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Abstract

Introduction: Several theoretical models and intervention programs overlook the importance of individual motivations for the decision to have condomless sex. For instance, people focused on promotion (i.e., eager to pursue pleasure) report less intentions to use condoms, because they perceive a lower risk of acquiring sexually transmitted infections (STIs).

Aim: We aimed at understanding to what extent individual motivations are predictive of condomless sex behavior among single individuals.

Methods: A sample of 415 Portuguese individuals (254 women) with ages ranging from 18 to 46 years ($M = 23.30$, $SD = 5.28$) were recruited to a cross-sectional study. All participants were neither dating nor in a romantic relationship at the time of the study. The link to an anonymous web survey was shared in social networking platforms.

Main Outcome Measures: The survey included self-reported demographic variables (e.g., age, gender), recent condomless sex behavior, and previously validated measures assessing regulatory focus in sexuality, ability in sexual restraint, perceived control over condom use, perceived security with sex partners, and salience of the condom use norm.

Results: More than two-thirds of the sample had recently engaged in condomless sex. A logistic regression showed that condomless sex was *more* likely for participants predominantly focused on *promotion in sexuality*. It was also more likely among *less* educated participants, those with a *lower* ability to restrain their sexual behavior, those who perceive to have *less* control over condom use, those for whom the condom use norm was *less* salient, and those who perceived to be *safer* with their sex partners. No other results were significant.

Clinical Implications: Our results can be informative to sexual health care professionals when planning strategies to increase condom use awareness, by specifically considering the role of specific individual motivations.

Strengths & Limitations: This is the first study showing that individual motivations uniquely contribute to the decision to have condomless sex. This study has two main limitations that constraint the generalizability of the findings: (a) cross-sectional data prevents us from establishing causality, and (b) individual data does not account for dyadic processes in sexuality (e.g., condom use negotiation).

Conclusion: Our findings showed that condomless sex results from an individual focus on seeking pleasure, a lack of control in sexual behavior, and a perception of sex partners as more trustworthy. Overall, these findings are likely to help researchers and health care professionals improving theoretical models predicting condom use and preventing the spread of STIs.

Keywords: Condom use; Motivation; Regulatory focus; Sexual restraint; Perceived control

Predictors of Condomless Sex and Sexual Health Behaviors in a Sample of Portuguese Single Adults

Epidemiological data show alarming rates in sexually transmitted infections (STI) worldwide. For example, the World Health Organization estimated over 376 million chlamydia, gonorrhea, syphilis, and trichomoniasis cases in 2016 (1) and each year an estimated 357 million new cases are identified in people aged 15-49 (2). In the United States, STI rates have been rising over the last four years (3) and in 2017 there were nearly 2.3 million cases of chlamydia, gonorrhea, and syphilis (4). In Europe, there were over 514,000 confirmed cases of those STIs during 2016 and 2017 (5-7). During 2017, an estimated 36.9 million people worldwide were living with HIV, and 1.8 million people were newly infected (8). There were 38,739 new HIV cases in the United States (11.8 per 100,000 population) (9) and 27,055 new HIV cases in Europe (6.2 per 100,000 population) (10). Consistently across Health Authorities' reports, most of HIV infections were transmitted through sexual activity and among people aged 18-49.

UNAIDS established the "90-90-90" target for 2020, such that 90% of all people living with HIV will be diagnosed, 90% of people diagnosed with HIV will receive antiretroviral therapy, and 90% of people receiving this therapy will have viral suppression (11). Even though the Portuguese Health Authority publicly announced the achievement of this target by July 2018 (12), Portugal was among the five European countries with the highest rates of HIV in 2017, with 1,068 new cases of HIV (10.3 per 100,000 population) (10). The 90-90-90 target is extremely important for identifying and treating HIV cases (e.g., antiretroviral therapy suppresses viral replication and has been shown to eliminate sexual transmission (13). Yet, it is also crucial to prevent new cases of HIV, as well as other STIs. Rates of HIV infection in Portuguese young adults demand further research to understand which variables

are predictive of unsafe health behaviors (e.g., condomless sex). This is likely to inform more efficient prevention strategies by focusing on these specific variables.

Since 2015, the Portuguese Health Authority has freely distributed almost over 4.5 million male condoms each year (14) as a measure to counteract the spread of STIs and HIV. This strategy was arguably based on the fact that consistent and correct condom use is among the most effective ways to prevent the spread of STIs and HIV (15). Nevertheless, condom use rates are far from ideal. For example, a study with 1,000 Portuguese people aged 15-64 (16) showed that 34.8% of the sample reported an inconsistent use of condoms, whereas 43% did not use condoms at all. Of the people who used condoms ($n = 538$), the majority used them for contraception (80%) and only 51.4% reported using them as protection against STIs or HIV. These findings converge with data from the Health Behaviour in School-aged Children (HBSC) program in Portugal. For example, Reis et al. (17) examined the sexual behavior of Portuguese adolescents over 12 years (combined $N = 14,456$, $M_{age} = 15$ years) and found a significant increase in condomless sex between 2002 (7.1%) and 2014 (29.6%). In a recent 2018 study with adolescents ($N = 6,997$, $M_{age} = 14$ years), Matos et al. (18) showed not only a further increase in condomless sex rates (34%), but also that half of the adolescents were not tested for HIV (49.4%) and a quarter of them did not even know what HIV was (25.9%). Extending these findings to Portuguese young adults ($N = 1,166$, $M_{age} = 21$ years), Matos et al. (19) showed that 21.2% of young adults had condomless sex at their first sexual intercourse, and this rate increased substantially to 51.1% at their last sexual intercourse. Noteworthy, most young adults in that study perceived a low risk (44.8%) or no risk at all (25.5%) of being infected with HIV, and were not tested for HIV (71.3%). When asked about the reasons for having condomless sex at their last sexual intercourse, young adults indicated emotional barriers (e.g., “it decreases my pleasure”, 49%), lack of preparatory behaviors (e.g., “did not have condoms with me”, 47.2%), low salience of safer

sex practices (e.g., “did not think of it”, 27.2%), lack of restriction in risky situations (e.g., “took a risk”, 21.3%), and perceived invulnerability (e.g., “STIs do not affect me”, 15.2%).

Several theoretical models include some of the variables mentioned above as predictors of condom use (for a review, see 20). For example, a study framed by the Health Action Process Approach model showed that Portuguese young men that engaged in preparatory behaviors (e.g., buying condoms) less frequently were also less likely to use condoms later on (21). Another study framed by the Health Belief Model showed that perceiving to be less susceptible to HIV and having less sexual self-efficacy were among the most frequent reasons for American young adults to have condomless sex with casual partners (22). This reasoning may help explain, for example, why STIs and condomless sex rates have been raising significantly among American men who have sex with other men. According to Alaei et al. (23), the increased availability of pre-exposure prophylaxis (PrEP) is associated with risk compensation because people feel less threatened and less susceptible to the negative health outcomes of not using condoms. In other words, perceiving a lower risk of contracting STIs is likely associated with being more motivated to engage in unprotected sex.

Studies framed by the theories of Reasoned Action and Planned Behavior showed that negative attitudes toward condoms, lack of subjective norms for condom use and reduced behavioral control were predictors of condomless sex among South African adolescents (24,25) and American young adults (26). Research with young adults in Ghana (27) and Germany (28) further showed that past condomless sex predicted future similar behavior, over and above other variables proposed by these two theories. Despite these theoretical frameworks, condom use behavior is quite complex as it has been associated with a myriad of variables. For instance, lack of sexual self-control predicted condomless sex among American young men (29) and Portuguese adults (30), and lack of control in the decision of

using condoms was predictive of condomless sex in a sample of American young women (31).

Other variables, including demographics (e.g., age, gender), personality or other individual differences, are often considered by theoretical models as not contributing independently to the likelihood of a given behavior (20). However, research showed that condom use behavior can be shaped by these variables (32,33). For example, impulsive sexual behavior were more likely among American young adults with lower ability to restrain sexual behavior (34), and the likelihood of having condomless sex is greater among American young adults with high sensation seeking (35). Other researchers suggested the role of motivations for condom use behavior. For example, condomless sex was more likely among American men who wanted to increase sexual intimacy with their partner (36) and American young adults that were more committed to their relationship (37).

Regulatory Focus Theory (38) is particularly relevant to examine condom use behavior. According to this theory, people have two modes of functioning when pursuing their goals. People focused on *promotion* are motivated by growth and advancement and seek to obtain gains and new opportunities even at the risk of errors. In contrast, people focused on *prevention* are motivated by safety and obligations and seek to avoid losses and negative outcomes even at the risk of missed opportunities. This theory has been extended to the motivated pursuit of different goals, including interpersonal attraction (39), conflict resolution (40), and health behavior. This later extension showed that promotion (vs. prevention) focused people are more motivated to engage in health endangering behaviors, such as transgress safety procedures (41), and less motivated to engage in health protective behaviors (42), such as adhere to vaccination (43), adopt medical care prescriptions (44) and screen for cancer (45). A longitudinal study further showed that promotion (vs. prevention) focused people were less motivated to quit smoking after an intervention program and

reported more slips after quitting (46). To the best of our knowledge, Rodrigues et al. (47) were the first to extend this framework to the context of sexual behavior. The authors showed that Portuguese single young adults who scored high on promotion (vs. prevention) in sexuality indicated greater intention to have condomless sex with casual and regular sex partners, because they perceived less threats to their health. Notably, this finding was independent of how salient the condom use norm was (e.g., perceived social pressure from the close social network to always use condoms). Following that individual motivations shape health behaviors, including condom use behavior, the current study further examined to what extent motivations for prevention or promotion in sexuality, along with other individual variables already proposed by theoretical models (20) are associated with retrospective recent condomless sexual activity.

Method

Participants

A total of 651 volunteers participated in the web survey. From these, 101 abandoned the survey before completing it and 115 were subsequently removed from the sample because they reported being romantically involved. The final sample of participants included 435 Portuguese adults (61.2% women) with ages ranging from 18 to 46 years old ($M = 23.30$, $SD = 5.28$). The majority of the participants identified themselves as heterosexual (89.9%), living in urban areas (90.4%), with more than 12 years of education (54.5%) and currently studying (69.9%). All participants were single and were neither dating nor in a romantic relationship at the time of the study.

Measures

Regulatory focus in sexuality. This scale was originally proposed by Rodrigues et al. (47) and comprises two reliable subscales assessing motives for safety (prevention focus; three items, e.g., “Not being careful enough with my sex life has gotten me into trouble at

times.”, $\alpha = .78$) and advancement (promotion focus; five items, e.g., “I am typically striving to fulfill my desires with my sex life.”, $\alpha = .82$) in sexuality. Both subscales were negatively correlated, $r(415) = -.20$, $p < .001$. Responses were given on 7-point scales (from 1 = *Not at all true of me* to 7 = *Very true of me*) and higher scores indicated a predominant focus on prevention or promotion in sexuality. As in the original study, we computed a regulatory focus in sexuality index by subtracting promotion scores from prevention scores, such that negative scores indicated a predominant focus on promotion in sexuality whereas positive scores indicated a predominant focus on prevention in sexuality. The overall score on this index for the entire sample was significantly above zero ($M = 0.31$, $SD = 2.32$), $t(415) = 2.74$, $p = .006$, $d = 0.27$, meaning that participants were predominantly focused on prevention in sexuality.

Dispositional Abilities in Sexual Restraint. We used the scale originally proposed by Gailliot and Baumeister (34, Portuguese validation by 47) and asked participants to indicate to what extent each of the 10 items are representative of their typical sexual behavior (e.g., “When I set a limit on my sexual behaviors, I stick to what I had planned.”, $\alpha = .81$). Responses were given on 7-point scales (from 1 = *Not at all like me* to 7 = *Very much like me*) and higher scores indicated a greater ability for sexual restraint.

Control Over Condom Use. We used a single item and asked participants to indicate how much control they perceive to have about using condoms (“Using condoms when I have sex is completely under my control.”). Responses were given on a 7-point scale (from 1 = *Strongly disagree* to 7 = *Strongly agree*) and higher scores indicated greater perceived control over condom use.

Perceived Safety with Sex Partners. We selected a single item from the perceived sexual health threat measure originally proposed by Sakaluk and Gillath (48, Portuguese validation by 47). Participants were asked to indicate how safe they felt with their sex

partners (“How safe do you feel having sex with your partners?”) on a 7-point scale (from 1 = *Nothing at all* to 7 = *Very much*). Higher scores indicated greater perceived safety with sex partners.

Salience of Condom Use Norm. We used the item proposed by Rodrigues et al. (47) and asked participants about the norms for condom use (“Most people in my close social network think I should use condoms every time I have sexual intercourse”). Responses were given on a 7-point scale (from 1 = *Strongly disagree* to 7 = *Strongly agree*) and higher scores indicated greater salience of the condom use norm.

Sexual Activity and Sexual Health Behaviors. Participants were asked if they had engaged in condomless sex recently (“Did you have sexual intercourse without a condom in the last 3 months?”; *No/Yes*), if they had ever been tested for STIs (“Did you ever get a health check-up for sexually transmitted infections?”; *No/Yes*), if they were diagnosed with any STI recently (“If yes, were you diagnosed with a sexually transmitted infections in the last six months?”; *No/Yes*), and if they had ever been tested for HIV (“Did you ever get tested for HIV?”; *No/Yes*). Those who reported having been tested for HIV in the past were also asked if they engaged in HIV testing regularly (“If yes, do you get tested for HIV on a regular basis?”; *No/Yes*), and if they were tested for HIV in the last 12 months (“If yes, did you get tested for HIV in the last year?”; *No/Yes*).

Procedure

This study was part of a broader research project examining motivations for condom use among Portuguese adults, conducted in accordance with the Ethics guidelines of [insert institution]. There were no physical, financial, social, legal, or other risks connected with the study. The study was noninvasive, and results were analyzed anonymously. An online survey was created using Qualtrics and participants were recruited by sharing an anonymous link in public posts on social media web sites (e.g., Facebook). Eligibility criteria included being 18

years or older and fluent in Portuguese, having already started sexual activity and not being currently dating or in a romantic relationship. People were informed about the general purpose of the study and that they were about to take part in a voluntary and confidential self-report survey about sexuality and sexual behaviors. It was also explicitly stated that neither their name nor any identifying information was attached to their data, and that they could withdraw from the study by closing the web browser without their responses being recorded. After providing informed consent (by clicking *I agree*), participants were asked to provide demographic information (e.g., gender, age, years of education, occupation), followed by the measures of regulatory focus in sexuality, sexual restraint, control over condom use, perceived safety with sex partners and salience of condom use norm. In the last block of the survey, participants were asked about their recent sexual activity and sexual health behaviors. Because this last block included potentially sensitive questions, for ethical reasons responses were non-mandatory. Participants received a reminder if they left any of these questions unanswered but were allowed to proceed in the questionnaire. At the end, participants were thanked, debriefed and provided with the contact of the research team, should they wish to have additional information or had any questions about the study. The average completion time of the survey was 20 minutes.

Results

There were no missing cases in demographic and psychological variables. We first examined the overall pattern of correlations between psychological variables, as well as separate correlations for participants who engaged in condomless sex and for those who used condoms in the last three months. We then examined differences according to recent condomless sexual activity for all demographic and psychological variables using χ^2 and t tests, and conducted a multiple logistic regression examining the likelihood of retrospective

recent condomless sexual activity. Adjusted odds ratios (OR) and their 95% confidence intervals (CI) are reported.

Regarding the variables pertaining sexual health behaviors (e.g., getting tested for STIs), a few participants did not indicate whether they were ever tested for STIs (1.93%), diagnosed with an STI in the last six months (1.45%), or ever tested for HIV (1.69%). Of those who got tested for HIV, some participants did not indicate if they were tested regularly (0.75%) or in the last 12 months (11.19%). These missing cases were randomly distributed throughout the database. To avoid losing power in our main analysis, we conducted a separate analysis examining if recent condomless sex activity was associated with the likelihood of having engaged in these sexual health behaviors using χ^2 tests and comparing proportions with Bonferroni adjustment.

Correlational Analysis

The overall pattern of correlations showed that participants focused on prevention in sexuality reported a greater ability to restrain their sexual behavior, $r = .45, p < .001$, greater perceived control over condom use, $r = .10, p = .035$, and perceived to be less safe with their sex partners, $r = -.11, p = .029$. Moreover, participants with greater perceived control over condom use reported greater ability for sexual restraint, $r = .29, p < .001$, perceived to be safer with their sex partners, $r = .10, p = .040$, and had the condom use norm more salient, $r = .31, p < .001$.

We also examined the pattern of correlations for participants who engaged in condomless sex and those who used condoms separately (see Table 1). Results showed that, for both groups, a focus on prevention in sexuality was associated with a greater ability for sexual restraint, $ps < .001$. Ability for sexual control was also associated with greater control over condom use, $ps < .004$. There were also notable differences between the groups. For participants who engaged in condomless sex, a focus on prevention in sexuality was

associated with the perception of safety with sex partners, $p = .010$, and with a lower salience of the condom use norm, $p = .046$. Moreover, a greater ability for sexual restraint was associated with the perception of safety with sex partners, $p < .001$. For participants who used condoms, a focus on prevention was associated with the perception of being less safe with sex partners, $p = .001$. Furthermore, a greater control over condom use was associated with the perception of being safer with sex partners, $p = .032$, and with a greater salience of the condom use norm, $p < .001$.

-- Table 1 about here --

Predictors of Condomless Sex

Overall, results with the entire sample showed that more than one-third of the participants (34.2%) reported condomless sex activity in the last three months. Comparing participants who engaged in condomless sex and those who used condoms (Table 2), we found no differences in any of the demographic variables, $ps > .063$. However, participants who engaged in condomless sex (vs. those who used condoms) were more focused on promotion in sexuality, $t(413) = 6.10, p < .001, d = 0.60$, reported lower ability to restrain their sexual behavior, $t(413) = 5.43, p < .001, d = 0.53$, and perceived to have less control over condom use, $t(413) = 5.24, p < .001, d = 0.52$. They also perceived to be safer with their sex partners, $t(413) = -2.17, p = .030, d = 0.21$, and had the condom use norm less salient, $t(413) = 3.24, p = .001, d = 0.32$.

We then computed a multiple logistic regression accounting for all demographic and psychological variables. Results showed that the likelihood of having engaged in condomless sex in the last three months was significantly associated with less years of education, $p = .026$, a focus on promotion in sexuality, $p < .001$, lower ability to restrain sexual behavior, $p = .004$, less control over condom use, $p = .001$, perception of being safer with sex partners, $p = .004$, and lower salience of condom use norm, $p = .045$. In other words, holding all other

variables at fixed value, there was a 15-36% decrease in the odds of having condomless sex for a one-unit increase in regulatory focus, sexual restraint, control over condom use, and condom salience norm, and a 26% increase in those odds for a one-unit increase in perceived safety with sex partners.

-- Table 2 about here --

Sexual Health Behaviors

Overall, results showed that more than half of the sample reported never having been tested for STIs (51.1%) or HIV (67.2%). Of the participants who got tested for STIs ($n = 199$), a small percentage indicated to have been diagnosed with an STI in the last six months (4.0%). Of the participants who got tested for HIV ($n = 134$), most reported not getting tested regularly (70.7%) and that they did not get tested in the last 12 months (57.1%).

Again, we compared participants who engaged in condomless sex and those who used condoms (Table 3). Results only showed a significant association between condomless sex activity and recent STI diagnosis, $p = .015$, such that participants diagnosed with an STI in the last six months were more likely to have engaged in condomless sex in the last three months (8.7%), rather than using condoms (1.6%).

-- Table 3 about here --

Discussion

Recent reports show alarming rates of STI and HIV worldwide (1–10). Portugal is no exception and actually presented one of the highest European rates of new HIV cases in 2017 (10). Consistent and correct condom use is still one of the most reliable ways to prevent infections (15). However, and despite the efforts and investment from the Portuguese Health Authority to freely distribute condoms during the last years (14), research shows that Portuguese adults are not consistent in their use of condoms. Indeed, rates of condomless sex have been increasing since 2002 among Portuguese adolescents, are particularly high among

young adults, and so is the number of people who were never tested for HIV (17–19). Our study aimed at identifying psychological variables that could help predict condomless sex, understand how this sexual behavior is associated with other health behaviors (e.g., being tested for STIs), and ultimately provide cues to develop and disseminate efficient prevention strategies.

In line with past research (17–19), our results showed a high prevalence of condomless sexual activity in a sample of Portuguese adults as well as the importance of individual motivations to understand such activity. Regardless of having or not used condoms recently, people who perceived to be better equipped to restrain their sexual behavior when faced with a potentially risky situation (e.g., not having condoms readily available) also perceived to have greater control over the use condoms. This finding is not entirely new, given that people who perceive to have greater self-control over their behaviors are also more likely to make healthier decisions, including safer sexual behaviors (30). However, our study also showed that people with greater behavioral restraint were also more focused on prevention in sexuality, that is, more focused on maintaining security and avoiding negative outcomes. This novel finding suggests that condom use is not merely a process of negotiation between both partners or determined by factual knowledge about condoms or practical knowledge about its use, but is also intrinsically motivated. Indeed, results from the multiple logistic regression showed that condomless sex was more likely among less educated people, those who were less able to restrain their sexual behavior, those who had less control over condom use, those who felt safer about their partner's sexual health, and those for whom the condom use norm was less salient, but also among people with a promotion focus in sexuality.

Our findings may be particularly informative for theoretical models that do not acknowledge (at least explicitly) the importance of individual and motivational variables for predicting condom use, and instead are mainly focused on variables such as self-efficacy

(e.g., confidence about the correct use of condoms), condom use norms (e.g., perception that significant others think that condom use is important), perceived control (e.g., ability to decide when to use condoms) or preparatory behaviors (e.g., buying condoms beforehand) (20). This argument is supported by our current findings, namely that education, regulatory focus and perceived safety predicted condomless sex over and above those variables. Some of our findings are also aligned with past research. For example, having less years of education and equating condom use with lack of trust were predictors of condomless sex among Angolan adolescents and young adults (49).

The finding about perceived safety is also interesting for two reasons. Matos et al. (19) showed that although Portuguese young adults consensually agree that people with STIs should immediately inform their partners (95.6%), some indicate that they would feel uncomfortable discussing their STI with a partner (25.4%) and others consider that it would be insulting to suggest condom use in order to prevent STIs (20%). In other words, people tend to agree that partners are expected to have a fully disclose of their sexual health in the event of a problem, but they are not themselves entirely comfortable disclosing to their partners after being diagnosed with an STI. When examining retrospective sexual health behaviors, our study showed that most of our participants reported that they were never tested for STIs or HIV, and those who have been diagnosed with STIs were also more likely to have engaged in condomless sex activity. Although we do not have objective information about which STIs they were diagnosed with (or the severity of the diagnosis), our findings have important implications. Some people may be unaware of the health implications of condomless sex for others or unaware that they have STIs. Others may know about their status and have low communication and condom use negotiation skills and avoid talking about important issues that can determine their and their partner's sexual health in the future. Furthermore, perceived safety resonates with the constructs of perceived susceptibility and

perceived threat advanced by the Health Belief Model (20). Not only does research show that perceiving low susceptibility is predictive of condomless sex (21,22), it also proposes it as one of the reasons why STIs have been raising (23) and for why people focused on promotion in sexuality have less intention to use condoms (47). Hence, if people perceive greater safety and trust with their sex partner, they may also perceive less susceptibility and less threats to negative health outcomes deriving from condomless sex. However, an interesting finding emerged from the pattern of correlations. Among people who engaged in condomless sex, a focus on prevention in sexuality was positively associated with the perception of safety with the partner's sexual health. Arguably, their focus on safety was also extended to their partner. In contrast, prevention focused people who used condoms felt less safe with their sex partner, arguably evidencing a lack of trust in their partner. This finding shows that individual motivations shape perceptions about sex partners and safer sex decisions. It also shows that past behaviors are interlinked with motivations and perceptions people have in the present. These motivations and perceptions are likely to predict if people intend to use condoms (or actually use them) in the future.

The findings of our study must be taken with caution in light of some limitations. First, our findings rely on cross-sectional data. Without longitudinal studies, we are unable to draw any conclusions regarding the causal chains between the variables examined. For example, we are unable to determine whether focusing on promotion in sexuality was predictive of condomless sex, or if having condomless sex recently led to a greater focus on promotion in sexuality. Although there is a common assumption that several variables predict condom use behavior later on (20), some authors argued for reciprocal associations. For example, past condomless sex can decrease the perception of self-efficacy regarding condom use, which in turn can predict condomless sex in the future (21,27). Past findings have already showed that a prevention focus in sexuality is associated with greater intentions to use condoms in the

future (47). By having evidence that a greater likelihood of retrospective condomless sex is associated with current motivational variables such as regulatory focus in sexuality, sexual health care professionals can create strategies to activate a prevention focus in sexuality and help prevent future occurrences of condomless sex. Our findings also rely on individual data and do not consider other demographic or dyadic variables likely to play an important role in condomless sex practices. The acknowledgment of this limitations may be important for future research. For example, future research should include additional demographic variables associated with (in)consistent condom use, such as socioeconomic status (e.g., 50), and sexual/gender identity (e.g., 51). Our results also showed that condomless sex was not determined by sexual orientation or gender (despite a trend suggesting more condomless sex activity among women). This is interesting in itself and adds to the literature on gender differences (or lack thereof) in condom use (19,52,53). However, some researchers argue that gender differences in condom use frequency are a result of power asymmetries in the dyad (54), whereas others suggest that each gender has different roles in safe-sex behaviors, such that women are more likely to negotiate condom use (55), and men are more likely to have the skills to use condoms correctly (56). Future studies should seek to include these variables to have a deeper understanding of gender roles in condom use behavior. Future research may also benefit from adopting dyadic approaches to examine how individual variables (e.g., regulatory focus in sexuality) interact with dyadic variables (e.g., condom use negotiation and communication) to determine condomless sex.

In the current study, we did not include measures related to sexual partners and condom use to examine sexual activity in greater detail. Future studies should seek to include specific questions about sex partners, including the number of sex partners in the last 3 months, if participants had any previous knowledge about those partners, how frequently they engaged in condomless sex during that period of time, or if they declined having sexual intercourse if

no condom was available. We also did not ask participants whether they engaged in condomless sex only with regular partner, or with both regular and casual sex partners. Although findings for single people are somewhat consistent when considering both types of partners (47), past research also showed that condom use behaviors may differ when single people are in the process of becoming monogamous with a regular partner (57). Hence, it is possible that condomless sex is associated with the perception of being safer about a monogamous regular partner's sexual health, but not necessarily about a non-monogamous regular partner or a casual sex partner. Future studies should seek to further examine this hypothesis.

In sum, our findings showed that condomless sex results from an individual focus on seeking pleasure, a lack of control in sexual behavior, and a perception of sex partners as more trustworthy. Overall, these findings can help researchers improve theoretical models predicting condom use and prevent the spread of STIs and HIV. Moreover, these findings can also support health care policies targeting condom use awareness, health care professionals and educators, namely by having tailored messages and intervention campaigns according to different individual motivations.

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Table 1

Overall Descriptive Statistics and Correlations

	<i>M (SD)</i>	1	2	3	4	5
1. Regulatory focus in sexuality (index)	0.31 (2.32)	-	.47**	.05	.22**	-.17*
2. Ability for sexual restraint	5.01 (1.12)	.37**	-	.34**	.32**	-.04
3. Control over condom use	5.82 (1.67)	.02	.18**	-	.15	.16
4. Perceived safety with sex partners	5.43 (1.50)	-.20**	.07	.13*	-	-.04
5. Salience of condom use norm	5.97 (1.54)	.07	.08	.39**	-.05	-

Note. Higher scores in the regulatory focus index denote greater focus on prevention. Correlations for participants who used condoms ($n = 273$) are presented below the diagonal, whereas correlations for participants who engaged in condomless sex ($n = 142$) are presented above the diagonal.

* $p \leq .050$. ** $p \leq .010$. *** $p \leq .001$.

Table 2

Comparisons According to Recent Sexual Activity and Multiple Logistic Regression Predicting Condomless Sex

	Recent sexual activity		Logistic regression predicting condomless sex					
	Sex with condoms (<i>n</i> = 273)	Condomless sex (<i>n</i> = 142)	<i>B</i>	<i>SE</i>	Wald	OR	[95% CI] for OR	<i>p</i>
Gender								
Female	165 (60.4%)	89 (62.7%)	-.43	.26	2.87	1.53	[0.94; 2.51]	.090
Male	108 (39.6%)	53 (37.3%)						
Age								
<i>M</i> (<i>SD</i>)	23.01 (4.92)	23.85 (5.88)	.01	.03	0.04	1.01	[0.95; 1.06]	.834
Sexual orientation								
Heterosexual	246 (90.1%)	127 (89.4%)	-.34	.39	0.76	1.40	[0.66; 2.99]	.382
Non-heterosexual	27 (9.9%)	15 (10.6%)						
Area of residency								
Rural	30 (11.0%)	10 (7.0%)	.73	.44	2.79	0.48	[0.21; 1.14]	.095
Urban	243 (89.0%)	132 (93.0%)						
Years of education								
≤ 12 years	145 (53.1%)	81 (57.0%)	-.58	.26	4.95	1.79	[1.07; 2.98]	.026
> 12 years	128 (46.9%)	61 (43.0%)						
Occupation								
Student	199 (72.9%)	91 (64.1%)	.35	.30	1.37	0.71	[0.39; 1.27]	.243
Worker	74 (27.1%)	51 (35.9%)						
Regulatory focus in sexuality (index)	0.79 ^a (2.29)	-0.61 ^b (2.09)	-.22	.06	13.98	0.80	[0.72; 0.90]	< .001
Ability for sexual restraint	5.22 ^a (1.04)	4.62 ^b (1.15)	-.36	.13	8.01	0.70	[0.54; 0.89]	.004
Perceived control over condom use	6.12 ^a (1.38)	5.24 ^b (2.00)	-.24	.08	10.25	0.79	[0.68; 0.91]	.001
Perceived safety with sex partners	5.32 ^a (1.57)	5.65 ^b (1.33)	.26	.09	8.21	1.30	[1.09; 1.56]	.004
Salience of condom use norm	6.14 ^a (1.42)	5.63 ^b (1.69)	-.15	.08	4.01	0.86	[0.74; 1.00]	.045

Note. Higher scores in the regulatory focus index denote greater focus on prevention. Different superscripts denote significant differences, *ps* ≤ .030.

Table 3

Comparisons According to Recent Sexual Activity in Sexual Health Behaviors

	Recent sexual activity		Comparisons		
	Sex with condoms <i>n</i> (%)	Condomless sex <i>n</i> (%)	χ^2	Cramer's <i>V</i>	<i>p</i>
<i>Ever get tested for STIs?</i>			0.28	0.03	.599
No	141 (52.0%)	67 (49.3%)			
Yes	130 (48.0%)	69 (50.7%)			
<i>Diagnosed with STIs in the last six months?</i>			5.92	0.17	.015
No	127 ^a (98.4%)	63 ^b (91.3%)			
Yes	2 ^a (1.6%)	6 ^b (8.7%)			
<i>Ever get tested for HIV?</i>			0.56	0.04	.456
No	184 (68.4%)	90 (64.7%)			
Yes	85 (31.6%)	49 (35.3%)			
<i>Regular HIV testing?</i>			0.06	0.02	.803
No	60 (71.4%)	34 (69.4%)			
Yes	24 (28.6%)	15 (30.6%)			
<i>HIV testing in the last 12 months?</i>			0.19	0.04	.665
No	40 (55.6%)	28 (59.6%)			
Yes	32 (44.4%)	19 (40.4%)			

Note. Superscripts denote significant differences between column proportions, $ps < .050$ with Bonferroni adjustment.