer not to respond	1 (2.2)	0	1 (0.8)
Gender identity, N (%)			
Woman	38 (84.4)	62 (81.6)	100 (82.6)
Indigenous or other cultural gender identity (e.g., two-spirit)	1 (2.2)	0	1 (0.8)
Non-binary, gender fluid	6 (13.3)	14 (18.2)	20 (16.5)
Relationship status, N (%)			
Never married	3 (6.7)	11 (14.5)	14 (11.6)
Single*	4 (8.9)	21 (27.6)	25 (20.7)
Dating	8 (17.8)	14 (18.4)	22 (18.2)
In relationship	25 (55.6)	35 (46.1)	60 (49.6)
Common-law*	10 (22.2)	6 (7.9)	16 (13.2)
Married	11 (24.4)	14 (18.4)	25 (20.7)
Separated	1 (2.2)	1 (1.3)	2 (1.7)
Divorced	1 (2.2)	4 (5.3)	5 (4.1)
Widowed	0	1 (1.3)	1 (0.8)
Other	2 (4.4)	4 (5.3)	6 (5.0)
Length of relationship (years), mean \pm SD	6.7 \pm 6.6	5.2 \pm 4.9	5.8 \pm 5.7
Ethnicity, N (%)			
Arab/West Asian (Afghan, Iranian, etc.)	1 (2.2)	1 (1.3)	2 (1.7)
Black (African, Afro-Caribbean, etc.)	2 (4.4)	2 (2.6)	4 (3.3)
East Asian/Southeast Asian (Chinese, Filipino, Japanese, Korean)	2 (4.4)	2 (2.6)	4 (3.3)
Hispanic or Latin American	1 (2.2)	5 (6.6)	6 (5.0)
Indigenous (First Nations, Métis, Inuk, American Indian, or Alaska Native)	3 (6.7)	2 (2.6)	5 (4.1)
South Asian (East Indian, Pakistani, Sri-Lankan, etc.)	0	3 (3.9)	3 (2.5)
White	34 (75.6)	56 (73.7)	90 (74.4)
Other	1 (2.2)	5 (6.6)	6 (5.0)
Sexual orientation, N (%)			
Bisexual	13 (28.9)	23 (30.2)	36 (29.8)
Demisexual	1 (2.2)	4 (5.3)	5 (4.1)
Heterosexual	20 (44.4)	28 (36.8)	48 (39.7)
Lesbian/Gay	3 (6.7)	10 (13.2)	13 (10.7)
Pansexual	7 (15.6)	10 (13.2)	17 (14.0)
Education, N (%)			
Attended some high school	1 (2.2)	0	1 (0.8)
Graduated high school	1 (2.2)	3 (3.9)	4 (3.3)
Attended some college	4 (8.9)	17 (22.4)	21 (17.4)
Graduated 2-year college	4 (8.9)	5 (6.6)	9 (7.4)
Graduated 4-year college	20 (44.4)	27 (35.5)	47 (38.9)
Post-graduate degree	14 (31.1)	24 (31.6)	38 (31.4)
Years of education, mean \pm SD	17.3 (2.9)	16.9 (2.5)	17.1 (2.6)
Annual income, N (%)			
Less than \$20,000	5 (11.1)	9 (11.8)	14 (11.6)
\$20,000 to \$59,999	14 (31.1)	27 (35.5)	41 (33.9)
\$60,000 to \$99,999	10 (22.2)	15 (19.7)	25 (20.7)
\$100,000 to \$159,999	10 (22.2)	13 (17.1)	23 (19.0)
More than \$160,000	6 (13.3)	10 (13.2)	16 (13.2)
Employment, N (%)			
Full time	19 (42.2)	35 (46.1)	54 (44.6)
Part time/casual	11 (24.4)	24 (31.2)	35 (28.9)
On disability	2 (4.4)	2 (2.6)	4 (3.3)
Retired	1 (2.2)	1 (1.3)	2 (1.7)
Self employed	7 (15.6)	7 (9.2)	14 (11.6)
Student	10 (22.2)	19 (25.0)	29 (24.0)
Stay at home parent or homemaker	4 (8.9)	4 (5.3)	8 (6.6)
Unemployed	5 (11.1)	7 (9.2)	12 (9.9)
Other	2 (4.4)	2 (2.6)	4 (3.7)
Significant medical history ^a , N (%)*	20 (44.4)	18 (23.7)	38 (31.4)
History of non-consensual sexual contact, N (%)			
As an adult	32 (71.1)	37 (48.7)	69 (57.0)
As a child	12 (26.7)	24 (31.6)	36 (29.8)
Received past treatments for sexual dysfunction, N (%)*	7 (15.6)	2 (2.6)	9 (7.4)

^aFive most reported medical conditions listed from most to least endorsed: anxiety, depression, attention-deficit/hyperactivity disorder, asthma, hypothyroidism.

*Indicates significant difference between groups, $p < .05$.

were presented with one item asking: “how difficult was it for you to think of the situation that you wrote about?” from 1 (*Very easy*) to 7 (*Very difficult*). All manipulation check items were adapted from Muise et al. (2017).

Data Analysis

Power Calculation

A power analysis (Faul et al., 2007) was conducted based on findings from Muise et al.’s (2017) study, which indicated we would need $N = 132$ participants for power = .95, $\alpha = .05$, and Cohen’s $d = 0.51$ to detect differences between writing task conditions and SIAD and non-SIAD participants in approach and avoidance sexual motivation following the writing task manipulation. Due to difficulties in recruiting transgender women and non-binary individuals, a challenge found in the larger field of transgender health research (Reisner et al., 2016), we did not have the statistical power to include gender group as a factor in the final analyses.

Interrater Reliability

To examine writing task compliance, two trained coders who were blind to writing task condition rated all writing tasks independently. Coders rated whether participants wrote about a sexual encounter, described a room, or were non-compliant (did not describe a sexual encounter or a room). Cohen’s Kappa determined perfect agreement between coders $\kappa = 1.00$, $p < .001$. Eight writing task responses were rated as non-compliant and were not included in analyses. Coders also rated whether participants described their thoughts, feelings and motivations for engaging in the sexual encounter, or described another room they had been in earlier that day, with agreement being strong between coders, $\kappa = .898$, 95% CI [.835, .961], $p < .001$. Raters determined 2.0% of participants partially followed the instructions and wrote about only thoughts/feelings or only about their motivations. Coders then rated whether participants wrote about approach motivation, avoidance motivation, both types of motivation, or neither type of motivation. Agreement between coders regarding motivation was also strong, $\kappa = .815$, 95% CI [.748, .882], $p < .001$. Coders rated four responses (3.5%) as being neither about approach nor avoidance motivation, while 23.8% of participants were rated as writing about both approach and avoidance motivation, primarily those randomized to the avoidance condition. Participants who were rated as not following the instructions or only partially following the instructions were excluded, leaving 121 participants included in analyses.

Manipulation Check

The extent to which those in the approach condition pursued approach reasons for sex in their described sexual encounter was compared between SIAD and non-SIAD groups using an independent samples t-test, which was non-significant $t(40) = -0.84$, $p = .41$. The extent to which participants pursued approach reasons for sex was also compared by gender group using an independent samples t-test, and was also found to be non-significant $t(40) = -0.13$, $p = .90$. The same set of analyses were also carried to assess the extent to which those in the

avoidance condition pursued avoidance reasons for sex in their described sexual encounter. There were no significant differences between SIAD and non-SIAD participants $t(21) = -0.41$, $p = .68$, as well as no significant differences between gender groups $t(20) = -1.96$, $p = .06$.

Mean answers to the writing task difficulty manipulation check question were compared across the groups using a 2×3 ANOVA, with SIAD status (SIAD and non-SIAD) and writing task condition (approach, avoidance, and control) as independent variables. There was no significant interaction between SIAD status and writing condition, $F(2,115) = 0.81$, $p = .45$, partial $\eta^2 = .014$. There was a significant main effect of writing task condition, $F(2,115) = 9.54$, $p < .001$, partial $\eta^2 = .14$. Post-hoc tests with Bonferroni corrections found that participants in the avoidance condition reported greater writing task difficulty ($M = 3.9$, $SD = 2.1$) compared to those in the approach condition ($M = 2.5$, $SD = 1.7$; $p = .006$, Hedges’ $g = 0.77$) and control condition ($M = 2.1$, $SD = 1.5$; $p < .001$, Hedges’ $g = 1.06$). There was no difference in writing task difficulty between those in the approach and control conditions ($p = 1.00$, Hedges’ $g = 0.21$). There was also no difference in writing task difficulty between cisgender ($M = 2.6$, $SD = 1.8$) and transgender/non-binary participants ($M = 2.6$, $SD = 1.9$; $p = .92$, Hedges’ $g = 0.02$). Writing difficulty was included as a covariate in all initial primary analyses discussed below and found to be nonsignificant ($p = .10 - .24$), and therefore it was removed as a covariate from subsequent analyses.

The number of days since the described sexual encounter was compared between SIAD and non-SIAD groups, using an independent samples t test, which was found to be non-significant, $t(63) = -0.89$, $p = .38$. The number of days since the described sexual encounter was also compared between cisgender and transgender/non-binary groups, where an independent samples t-test found no significant group differences, $t(9.5) = -1.06$, $p = .32$. Number of days since the described sexual encounter was examined as a covariate in analyses testing the effect of the manipulation and was found to be non-significant and removed as a covariate from subsequent analyses ($p = .12 - .22$).

Primary Analyses

To test Hypothesis 1, changes in approach and avoidance sexual motivation were compared from pre-assessment baseline to immediately following the writing task during the online assessment, using a repeated measures 3-factor multivariate analysis of variance (MANOVA), with SIAD status (SIAD and non-SIAD), writing condition (approach, avoidance, and control), and time (pre-assessment and immediately following writing task) as factors. Bonferroni corrections were used for all pairwise comparisons (where the p -value of the Least Significant Difference (LSD) was multiplied by the number of comparisons).

To test Hypotheses 2, 3, and 4, another repeated measures 3-factor MANOVA was conducted with SIAD status, writing task condition, and time (pre-assessment and 72 hour follow up) as the independent variables, and with approach and avoidance sexual motivation, sexual desire, and sexual

behavior as dependent variables. Post hoc analyses were conducted using Bonferroni corrections.

Exploratory Analyses

To examine potential group differences between cisgender women and transgender women/non-binary participants, we conducted exploratory post hoc analyses on our significant primary findings. Specifically, we conducted a 2×2 ANOVA for those randomized to the approach writing condition, with SIAD status (SIAD and Non-SIAD) and gender group (cisgender or transgender/non-binary) as independent variables, and approach sexual motivation as a dependent variable.

Results

Sample Characteristics

Participants were on average 31.3 ($SD = 8.6$) years old, with the majority identifying as women (82.6%), White (74.4%), in a relationship (49.6%), heterosexual (39.7%) or bisexual (29.8%), graduated from a 4-year college (38.9%) or completed a post-graduate degree (31.4%), and employed full time (44.6%). Writing task condition groups were not significantly different from each other for any demographic variables. Participants with and without SIAD were similar in all demographic variables (Table 1). Participants who met criteria for SIAD endorsed 4.3 ($SD = 0.9$) of the six SIAD symptoms on average, and experienced sexual concerns for an average of 3.7 ($SD = 4.9$) years.

Transgender and non-binary individuals were grouped together due to small sample size. As such, we did not include gender as a unique independent variable in the following analyses, and participants of all genders were analyzed as a group.

Effect of Writing Task on Approach and Avoidance Motivation

To test hypothesis 1, a repeated measures MANOVA examined approach and avoidance sexual motivation as dependent variables, and SIAD status, writing task condition, and time (pre-assessment and immediately following the writing task) as independent variables. There was a significant three-way interaction between SIAD status, writing condition, and time, $F(4,$

228) = 4.71, $p = .001$, Pillai's Trace = .15, partial $\eta^2 = .08$. Estimated marginal means are shown in Table 2.

Post-hoc tests with Bonferroni corrections found that SIAD participants in the approach condition significantly increased in their levels of approach sexual motivation from pre-assessment ($M = 5.00$, $SD = 0.67$) to immediately following the writing task, with a medium effect size ($M = 5.50$, $SD = 0.84$, $p = .002$, $d = 0.67$). SIAD participants in the avoidance condition significantly decreased in approach sexual motivation from pre-assessment ($M = 4.40$, $SD = 0.90$) to immediately following the writing task, with a medium effect size ($M = 3.83$, $SD = 1.20$, $p = .004$, $d = 0.54$). There were no significant changes in mean approach sexual motivation for SIAD participants in the control condition. Non-SIAD participants' mean approach sexual motivation did not significantly change immediately following the manipulation for all conditions.

Regarding changes in avoidance sexual motivation, non-SIAD participants in the avoidance condition experienced a significant increase in avoidance sexual motivation from pre-assessment ($M = 2.28$, $SD = 1.27$) to immediately following the writing task, with a medium effect size ($M = 2.92$, $SD = 1.43$, $p = .001$, $d = 0.48$). There were no significant changes in avoidance sexual motivation for non-SIAD participants in the approach and control condition, nor for SIAD participants across conditions.

As a post hoc exploratory analysis we examined potential differences by gender on the impact of the approach writing condition for SIAD individuals who experienced a significant increase in approach sexual motivation following the writing task. A 2×2 ANOVA with SIAD status (SIAD and Non-SIAD) and gender group (cisgender or transgender/non-binary) included as independent variables and mean approach sexual motivation included as a dependent variable was conducted, which found no significant effect of gender group, $F(1,39) = 0.35$, $p = .56$, partial $\eta^2 = .009$.

Effect of Sexual Motivation on Sexual Outcomes 72 Hours Follow Up

To test hypotheses 2–4, that participants in the approach condition would improve in sexual motivation, sexual desire, and sexual behaviors compared to those in the avoidance and control conditions, and that participants with SIAD would see greater improvements in sexual outcomes compared to those without SIAD, a repeated measures MANOVA was

Table 2. Estimated marginal means for approach and avoidance sexual motivation reported by SIAD and non-SIAD participants at pre-assessment and assessment (immediately following the manipulation) timepoints, M (SE).

SIAD-status	Condition	Approach motivation ^a		Avoidance motivation ^a	
		Pre-assessment	Assessment	Pre-assessment	Assessment
SIAD	Approach	4.98 (0.23)	5.49 (0.24)*	3.51 (0.35)	3.59 (0.39)
	Avoidance	4.40 (0.28)	3.83 (0.29)*	4.05 (0.42)	3.78 (0.47)
	Control	4.73 (0.18)	4.62 (0.18)	3.97 (0.27)	3.95 (0.30)
Non-SIAD	Approach	5.48 (0.15)	5.63 (0.16)	2.28 (0.23)	2.34 (0.26)
	Avoidance	5.19 (0.22)	5.49 (0.23)	2.28 (0.33)	2.92 (0.38)*
	Control	5.57 (0.14)	5.49 (0.15)	2.50 (0.22)	2.42 (0.24)

Possible range of scores: ^a1 to 7. Adjusted for multiple comparisons using Bonferroni correction.

*Indicates significant difference from pre-assessment to assessment time points, $p < .05$.

conducted. Approach sexual motivation, avoidance sexual motivation, dyadic and solitary sexual desire, and sexual behaviors were significantly correlated (as shown in Table 3), and therefore all outcomes were included in the MANOVA. SIAD status, writing task condition, and time (pre-assessment and 72 hours following the assessment) were included as independent variables. There was no significant interaction between SIAD status, writing condition, and time, $F(10, 190) = 0.58, p = .83$, Pillai's Trace = .06, partial $\eta^2 = .03$. However, there was a significant two-way interaction between writing task condition and time, $F(10, 190) = 3.48, p < .001$, Pillai's Trace = .31, partial $\eta^2 = .16$. Estimated marginal means are shown in Table 4. There was also a significant interaction between SIAD status and time, $F(5, 94) = 2.36, p = .046$, Pillai's Trace = .11, partial $\eta^2 = .11$. Estimated marginal means are shown in Table 5.

Post hoc tests using Bonferroni correction to examine the two-way interaction between writing task condition and time found that participants in the approach condition significantly decreased in dyadic sexual desire from pre-assessment ($M = 36.37, SD = 12.51$) to 72 hours follow up ($M = 31.82, SD = 12.00, p < .001, d = 0.36$). Participants in the approach condition also significantly decreased in frequency of dyadic sexual behaviors from pre-assessment ($M = 4.39, SD = 3.91$) to 72 hours follow up ($M = 3.00, SD = 3.54, p = .01, d = 0.37$).

Participants who were in the avoidance condition significantly decreased in approach sexual motivation from pre-

assessment ($M = 4.86, SD = 1.03$) to 72 hours follow up ($M = 4.33, SD = 1.45, p = .001, d = 0.41$). Participants in the avoidance condition also experienced a significant decrease in avoidance sexual motivation from pre-assessment ($M = 3.25, SD = 1.45$) to 72 hours follow up ($M = 2.52, SD = 1.53, p = .001, d = 0.47$). Those in the avoidance condition also experienced a significant increase in dyadic sexual behaviors from pre-assessment ($M = 1.61, SD = 1.69$) to 72 hours follow up ($M = 3.06, SD = 3.10, p = .03, d = -0.55$).

Post hoc tests using Bonferroni correction to examine the two-way interaction between SIAD status and time found that participants with SIAD significantly decreased in approach sexual motivation from pre-assessment ($M = 4.70, SD = 0.94$) to 72 hours follow up ($M = 4.46, SD = 1.23, p = .01, d = 0.22$).

Discussion

The aim of this study was to experimentally manipulate approach and avoidance sexual motivation in cis- and transgender women and non-binary individuals with and without SIAD and assess the impact of the manipulation on sexual motivation, sexual desire and partnered sexual behaviors 72 hours following the manipulation. Regarding changes in approach sexual motivation, we found that immediately following the manipulation, approach sexual motivation significantly increased for SIAD participants in the approach condition. We also explored potential differences between

Table 3. Pearson correlations between baseline sexual outcome variables.

Variable	1	2	3	4
1. Approach Sexual Motivation	1			
2. Avoidance Sexual Motivation	-.30**	1		
3. Dyadic Sexual Desire	.54**	-.32**	1	
4. Solitary Sexual Desire	.35**	-.17	.47**	1
5. Partnered Sexual Behaviors	.39**	-.18	.55**	.20*

Correlation is significant, * $p < .05$, ** $p < .01$.

Table 4. Estimated marginal means of primary outcomes by writing condition and time, M (SE).

Outcome	Approach		Avoidance		Control	
	Pre-assessment	72 hours follow up	Pre-assessment	72 hours follow up	Pre-assessment	72 hours follow up
Approach sexual motivation ¹	5.22 (0.15)	5.36 (0.17)	4.81 (0.20)	4.23 (0.23)*	5.15 (0.13)	4.95 (0.14)
Avoidance sexual motivation ¹	2.87 (0.22)	2.80 (0.23)	3.34 (0.30)	2.61 (0.31)*	3.36 (0.18)	3.17 (0.18)
Dyadic sexual desire ²	33.11 (1.78)	29.31 (1.83)*	29.81 (2.41)	28.11 (2.48)	32.63 (1.50)	32.25 (1.54)
Solitary sexual desire ³	11.50 (1.12)	11.44 (1.01)	11.40 (1.52)	12.09 (1.37)	11.70 (0.94)	12.05 (0.85)
Sexual behaviors with partner ⁴	3.66 (0.65)	2.44 (0.59)*	1.49 (0.89)	2.95 (0.81)*	3.74 (0.55)	3.65 (0.50)

Possible range of scores: ¹1 to 7; ²0 to 62; ³0 to 23; ⁴0 to 20.

*Indicates mean difference between time points is significant, $p < .05$.

Table 5. Estimated marginal means of primary outcomes by SIAD status and time, M (SE).

Outcome	SIAD		Non-SIAD	
	Pre-assessment	72 hours follow up	Pre-assessment	72 hours follow up
Approach sexual motivation ¹	4.66 (0.14)	4.34 (0.16)*	5.45 (0.12)	5.35 (0.13)
Avoidance sexual motivation ¹	3.95 (0.21)	3.71 (0.22)	2.43 (0.17)	2.01 (0.18)
Dyadic sexual desire ²	22.71 (1.73)	22.13 (1.78)	40.99 (1.41)	37.65 (1.45)
Solitary sexual desire ³	9.12 (1.09)	9.63 (0.98)	13.95 (0.89)	14.08 (0.80)
Sexual behaviors with partner ⁴	1.28 (0.64)	1.73 (0.58)	4.65 (0.52)	4.30 (0.47)

Possible range of scores: ¹1 to 7; ²0 to 62; ³0 to 23; ⁴0 to 20.

*Indicates mean difference between time points is significant, $p < .05$.

cisgender and transgender/non-binary SIAD participants in the approach condition and found that both gender groups responded with increased approach motivation. SIAD participants in the avoidance condition experienced a significant decrease in approach sexual motivation immediately following the manipulation. Regarding changes in avoidance sexual motivation, non-SIAD participants who wrote about an avoidance-motivated sexual encounter experienced a significant increase in mean avoidance sexual motivation immediately following the manipulation, while there were no significant changes in avoidance sexual motivation for non-SIAD participants in the approach and control conditions, nor for SIAD participants across conditions. Changes in sexual outcomes were assessed 72 hours following the writing task and we found that participants in the approach condition experienced a significant decrease in dyadic sexual desire and dyadic sexual behaviors. While those in the avoidance condition experienced a significant decrease in approach and avoidance sexual motivation, they also significantly increased in frequency of dyadic sexual behaviors 72 hours following the writing task. We also found that participants with SIAD experienced a significant decrease in approach sexual motivation 72 hours follow up regardless of the writing task condition they were assigned to.

Effect of Manipulation on Approach and Avoidance Motivation

Our findings that of those randomized to the approach condition, SIAD participants significantly increased in approach sexual motivation from pre-assessment levels supported our first hypothesis; however, non-SIAD participants in the approach condition experienced no significant changes in approach sexual motivation. This was contrary to Muise et al.'s (2017) finding, where a community-recruited sample with no sexual concerns who were assigned to a similar approach condition increased in approach sexual motivation. Failing to replicate increases in approach sexual motivation for non-SIAD participants might be due to differences in our samples, specifically our non-clinical sample being comprised of more diverse participants. The majority of participants (94.9%) in Muise et al.'s study were described as being in a mixed-sex relationship, while only 37.3% of non-SIAD participants identified as heterosexual in the current study. It is possible that the diversity in our non-SIAD sample obscured an effect of approach manipulation that would have been present in a more homogeneous sample. The manipulation used in the current study alone may not have been potent enough to further increase approach motivation for non-SIAD participants who were already significantly higher in approach motivation compared to SIAD participants at the pre-assessment timepoint. Those with SIAD who were in the approach condition may have had more room for improvement in their approach sexual motivation levels, leading to that group experiencing a significant increase in approach motivation. It is also possible that the manipulation was not as strong for non-SIAD participants in the current study given that the number of days since the described sexual encounter for non-SIAD participants was greater compared to those who participated in the Muise et al study, where participants had to have

been sexually active within the past four weeks. This might have implications for recommending memory retrieval exercises in treatment settings where recalling positive sexual experiences that are more recent might have better outcomes.

Of those randomized to the avoidance condition, SIAD participants decreased in approach sexual motivation (medium effect size) immediately following the manipulation but did not experience any changes in avoidance sexual motivation. Writing about an avoidance-motivated sexual encounter had a differential impact on participants without SIAD, who experienced a significant increase in avoidance motivation. This avoidance condition manipulation might elicit different emotional reactions in those with and without sexual concerns. Those with SIAD may have experienced greater negative emotions or cognitions that reduced incentive to pursue sex for positive reasons, while those without sexual concerns might have experienced greater anxiety around wanting to avoid potential consequences of not engaging in sexual activity with their partner. Better understanding of how focusing on a previous avoidance-motivated sexual encounter impacts affect, as well as thoughts about sex, might help us understand the nuances of how sexual motivation differs between those with and without sexual concerns. Improving our understanding of the impact that recalling avoidance-motivated sexual encounters might also have treatment implications for employing imaginal exposure (recalling details of a traumatic experience using vivid present tense language) in contexts where the sexual encounter is traumatic.

We also found that almost one-quarter of participants wrote about both approach and avoidance reasons for sex, primarily from the avoidance condition, resulting in exclusion from analyses. It is important to note this given that those in the avoidance condition also reported significantly greater writing difficulty compared to approach and control conditions, which was consistent with Muise et al.'s (2017) findings. A possible explanation may be that avoidance reasons for sex are not commonly pursued independently to approach reasons. Previous work has found that more than 90% of women with SIAD endorsed at least one approach reason for their last sexual encounter, while only 8% of women reported having no reasons or only avoidance reasons for sex (Jabs & Brotto, 2018). It might also be the case that participants had difficulty understanding the difference between approach and avoidance reasons for sex, especially if avoidance reasons are found to often be pursued with approach reasons for sex. These findings highlight the importance of psychoeducation for individuals seeking treatment for low sexual desire, specifically distinguishing what approach and avoidance reasons are for sex, soliciting the patient's own approach and avoidance reasons, and then considering how these reasons may impact outcomes related to sexual desire and behavior.

Effect of Sexual Motivation Manipulation on Sexual Outcomes

We hypothesized that participants randomized to the approach condition would show higher levels of sexual desire and partnered sexual behaviors at 72 hours following the manipulation, compared to the other two conditions, and of those

randomized to the approach condition, participants with SIAD would show greater improvements in these sexual outcome variables compared to non-SIAD participants. Contrary to our hypotheses, results indicated a significant interaction between SIAD status and time where participants with SIAD decreased in approach sexual motivation from pre-assessment to 72 hours follow up. A possible explanation may be that increases in approach motivation diminished by 72 hours following the assessment due to factors not assessed in this study, such as post-assessment rumination about sex, which has previously been found to have a direct effect on sexual distress (Pascoal et al., 2020). It may be that past approach-motivated encounters were incongruent with current sexual motivation or sexual experiences for those with SIAD. Time to reflect on the current state of one's sexual motivation may have negatively impacted approach sexual motivation. It might also be the case that for SIAD participants the outcome of the described sexual encounter was not motivating enough. The Incentive Motivation Model (IMM) proposes that incentive is consolidated and maintained partially by the consequences of the sexual encounter (Toates, 2009). Recalling a sexual encounter that was motivated by approach reasons paradoxically increased approach motivation in the short term, but decreased it 72 hours later.

Contrary to our hypothesis, those in the approach condition did not experience significant improvements in sexual outcomes and instead experienced significant decreases in dyadic sexual desire and dyadic sexual behaviors. This finding might suggest that while approach reasons for sex are correlated with better sexual outcomes (Impett et al., 2005; Muise, 2017), sexual motivation might not be the most important aspect within the sexual response cycle with respect to impacting sexual outcomes. A previous qualitative study, which assessed approach and avoidance reasons for sex in a group of women with SIAD, found that while more than 90% of women endorsed at least one approach reason for their last sexual encounter, almost one-third reported that their reasons for sex were not motivating enough, and 45% of women reported a lack of sexual desire in their last sexual encounter (Jabs & Brotto, 2018). Both approach and avoidance sexual motivation decreased 72 hours following the manipulation for those who wrote about an avoidance motivated sexual encounter, while dyadic sexual behaviors increased for this group, regardless of SIAD status. Observing decreased sexual motivation while seeing increased sexual behaviors has implications for perpetuating sexual concerns given our understanding of how unwanted and unsatisfying sexual encounters influence motivation for future sexual encounters (Toates, 2009).

Potential Implications

We found a temporary increase in approach motivation after an approach manipulation in participants with SIAD, and it is possible that immediately prior to a planned sexual encounter those with SIAD might attend to approach reasons for sex in an effort to improve their approach motivation during the impending encounter. In line with this speculation, in one study when participants focused on their sexual ideals rather

than their duties or obligations, this facilitated an open processing style of sexual stimuli that was directed toward positive outcomes and rewards (Dewitte & Kindermans, 2021). The IMM posits that both experience and imagination play a role in triggering sexual response (Toates, 2009).

For individuals without sexual concerns, we found that eliciting negative (i.e., avoidance) reasons for sex triggered avoidance motivation. This suggests that individuals without sexual difficulties should not use avoidance motivations for sex, such as having sex out of obligation or solely to please a partner, as it directly and negatively impacts their motivation. Overall, the study should be replicated and extended in the future to larger clinical samples. Further research could explore how sex education programming might include information about the benefits associated with approach motivation and the consequences of avoidance motivation.

Strengths and Limitations

The current study had a number of strengths, including an experimental design that included both a control condition as well as a non-clinical sample of participants, which allowed us to directly compare the impact of manipulating sexual motivation on sexual outcomes for those with and without sexual concerns. The current study also assessed the impact of the manipulation at a 72 hour follow-up timepoint, which allowed us to determine whether the manipulation had any lasting effects on sexual motivation and whether it impacted sexual desire and sexual behaviors. We also sought to expand SIAD research to transgender and non-binary individuals, which has implications for supporting the applicability of SIAD to these populations.

One limitation of the current study was that despite our significant efforts to recruit a gender diverse sample, we had a small sample of transgender and non-binary participants, particularly those with SIAD. While a community advisory board was established to improve recruitment of transgender and non-binary participants, future studies would benefit from more collaboration, such as working with patient partners, in order to better recruit gender-diverse individuals with sexual concerns. Another limitation of the current study was that we did not assess who participants wrote about in the writing task. Whether participants wrote about a current or past sexual partner may have impacted the manipulation or even potentially explain the decreases in sexual motivation, dyadic sexual desire, and partnered sexual behaviors at 72 hours follow up. Future studies should take this into account to better understand the context of these described sexual encounters. Future work could also examine the impact of applying a sexual motivation manipulation to couples with sexual concerns to better understand the interpersonal component of approach and avoidance sexual motivation and its impact on sexual outcomes. Partners of individuals with sexual concerns might benefit from increasing approach sexual motivation given that previous work has found that partners of individuals with SIAD reported poorer sexual communication, lower sexual satisfaction, orgasmic and erectile concerns, and higher sexual distress compared to those whose partners did not have SIAD (Rosen et al., 2019). Lastly, while participants

were unaware of the study's goal to manipulate sexual motivation, we did not assess potential demand characteristics, which might have impacted our findings.

Conclusions

To our knowledge, the current study was the first to test a manipulation of sexual motivation in a sample of individuals with SIAD, as well as the first study to replicate previous work that experimentally increased the salience of approach-avoidance sexual motivation. The study was also the first to examine the relationship between approach-avoidance sexual motivation, sexual desire, and sexual behaviors in a sample of transgender women and non-binary individuals with and without SIAD. This has implications for better understanding sexual concerns in gender diverse individuals, who have been excluded from previous work on sexual concerns. This study showed that approach motivation could be experimentally increased in a sample with SIAD, which raises questions about how this manipulation might be adapted to further improve its treatment utility for long-term improvements in sexual wellbeing.

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