

## ACCEPTED MANUSCRIPT

**Sex-specific need fulfillment in relationships and sexual and relationship wellbeing**

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### **Abstract**

Sexual activity can provide important opportunities for fulfilling experiences that contribute to greater relationship satisfaction and overall well-being, yet young adults are reporting fewer partnered sexual interactions. According to self-determination theory, when people perceive their needs for autonomy, competence, and relatedness are met in relationships, they report greater relationship and sexual well-being, whereas need frustration contributes to relationship dysfunction and dissatisfaction. In the current cross-sectional study, the authors extend these ideas to a sexual context. They hypothesized that sex-specific need satisfaction would be associated with higher sexual desire, sexual satisfaction and relationship satisfaction and lower sexual distress beyond that of general need satisfaction within one's relationship. They expected opposite associations for sex-specific need frustration. Partnered individuals aged 18–29 (N = 197) completed online measures of sexual and relationship need satisfaction and frustration, sexual desire, sexual and relationship satisfaction, and sexual distress. Controlling for need satisfaction within the relationship, which was associated with higher desire and satisfaction, multivariate regression analyses indicated that sex-specific need satisfaction was associated with higher sexual desire, higher sexual and relationship satisfaction, and lower sexual distress. Furthermore, sex-specific need frustration was associated with higher sexual distress. While need satisfaction in one's relationship and sex life may have benefits for sexual desire and sexual and relationship satisfaction, promoting need satisfaction and minimizing need frustration specific to sex may be helpful in minimizing sexual distress. Implications for researchers and clinicians

highlight the importance of distinguishing between psychological need satisfaction (and frustration) across different relational contexts.

Keywords: relationship well-being, sex-specific need fulfillment, sexual distress, sexual satisfaction, sexual well-being

**Sex-specific need fulfillment in relationships and sexual and relationship wellbeing**

The frequency of sexual activity among young adults has shown significant declines in recent years (Herbenick et al., 2022), with some suggestion that these declines are due to competing interests and increased stress as a result of juggling leisure, work, and romantic relationships, lower income, and increased online entertainment (Ueda et al., 2020). This decline is particularly concerning as both an interest in having sex (e.g., sexual desire) and the quality of that sex (e.g., sexual satisfaction and distress) play a large role in psychological and physical health, and relationship maintenance (Diamond & Huebner, 2012; Lindau & Gavrilova, 2010; Muise et al., 2010; Metz & McCarthy, 2007), and are key characteristics of sexual wellbeing. Sexual desire, or the interest in engaging in sexual activity, plays an important role in maintaining satisfying sexual relationships for couples and is associated with partner satisfaction, general affect, relationship quality, health-related quality of life, and general wellbeing (Parish & Hahn, 2016). Similarly, sexual satisfaction, or one's subjective evaluation of one's sexual relationship, has a significant impact on relationship satisfaction and commitment (Sprecher, 2002). On the other hand, sexual distress, defined as concerns or negative emotions about sex, is associated with greater symptoms of depression and anxiety, more negative moods, and in terms of sexuality and relationships, lower sexual satisfaction, poorer sexual functioning, and lower relationship quality (DeRogatis et al., 2008; Santos-Iglesias et al., 2020). Given the impact of sexual desire, satisfaction, and distress on sexual and relational wellbeing, it may be the case that the competing interests/demands of modern life (i.e., increased work hours, online entertainment) place undue pressure on sexual interactions rendering it less fulfilling. In fact, research grounded in self-determination theory has found that when partnered individuals engage in sex in order to relieve some external pressure, they often report greater sexual distress, and

poorer sexual satisfaction and desire (Gravel et al., 2016). Further, in the context of romantic relationships, self-determination theory suggests that fulfilling the basic psychological needs for autonomy, competence, and relatedness, has been associated with greater relationship and sexual wellbeing, whereas frustration of these needs contributes to relationship dysfunction and dissatisfaction (Ryan & Deci, 2014). Despite significant associations between need satisfaction and frustration within one's relationship and sexual and relational wellbeing, there has been limited research on the impact of satisfaction or frustration of the needs for autonomy, competence, and relatedness within sexual experiences. Given the importance of fulfilling sexual experiences on sexual and relational wellbeing, satisfaction/frustration of the basic psychological needs within sexual interactions may provide additional insights into sexual and relational wellbeing, beyond that of need satisfaction/frustration in the relationship more generally. As such, this study examined the associations between the psychological needs for autonomy, competence, and relatedness, applied to sexual desire, sexual and relationship satisfaction, and sexual distress.

### **Self-Determination Theory**

Self-determination theory posits that there are three basic psychological needs – *autonomy, competence, and relatedness* – that, together, must be satisfied in order for individuals to experience psychological growth and wellbeing (Ryan & Deci, 2000). *Autonomy* refers to the extent to which people perceive their behaviours to be volitional and functions as the vehicle through which other basic needs are fully actualized, *competence* refers to the need to feel efficacious in one's pursuits, and *relatedness* refers to the need to feel a sense of belonging and to be perceived as significant by others. These three basic psychological needs can be satisfied or frustrated by one's social environment which impacts the quality of their motivation for the

activity, and subsequent emotional, cognitive, and behavioural outcomes (Vallerand, 1997). Therefore, when people feel they are acting with volition, efficacy, and significance they experience greater intrinsic motivation for the activity *and* greater psychological wellbeing (Ryan & Deci, 2000). However, if people feel that they must behave a certain way due to some external pressure, are not confident in their abilities, or think that their actions are insignificant to those around them, they experience greater psychological distress. When applied to relationships and sexuality, satisfaction of the basic psychological needs is associated with higher quality relationships and more positive sexual experiences (Brunell & Webster, 2013; Gravel et al., 2020).

### ***Romantic Relationships***

In romantic relationships, partners play a large role in supporting or thwarting each other's basic psychological needs. Specifically, behaviours that support partners' needs for autonomy, competence, and relatedness have been linked to higher quality relationships, and greater relationship satisfaction, wellbeing, and future engagement, whereas behaviours that thwart these needs contributes to relationship dysfunction and distress, and greater relationship dissatisfaction and illbeing (Deci & Ryan, 2000; Costa et al., 2015). A series of three studies examining the role of need fulfillment on relationship functioning and wellbeing identified that satisfaction of the basic psychological needs uniquely predicted both individual and relationship wellbeing (Patrick et al., 2007). In contrast, a cross-sectional study identified that frustration of the basic psychological needs predicted negative relationship experiences, such as feelings of insecurity and anxiety about a partner's approval of themselves (Costa et al., 2015). This latter finding is particularly compelling in light of research that purports the significance of differentiating between a lack of need satisfaction (i.e., unsupported needs) and need frustration

(i.e. undermined needs), arguing that need frustration actively contributes to illbeing (Bartholomew et al., 2011). To date, research has focused largely on the effects of need satisfaction, while neglecting the role of need frustration, therefore leaving a major gap in our understanding of the factors that contribute to well/illbeing in relationships.

### *Sexual Experiences*

In one of the first series of studies applying basic psychological needs to sexual behaviours, a 3-week daily diary study found that when individuals experienced greater need satisfaction during sexual interactions, they were more sexually satisfied and relaxed, and felt less regret and guilt about the sexual interaction (Smith, 2007). Further, in a series of cross-sectional and daily diary studies, researchers identified that satisfaction of the needs for autonomy, competence, and relatedness within sexual experiences specifically, was associated with greater psychological wellbeing (i.e., self-esteem, more positive affect and less negative affect, vitality, and life satisfaction) and relational quality (i.e., relationship satisfaction, affection expression, commitment, and closeness; Brunell & Webster, 2013). Moreover, a 21-day daily survey identified that on days when couples engaged in need-supportive behaviours, they reported higher sexual satisfaction, more positive sexual affect, and less negative sexual affect (Gravel et al., 2020). Given the importance of need satisfaction on the quality of motivation (Vallerand, 1997), it is surprising that there are no studies, to our knowledge, that assess the impact of need satisfaction on an individual's interest in sexual activity (i.e., sexual desire). A cross-sectional study by Gravel and colleagues (2016) found significant associations between the quality of one's motivation and sexual desire, suggesting that the basic psychological needs may be an important factor relating to sexual desire. To date, studies have focused only on need satisfaction, while neglecting to consider the consequences of need frustration for sexual

wellbeing. Particularly, it will be important to assess the impact of sexual need frustration on sexual distress as need frustration both generally and in relationships has been linked to psychological and relational distress (Ryan & Deci, 2000; Bartholomew et al., 2011; Costa et al., 2015).

### *The Hierarchy*

Central to examining self-determination theory across multiple domains is the hierarchical model of intrinsic and extrinsic motivation (HMIEM; Vallerand, 1997). The HMIEM specifies that more specific levels of motivation and need satisfaction are nested within their more global levels, as such these levels are associated with one another and their outcomes, but specific motivations will share a stronger relationship with their respective outcomes (Vallerand, 1997). For example, if an individual's needs for autonomy, competence, and relatedness are being satisfied within their relationship, they are more likely to adopt autonomous motives for engaging in relationship behaviours, which will be positively associated with relational wellbeing. Simultaneously, their autonomous motivation for engaging in relationship behaviours is likely to affect their motivation for more specific levels such as sexual activity. Therefore, when an individual is autonomously motivated in their relationship, they are also more likely to endorse autonomous motives for engaging in sexual behaviours and subsequently demonstrate greater sexual wellbeing. Previous research has examined associations between sexual and relational experiences without consideration for antecedents (need satisfaction/frustration) within the same domain – either considering the associations of sexual needs on relational wellbeing (Brunell & Webster, 2013), or examining the associations of relational needs on sexual wellbeing (Gravel et al., 2020). While this previous research provides valuable information on the importance of basic psychological need satisfaction for wellbeing

(across sexual and relational experiences), it does not disentangle the complex relationship between sexual and relational experiences on constructs. Meaning that we cannot presume that the satisfaction of the psychological needs within a relationship (more globally) is associated with specific indicators of sexual wellbeing (i.e., more sexual desire and satisfaction, and less sexual distress), or vice versa. Further, there are no studies, to our knowledge, that assess the associations of *both* need satisfaction and frustration with sexual and relational wellbeing (e.g., satisfaction, desire, distress), and more specifically, sexual desire and distress. As such, the current study intended to address this gap, by examining the unique associations of sexual and relational need satisfaction and frustration on sexual desire, satisfaction, and distress, and relationship satisfaction.

### **The Current Study**

In the current cross-sectional study, we examined the satisfaction and frustration of the basic psychological needs (autonomy, competence, and relatedness) within a sexual context among a sample of emerging adults. Specifically, we investigated the associations of sexual need satisfaction *and* frustration with sexual desire, satisfaction and distress, and relationship satisfaction, while accounting for the associations between need satisfaction/frustration within romantic relationships and sexual frequency. We hypothesized that beyond need satisfaction in one's romantic relationship and controlling for sexual frequency, *sex-specific* need satisfaction would be associated with higher sexual desire, sexual satisfaction and relationship satisfaction and lower sexual distress. In contrast, we expected that beyond the contributions of relational need frustration and sexual frequency, *sex-specific* need frustration would be associated with lower sexual desire, sexual satisfaction and relationship satisfaction and higher sexual distress.

### **Methods**

## Participants

Participants were recruited from the \*masked for review\* Integrated System of Research Participation from October 2022 through February 2023 to participate in a 2-part research project. To be eligible participants were required to be at least 18 years of age, in a committed relationship for at least 3 months, sexually active in the last of 6 months, and fluent in English. A total of 369 partnered undergraduate research participants signed up to complete the study. Of the participants that signed up for the study, 222 participants completed the survey. An additional 21 participants were removed from the final analysis due to two or more failed attention checks per survey ( $n = 16$ ) or incomplete key measures ( $n = 5$ ). Finally, consistent with the present study's focus on emerging adults, 4 participants were removed from the final analysis because they fell outside the age range of an emerging adult (i.e., 18-29). Therefore, the final sample from this study was 197 participants with valid and complete data.

Our final sample was primarily White ( $n = 146$ ) though there were participants in the sample who identified as Black, East Asian, Latin American, Middle Eastern, South Asian, and Southeast Asian. Although the sample was inclusive of gender- and sex-diverse individuals, our sample were largely cisgender ( $n = 190$ ; 3 individuals were unsure), heterosexual ( $n = 135$ ; 7 identified as lesbian, 16 identified as mostly heterosexual, 4 identified as pansexual, and 1 identified as asexual), and women ( $n = 161$ ; 34 identified as men, 3 identified as non-binary, and 1 identified as gender-fluid). Relationship length ranged from 3 to 108 months with the average length of 23.8 months. Participant demographics are listed in Table 1.

## Procedure

This study was part of a larger study, assessing the effects of autonomous motivation on psychological, sexual, and relational wellbeing. A required sample size of at least 86 participants

was determined using the “*pwr*” package in R Studio 4.0.0., for the multivariate regression models. Partnered undergraduate participants completed an initial screening form to gain access to the study. If eligible, participants enrolled themselves in the study and were granted access to the survey through an anonymous link. Participants completed an initial baseline survey and a second follow-up survey one week later. Each participant received 1 credit, per survey that could be used towards their course grades (1 credit = 1% grade increase). Data for the present study were provided from the baseline survey. Study measures and syntax are available on the Open Science Framework (OSF):

[https://osf.io/mcnb2/?view\\_only=d7b67d87a2114cadb1a7d71e6f1ccf41](https://osf.io/mcnb2/?view_only=d7b67d87a2114cadb1a7d71e6f1ccf41)

### **Measures**

**Sociodemographics.** Participants self-reported their age, gender, sexual orientation, race/ethnicity, relationship status and length, religion, employment status, and menopause status.

**Sexual frequency.** The Sexual Behaviours Questionnaire (SBQ) was developed for use as a descriptive variable and used in previous research assessing sexual outcomes (see Corsini-Munt et al., 2020; Muise et al., 2018, 2017). We utilized two items from the SBQ that assess how often in the last 4-weeks participants engaged in sexual activity (i.e., partnered sexual activity including oral sex, manual stimulation, and sexual intercourse, or solo sexual activity such as masturbation) on a 7-point scale (0 *Not at all*; 1 *once or twice*; 2 *once a week*; 3 *two to three times a week*; 4 *four to five times a week*; 5 *once a day*; 6 *more than once a day*). Scores are summed and range from 0 to 12, with higher scores indicating higher frequency and variability of sexual behaviour and lower scores indicating lower frequency and variability of sexual behaviour.

**Sexual desire.** The Sexual Desire Inventory (SDI-II; Spector et al., 1996) is a 14-item measure of sexual desire (interest in or wish for sexual activity). Participants rate items according to how each question best represents their thoughts and feelings on an 8-point Likert scale from 0 (*no desire, or much less desire*) to 8 (*strong desire, or much more desire*). Scores on sexual desire range from 0 to 112 with higher scores indicating higher sexual desire. Cronbach's alpha for sexual desire was .83.

**Sexual satisfaction.** The Global Measure of Sexual Satisfaction (GMSEX; Lawrence & Byers, 1995) is a 5-item measure used to assess sexual satisfaction. Participants selected the number that best described their sexual relationship on a 7-point bipolar scale (e.g., *very bad – very good; unsatisfying – satisfying*). Scores range from 5 to 35 with higher scores indicating greater sexual satisfaction. Cronbach's alpha was .91.

**Sexual distress.** The Female Sexual Distress Scale - Revised (FSDS-R; DeRogatis et al., 2008) is a 13-item measure that uses gender neutral language and was used to assess sexual distress. Participants rated how they experience an emotion or sexuality related problem on a 5-point Likert scale from 1 (*never*) to 5 (*always*). Scores ranged from 13 to 65 with higher scores indicating greater sexual distress. Cronbach's alpha was .93.

**Relationship satisfaction.** The Couple Satisfaction Index (CSI-16; Funk & Rogge, 2007) is a 16-item measure used to assess relationship satisfaction. Participants rated their satisfaction with their current relationship on a 6-point scale (0 *Not at all true* to 5 *Completely true*). Scores ranged from 0 to 82 with higher scores indicating higher levels of relationship satisfaction and lower scores suggesting relationship dissatisfaction. Cronbach's alpha was .95.

**Relationship needs.** The Interpersonal Behaviours Questionnaire (IBQ; Rocchi et al., 2016) is a 24-item measure used to assess basic psychological need satisfaction and frustration,

grounded in self-determination theory (SDT), within romantic relationships. Participants rate the extent to which their partner supports (e.g., “*My partner supports my decisions.*”) or thwarts (e.g., “*My partner pressures me to do things their way.*”) their basic psychological needs on a 7-point Likert scale from 1 (*do not agree at all*) to 7 (*agree completely*). Scores ranged from 12 to 84 for need satisfaction and need frustration with higher scores indicated higher satisfaction or frustration, respectively. Cronbach’s alpha was .88 for relationship need satisfaction and .83 for relationship need frustration.

**Sexual needs.** The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015) was adapted for sexual experiences. Given that need satisfaction and frustration in the context of sexuality has not previously been measured, we conducted an exploratory factor analysis with our sample following the best practices outlined for sexuality research (Sakaluk & Short, 2017). This exploratory factor analysis aligned with the six-factor structure consistent with self-determination theory. The 6-factor model demonstrated good model fit ( $\chi^2_{(147)} = 244.415, p < .001$ , Root Mean Square Error of Approximation [RMSEA] = .05 [90% Confidence Interval (CI) {.04, .07}], Standardized Root Mean Square Residual [SRMR] = .03, Comparative Fit Index [CFI] = .96, Tucker-Lewis Index [TLI] = .92). The adapted scale (BPNSFS-Sex) is a 24-item measure that assesses the extent to which participants experience satisfaction and/or frustration of autonomy, competence, and relatedness within sexual experiences. Participants rate the extent to which each statement is true for them on a 5-point Likert scale from 1 (*not true at all*) to 5 (*completely true*). An example item for satisfaction of autonomy was, “*I feel my sexual choices express who I really am*”, whereas frustration of autonomy was, “*Most of the sex I have feels like “I have to”.*”. Due to their generally useful and unique associations with wellbeing and illbeing (see Chen et al., 2015), items were collapsed into

two subscales – need satisfaction and need frustration. Scores ranged from 12 to 60 for need satisfaction and need frustration with higher scores indicated higher satisfaction or frustration, respectively. Cronbach’s alpha was .82 for sexual need satisfaction and .79 for sexual need frustration.

**Insufficient effort responding (IER).** IER is the inattentive, inconsistent, or random responding to test/survey items. The current study used direct screening methods (e.g., 3 attention check items per survey), and archival screening methods (e.g., response times) to detect insufficient effort in participant responses. Attention check questions included fully transparent items (e.g., “This is an attention check. Please select option 4.”) and less transparent items (e.g., “This is an attention check question. Please indicate your agreement with the following statement: I can teleport across time and space.”). Participants who did not correctly complete at least 2 out of the 3 attention check items per survey or completed the survey with an average time spent is less than 2 seconds per question (as determined by Huang et al., 2012) were removed from the study.

### **Data Analysis**

Analyses were conducted using RStudio 4.0. Due to the lack of diversity in the sample analyses did not group participants based on sociodemographic characteristics (e.g., age, gender, sexual orientation, relationship duration, etc.), with the exception of sexual frequency which has known associations with sexual wellbeing (Muisse et al., 2016). Bivariate correlations between potential covariates (e.g., sexual frequency, relationship need satisfaction and frustration) and outcomes (i.e., sexual need satisfaction and frustration, sexual desire, sexual satisfaction, relationship satisfaction, and sexual distress) were examined using a two-tailed significance test. The associations between sexual need satisfaction and frustration and sexual wellbeing and

relationship satisfaction, controlling for relationship need satisfaction and frustration and sexual frequency<sup>1</sup>, were analyzed using multivariate regression analysis. Coefficients (*b*) are unstandardized and can be interpreted as the change in the dependent variable for every one-unit change in the participant's average predictor value. All variables were included in the model simultaneously to highlight the unique contributions of sexual need satisfaction and frustration on sexual wellbeing and relationship satisfaction beyond relationship need satisfaction and frustration and sexual frequency.

## Results

### Descriptive Analyses and Intercorrelations

Descriptive analyses for all variables are reported in Table 2. Participants on average reported high sexual need satisfaction ( $M = 16.40$ ,  $sd = 2.08$ , range: 10-20) and low sexual need frustration ( $M = 5.67$ ,  $sd = 1.58$ , range: 4-11). Similar reports are seen for relationship need satisfaction and frustration ( $M = 24.90$ ,  $sd = 2.81$ , range: 17-28, and  $M = 5.93$ ,  $sd = 2.03$ , range: 4-11, respectively). For outcome measures, participants reported moderate levels of sexual desire ( $M = 57.86$ ,  $sd = 14.64$ , range: 20-99), high sexual satisfaction ( $M = 30.70$ ,  $sd = 4.47$ , range: 18-35), low sexual distress ( $M = 20.70$ ,  $sd = 9.84$ , range: 13-46), and moderate relationship satisfaction ( $M = 70.05$ ,  $sd = 9.84$ , range: 37-81). Bivariate correlations for all variables are reported in Table 3.

### Sexual Desire

As reported in Table 4, multivariate regression analysis indicated that both satisfaction and frustration within the relationship and sex-specific need satisfaction were associated with sexual desire,  $R^2 = 0.38$ ,  $F(5, 191) = 22.3$ ,  $p < .001$ . Specifically, participants who reported more

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<sup>1</sup> When sexual frequency is excluded from the model, all associations remain significant with the exception of the effect of relationship need satisfaction and frustration on sexual desire.

relationship need satisfaction demonstrated higher levels of sexual desire ( $b = 0.84, t(191) = 2.0, p = .048$ ). Conversely, participants who reported more relationship need frustration demonstrated higher levels of sexual desire ( $b = 1.18, t(191) = 2.06, p = .041$ ). Beyond relationship needs, participants who reported more sexual need satisfaction demonstrated higher levels of sexual desire ( $b = 1.3, t(191) = 2.34, p = .021$ ). Further, higher frequency of sexual activity was associated with higher sexual desire ( $b = 3.7, t(191) = 8.46, p < .001$ ). No significant associations were found between sexual need frustration and sexual desire.

### **Sexual Satisfaction**

As reported in Table 4, multivariate regression analysis indicated that relationship need satisfaction and frustration and sex-specific need satisfaction was associated with sexual satisfaction,  $R^2 = 0.46, F(5, 191) = 32.6, p < .001$ . Specifically, participants who reported more relationship need satisfaction demonstrated higher levels of sexual satisfaction ( $b = 0.25, t(191) = 5.39, p = .037$ ). Participants who reported more relationship need frustration demonstrated lower levels of sexual satisfaction ( $b = -0.49, t(191) = 2.06, p = .003$ ). Beyond relationship needs, participants who reported more sexual need satisfaction demonstrated higher levels of sexual satisfaction ( $b = 2.84, t(191) = 5.39, p < .001$ ). Finally, higher frequency of sexual activity was associated with higher sexual satisfaction ( $b = 0.2, t(191) = 2.02, p = .045$ ). No significant associations were found between sexual need frustration and sexual satisfaction.

### **Sexual Distress**

As reported in Table 4, multivariate regression analysis indicated that sex-specific need satisfaction and frustration were associated with sexual distress,  $R^2 = 0.50, F(5, 191) = 38.7, p < .001$ . Specifically, participants who reported more sexual need satisfaction demonstrated lower levels of sexual distress ( $b = -0.56, t(191) = -2.11, p = .036$ ), while participants who reported

more sexual need frustration demonstrated higher levels of sexual distress ( $b = 2.8$ ,  $t(191) = 8.55$ ,  $p < .001$ ). No significant associations were found between relationship need satisfaction or frustration or sexual frequency and sexual distress.

### **Relationship Satisfaction**

As reported in Table 4, multivariate regression analysis indicated that both satisfaction and frustration within the relationship and sex-specific need satisfaction were associated with relationship satisfaction,  $R^2 = 0.555$ ,  $F(5, 191) = 47.7$ ,  $p < .001$ . Specifically, participants who reported more relationship need satisfaction demonstrated higher levels of relationship satisfaction ( $b = 1.46$ ,  $t(191) = 6.16$ ,  $p < .001$ ), while participants who reported more relationship need frustration demonstrated lower levels of relationship satisfaction ( $b = -1.2$ ,  $t(191) = -3.83$ ,  $p < .001$ ). Beyond relationship needs, participants who reported more sexual need satisfaction demonstrated higher levels of relationship satisfaction ( $b = 1.3$ ,  $t(191) = 4.06$ ,  $p < .001$ ). No significant associations were found between relationship need frustration or sexual frequency and relationship satisfaction. The full multivariate regression model is shown in Figure 1.

### **Discussion**

This study assessed the associations between relational and sexual need satisfaction and frustration on sexual and relational wellbeing in emerging adults. Specifically, results revealed that beyond the effects of need satisfaction and frustration within one's relationship – which were associated with sexual desire, and sexual and relationship satisfaction – need satisfaction for autonomy, competence, and relatedness within sexual experiences was associated with higher sexual desire, sexual and relationship satisfaction, and lower sexual distress. Conversely, higher sexual need frustration was only associated with higher sexual distress.

Controlling for sexual frequency, and consistent with our predictions, when individuals felt their needs for autonomy, competence, and relatedness were satisfied in their sexual experiences, they reported more sexual desire, sexual satisfaction and relationship satisfaction, and less sexual distress. Moreover, these effects were sustained even when accounting for need satisfaction and frustration within relationships more broadly, demonstrating the added value of considering sex-specific need satisfaction and frustration in sexual and relational wellbeing. These results are in line with research demonstrating that greater need satisfaction is associated with more positive and less negative sexual, and relational outcomes (Smith, 2007; Brunell & Webster, 2013; Gravel et al., 2020). When emerging adults' needs for autonomy, competence, and relatedness are satisfied during their sexual experiences, it may encourage greater interest in sexual activity with that partner. Further, when individuals feel more autonomous in their sex-lives, feel good at sex, and feel close to their partner it may contribute to more satisfying and less distressing sexual experiences and promote greater satisfaction in the relationship as a whole. Indeed, a cross-sectional study of young adults indicated that sexual satisfaction was a significant correlate of relationship satisfaction in both men and women (Józefacka et al., 2023), demonstrating the importance of understanding factors that contribute to better quality sexual interactions. Since this research is cross-sectional, it is also possible that when emerging adults are more sexually satisfied, have an interest in sexual activity, are satisfied in their relationship with their partner, and/or are less sexually distressed, they are more likely to perceive their partner's behaviours as need-supportive, and as such feel that their basic psychological needs are being satisfied during sexual experiences.

In contrast, when individuals felt their needs for autonomy, competence, and relatedness were frustrated in their sexual experiences, they reported more sexual distress. These results are

in line with research demonstrating that need frustration is a better predictor of illbeing than low need satisfaction (Bartholomew et al., 2011a, b; Costa et al., 2015). Therefore, when emerging adults' feel their needs for autonomy, competence, and relatedness are frustrated within their sexual experiences, it may contribute to sexual experiences that are distressing (i.e., expressed as feelings of guilt, frustration, or stress/worry about their sexual activity). However, due to the cross-sectional nature of this study, it is also possible that when emerging adults are more sexually distressed, they are more likely to feel as though their basic needs during sexual experiences are being frustrated or thwarted by their partner.

We found no significant associations between sexual need frustration and sexual desire, sexual satisfaction, or relationship satisfaction. These findings were unexpected given that basic psychological need frustration has been previously associated with impaired relational functioning (Costa et al., 2015). However, it may be the case that when individuals' needs for autonomy, competence, and relatedness are frustrated, it is not associated in a decrease in overall sexual desire, but rather shifts the object of their sexual desire from their partner to themselves (solitary sexual desire) or to another (desire for attractive others). Indeed, research on sexual activity among couples highlights that when sexual advances are thwarted, people often turn away from their partner and towards alternative modes of sexual expression (e.g., porn, masturbation; Murray, 2019; Peixoto & Lopes, 2023; Murray et al., 2012). Alternatively, self-determination theory identifies that basic psychological need satisfaction/frustration impacts the *quality* of individuals' motivation rather than the degree of interest (Ryan & Deci, 2000). As such, it may be the case that when sexual needs are frustrated, individuals maintain their desire to engage in sex, but their reasons may become less autonomously motivated (e.g., engaging in sex so as not to upset their partner, rather than for their own enjoyment or pleasure). Further, despite

the significant negative correlation between need frustration during sexual experiences and sexual satisfaction, in the overall model, need frustration was not associated with sexual satisfaction. Since, the current sample displayed high levels of need satisfaction and low levels of need frustration during sexual interactions, it may be the case that the association between need satisfaction and sexual satisfaction was more relevant than that of need frustration. Finally, the lack of significant association between sexual need frustration and relationship satisfaction may be a result of the more salient impact of relationship need satisfaction/frustration on relationship satisfaction. When accounting for relationship need satisfaction/frustration, sexual experiences that frustrate one's basic psychological needs may not play a large role in how satisfied an individual is in their relationship as a whole. Indeed, Vallerand's hierarchical model (1997), specifies that while there is a reciprocal relationship between one's situational and contextual motivations – that impact subsequent emotional, cognitive, and behavioural outcomes – the needs for autonomy, competence, and relatedness in one's relationship should play a larger role in one's relationship satisfaction, than their needs within any given sexual experience.

Given the aforementioned decline in sexual frequency among emerging adults, results from this study point to the value of having one's basic psychological needs for autonomy, competence, and relatedness supported (and not thwarted) within sexual experiences *in addition* to need support (and lack of thwarting) within the relationship. In prioritizing sexual experiences where one's sexual needs are supported, one might derive more satisfaction, desire, and fulfillment from those experiences. As such, results may inform sexual education programming intended to help promote fulfilling sexual experiences.

### **Strengths and Limitations**

This study contributes to the growing body of research on self-determination theory, and more specifically basic psychological need satisfaction and frustration within the field of sexuality. This is one of the first studies to our knowledge that assesses basic psychological need satisfaction *and frustration* in the context of sexual experiences. Moreover, this study not only looked at need satisfaction/frustration in sexual interactions but also assessed their strength alongside need satisfaction and frustration within romantic relationships, providing important insights into the importance of sexual need fulfillment for both sexual wellbeing and relationship satisfaction, beyond that of need fulfillment in the relationship. Findings from this study extend our knowledge of self-determination theory and basic psychological need satisfaction and frustration as they pertain to sexual experiences. As such, future applications of this work may provide an informational guide on the specific behaviours that satisfy and frustrate partners' basic psychological needs in the context of sexual interactions, which may be particularly valuable in sexual education and therapeutic settings to aid in the development of healthy sexual relationships.

This study, however, is not without its limitations. First, due to the cross-sectional nature of the study, we cannot make causal interpretations. While self-determination theory posits that basic psychological need satisfaction/frustration is a necessary condition of the environment that predicts greater wellbeing/illbeing (respectively), the nature of the current study cannot determine whether this is the case. It may be that when individuals experience greater sexual wellbeing/illbeing their sexual needs are more likely to be satisfied/frustrated. For example, greater sexual satisfaction may allow individuals to feel more connected with their partner, better at sex, and more in-control of their sexual wellbeing. Future research may consider use of an experimental design to further examine whether priming sexual need satisfaction/frustration

impacts sexual wellbeing. Second, individuals who are in more sexual distress may be less likely to participate in research assessing sexual wellbeing (Dawson et al., 2019), therefore the sample may be biased to include individuals who are in more satisfying sexual relationships. Third, this sample is comprised of undergraduate students between the ages of 18-29, with most participants identifying as White, cisgender and heterosexual, thereby limiting the generalizability of the findings. Future work should aim to assess sexual need satisfaction and frustration in a more diverse sample, or more specifically in minority samples or older couples to gain additional insight into the sexual need satisfaction and frustration and sexual wellbeing/illbeing. This means designing studies using targeted sampling of populations and providing a safe and comfortable environment from which to participate in this research. Additionally, future research may wish to extend the current study to couples, assessing the interdependent relationships between supporting and thwarting couples' sexual needs and their ensuing effects on sexual wellbeing.

### **Conclusions**

The purpose of this study was to examine the associations of basic psychological need satisfaction and frustration applied to sexual experiences with indicators of sexual wellbeing and relationship satisfaction in a sample of emerging adults. Results of this study identified that beyond the effects of relationship need satisfaction and frustration, sex-specific need satisfaction and frustration have specific implications for sexual wellbeing and relationship satisfaction among emerging adults. Specifically, sexual need satisfaction was associated with higher sexual desire, sexual and relationship satisfaction, and lower sexual distress. Further, sexual need frustration was associated with lower sexual satisfaction and higher sexual distress. We did not find support for hypothesized associations for sexual need frustration and sexual desire or relationship satisfaction. Overall, our results highlight the importance of distinguishing between

psychological need satisfaction (and frustration) that can occur more broadly in the romantic relationship and that which can occur within sexual experiences.

### **Declarations**

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#### **Conflicts of interest/Competing interests**

No potential conflict of interest was reported by the authors.

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**Table 1***Participant characteristics*

		<i>Mean (range)</i>	<i>N</i>	<i>SD</i>	<i>%</i>
Age	(years)	19.4(18-29)		1.95	
Ethnic	Black		13		6.2
Background	East Asian		9		4.3
	Canadian Indigenous		5		2.4
	Latin American		9		4.3
	Middle Eastern		7		3.3
	South Asian		5		2.4
	Southeast Asian		5		2.4
	White		146		69.9
	Unknown		2		1.0
	Prefer not to answer		2		1.0
	Not listed		6		2.9
	Gender	Man		34	
Woman			161		80.9
Gender-fluid			1		0.5
Non-binary			3		1.5
Gender*Sex	Cisgender		190		96.4
	Transgender		0		0.0
	Unsure		3		1.5
	Not listed		4		2.0
Sexual Orientation	Bisexual		31		15.7
	Asexual		1		0.5
	Gay		0		0.0
	Lesbian		7		3.6
	Heterosexual		135		68.5
	Mostly heterosexual		16		8.1
	Pansexual		4		2.0
	Queer		1		0.5
	Questioning		1		0.5
	Prefer not to answer		1		0.5
Relationship Status	Cohabitation		33		16.8
	Married		0		0.0
	Committed relationship		159		80.7
	Prefer not to answer		1		0.5
	Not listed		4		2.0
Relationship Duration	(Months)	23.8(3-108)		16.9	

*Note: total values may exceed sample due to select all that apply.*

**Table 2***Descriptive Statistics*

	N	Mean	Std. Dev	Min	Max
Sexual Need Satisfaction	197	16.37	2.08	10	20
Sexual Need Frustration	197	5.67	1.58	4	11
Relationship Need Satisfaction	197	24.94	2.81	17	28
Relationship Need Frustration	197	5.93	2.03	4	11
Sexual Desire	197	57.86	14.64	18	91
Sexual Satisfaction	197	30.70	4.47	16	35
Sexual Distress	197	20.70	7.94	13	44
Relationship Satisfaction	197	70.05	9.84	40	81
Sexual Frequency	197	4.68	2.05	0	12

**Table 3**  
*Correlation Matrix*

	1	2	3	4	5	6	7	8	9
1. Sexual Need Satisfaction	1.00	-.60**	.40**	-.29**	.34**	.58**	-.52**	.49**	.33**
2. Sexual Need Frustration		1.00	-.30**	.37**	-.17*	-.44**	.69**	-.32**	-.25**
3. Relationship Need Satisfaction			1.00	-.67**	.14*	.48**	-.28**	.68**	0.07
4. Relationship Need Frustration				1.00	-0.01	-.47**	.34**	-.59**	-0.06
5. Sexual Desire					1.00	.22**	-0.05	.14*	.57**
6. Sexual Satisfaction						1.00	-.48**	.61**	.28**
7. Sexual Distress							1.00	-.28**	-.22**
8. Relationship Satisfaction								1.00	.20**
9. Sexual Frequency									1.00

\* $p < 0.5$ ; \*\* $p < 0.01$

**Table 4**

*Associations between Sex-Specific Need Satisfaction and Frustration and Sexual Wellbeing and Relationship Satisfaction Controlling for Relationship Need Satisfaction and Frustration and Sexual Frequency*

Dependent Variable	Parameter	<i>b</i>	Std. Error	<i>t</i>	<i>p</i>
Sexual Desire	Intercept	-10.754	14.836	-0.725	0.469
	<b>Sexual Need Satisfaction</b>	<b>1.278</b>	<b>0.547</b>	<b>2.336</b>	<b>0.021</b>
	Sexual Need Frustration	0.450	0.691	0.652	0.515
	<b>Relationship Need Satisfaction</b>	<b>0.837</b>	<b>0.421</b>	<b>1.988</b>	<b>0.048</b>
	<b>Relationship Need Frustration</b>	<b>1.180</b>	<b>0.574</b>	<b>2.056</b>	<b>0.041</b>
Sexual Satisfaction	<b>Sexual Frequency</b>	<b>3.693</b>	<b>0.437</b>	<b>8.457</b>	<b>0.000</b>
	Intercept	<b>13.400</b>	<b>4.186</b>	<b>3.201</b>	<b>0.002</b>
	<b>Sexual Need Satisfaction</b>	<b>0.831</b>	<b>0.154</b>	<b>5.387</b>	<b>0.000</b>
	Sexual Need Frustration	-0.143	0.195	-0.736	0.463
	<b>Relationship Need Satisfaction</b>	<b>0.250</b>	<b>0.119</b>	<b>2.105</b>	<b>0.037</b>
Sexual Distress	<b>Relationship Need Frustration</b>	<b>-0.488</b>	<b>0.162</b>	<b>-3.013</b>	<b>0.003</b>
	<b>Sexual Frequency</b>	<b>0.249</b>	<b>0.123</b>	<b>2.018</b>	<b>0.045</b>
	Intercept	12.136	7.143	1.699	0.091
	<b>Sexual Need Satisfaction</b>	<b>-0.555</b>	<b>0.263</b>	<b>-2.109</b>	<b>0.036</b>
	<b>Sexual Need Frustration</b>	<b>2.842</b>	<b>0.332</b>	<b>8.549</b>	<b>0.000</b>
Relationship Satisfaction	Relationship Need Satisfaction	0.004	0.203	0.019	0.985
	Relationship Need Frustration	0.336	0.276	1.214	0.226
	Sexual Frequency	-0.117	0.210	-0.555	0.580
	Intercept	15.650	8.373	1.869	0.063
	<b>Sexual Need Satisfaction</b>	<b>1.253</b>	<b>0.309</b>	<b>4.060</b>	<b>0.000</b>
Relationship Satisfaction	Sexual Need Frustration	0.493	0.390	1.265	0.207
	<b>Relationship Need Satisfaction</b>	<b>1.464</b>	<b>0.238</b>	<b>6.156</b>	<b>0.000</b>
	<b>Relationship Need Frustration</b>	<b>-1.240</b>	<b>0.324</b>	<b>-3.829</b>	<b>0.000</b>
	Sexual Frequency	0.416	0.246	1.689	0.093

*Note: b represents the unstandardized coefficients of the change in the dependent variable for every one-unit change in the participant's average predictor variable.*