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What Money Can't Buy: Different Patterns in Decision Making About Sex and Money Predict Past Sexual Coercion Perpetration

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Abstract Self-reported impulsivity has been found to predict the perpetration of sexual coercion in both sexual offenders and male college students. Impulsivity can be conceptualized as a generalized lack of self-control (i.e., general perspective) or as a multifaceted construct that can vary from one context to the other (i.e., domain-specific perspective). Delay discounting, the tendency to prefer sooner smaller rewards over larger delayed rewards, is a measure of impulsive decision making. Recent sexual adaptations of delay discounting tasks can be used to test domain-specific assumptions. The present study used the UPPS-P impulsivity questionnaire, a standard money discounting task, and a sexual discounting task to predict past use of sexual coercion in a sample of 98 male college students. Results indicated that higher negative urgency scores, less impulsive money discounting, and more impulsive sexual discounting all predicted sexual coercion. Consistent with previous studies, sexuality was discounted more steeply than money by both perpetrators and non-perpetrators of sexual coercion, but this difference was twice as large in perpetrators compared to non-perpetrators. Our study identified three different predictors of sexual coercion in male college students: a broad tendency to act rashly under negative emotions, a specific difficulty to postpone sexual gratification, and a pattern of optimal non-sexual decision making. Results highlight the importance of using multiple measures, including sexuality-specific measures, to get a clear portrait of the links between impulsivity and sexual coercion.

Keywords Sexual coercion perpetration · Impulsivity · Delay discounting · UPPS-P

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Introduction

Sexual coercion is generally defined as an attempt to obtain a sexual contact with a person against her or his will. It encompasses a large spectrum of sexually aggressive behaviors, ranging from unwanted sexual contacts to forced intercourse (Abbey & Jacques-Tiura, 2011). To obtain unwanted sexual contacts, perpetrators may use various strategies such as verbal pressure, the victim's intoxication, a position of authority, or physical force. Several large-scale investigations of sexual violence among adults have shown that perpetrators are more likely to be men and victims to be women (e.g., Bergeron et al., 2016; Kennair & Bendixen, 2012). In male student samples, the prevalence of self-reported sexual coercion perpetration varies greatly depending on how it is defined, with rates ranging from 10 to 58% (e.g., Brousseau, Hebert, & Bergeron, 2012; DeGue & DiLillo, 2004; Kennair & Bendixen, 2012; Mouilso, Calhoun, & Rosenbloom, 2013; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003). In most of these studies, verbal coercion (e.g., pressure, lies, relational or emotional threats), rather than physical force or victim's incapacitation, was the most prominent tactic used by perpetrators. Considering the high incidence of sexual violence against women on college campuses, identifying the individual factors associated with the perpetration of all forms of sexual coercion in young heterosexual men is important.

Since the clinical evaluation of lifestyle impulsivity (e.g., unstable employment history, reckless driving) represents one of the best supported predictors of sexual recidivism in

sexual offenders (Eher, Matthes, Schilling, Haubner-Maclean, & Rettenberger, 2012; Hanson & Morton-Bourgon, 2004; Mann, Hanson, & Thornton, 2010; Prentky, Knight, Lee, & Cerce, 1995), impulsivity may be an important factor in sexual coercion perpetration. However, domain-general and domain-specific theoretical perspectives on impulsivity have different implications for the measurement of impulsivity as a risk factor for sexual violence in non-criminal populations. The present study is a first step in assessing the association between impulsive decision making and sexual coercion perpetration and testing domain-specific assumptions.

Domain-General and Domain-Specific Perspectives on Impulsivity

The strength model of self-control (Baumeister, Vohs, & Tice, 2007) proposes that self-regulation is a domain-general ability, in the sense that all self-control conflicts would involve the same resources and mechanisms regardless of the domain in which the conflict is occurring. From there, one can assume that the individuals who display impulsive behavior in one situation will also act impulsively in other contexts. Mischel, Shoda, and Peake's (1988) classical study on delay of gratification has supported this perspective by demonstrating that the capacity of 4-year-old children to postpone immediate gratification (i.e., eating one marshmallow now) in order to achieve a higher-level goal (i.e., getting two marshmallows later) predicted their success later on in life domains that involve self-control (e.g., academic performance, tolerance to frustration). Several studies have since found evidence of domain-generality in impulsive behavior by demonstrating that exerting self-control in one domain can reduce its subsequent exertion in other domains (i.e., ego depletion; Baumeister & Vohs, 2007) and that general personality questionnaires prospectively predict real-life impulsive behaviors (e.g., Zapolski, Cyders, & Smith, 2009).

Domain-specific perspectives are not completely incompatible with general perspectives on impulsivity, but they posit that impulsivity varies greatly at the individual level depending on a balance between the strength of the cognitive processes (e.g., behavioral inhibition, tolerance to waiting) required to control a given temptation and the strength of that temptation (Tsukayama, Lee Duckworth, & Kim, 2012). Generalized impulsivity could then be the results of an imbalance between controlled cognitive processes and automatic drives in many cognitive functions and life domains. Indeed, Tsukayama et al. found that self-reported impulsivity can vary from one life domain to the other and that this variability depended on each individual's susceptibility to resist gratification in that particular domain. Thus, for a person particularly sensitive to sexual gratification, the difficulty of delaying this type of reward would be higher than for other types of rewards. Furthermore, Imhoff and Schmidt (2014) found sexual arousal to selectively increase sexual disinhibition (i.e., self-reported willingness to engage in morally questionable sexual behavior), leaving non-sexual self-regulation unaffected, which suggests that sexual decision making may be affected by contextual and emotional factors in unique ways compared to other types of decision making. Still, higher executive functioning, as a marker of general self-regulation capacities (Hofmann, Schmeichel, & Baddeley, 2012), could act as a protective factor against domain-specific self-control failures. Accordingly, Spokes, Hine, Marks, Quain, and Lykins (2014) observed that the disinhibiting effect of sexual arousal on decision making in a date-rape analog task was moderated by working memory capacity. Thus, rather than contradicting domain-general perspective, domain-specificity proposes a shift of focus from *between-individual* differences to *within-individual* differences. One of the crucial assumptions of domain-specific perspectives is that an instrument-assessing impulsivity in a specific domain should be a better predictor of real-life impulsive behavior in that domain compared to an instrument that measures general impulsivity (i.e., most self-report measures) or impulsivity in another domain.

Impulsivity Measures

Impulsivity is increasingly understood as a multidimensional construct comprising different personality traits—which are measured with self-report questionnaires—that are underlined by different neurocognitive processes—which are measured with behavioral tasks (Sharma, Markon, & Lee, 2014).

UPPS-P

One of the most prominent empirical tools designed to assess self-report impulsivity is the UPPS-P model (Cyders et al., 2007; Whiteside & Lynam, 2001). It comprises five impulsigenic traits or dimensions: (1) positive and (2) negative urgency (i.e., a tendency to act rashly under the influence of positive and negative emotions, respectively), (3) lack of premeditation (i.e., a propensity to act without considering the long-term consequences of the action), (4) lack of perseverance (i.e., the inability to remain focused on a redundant or boring task), and (5) sensation seeking (i.e., a tendency to seek excitement and new experiences).

Delay Discounting

Among the tasks that directly measure impulsive behavior in laboratory settings, delay discounting tasks have received ample empirical support as valid instruments to assess impulsive decision making, also termed choice impulsivity (Hamilton et al., 2015). Specifically, those tasks assess the preference of participants for smaller sooner rewards over larger later rewards. They assume that choosing the smaller reward is impulsive because the larger reward is an optimal choice in most cases. Since they usually rely on hypothetical rather than real rewards, it could be argued that these tasks are more related to self-report measures and self-concept than actual behaviors. Still, they are considered

behavioral tasks because they measure changes in decision making in the laboratory as a function of systematic changes in delay and amount. Studies have found comparable results between tasks involving real and hypothetical rewards (Bickel & Marsch, 2001). Performances on delay discounting tasks involving monetary rewards have been linked to sexual behavior such as risky sex (Chesson et al., 2006; Lawyer & Mahoney, 2017; MacKillop et al., 2015), greater pornography consumption (Negash, Sheppard, Lambert, & Fincham, 2016), and conjugal infidelity (Reimers, Maylor, Stewart, & Chater, 2009).

In order to test domain-specific hypotheses, researchers have developed sexual adaptations of the standard money discounting task. In some adaptations, money is simply replaced by sexual rewards such as minutes viewing erotic videos (Lawyer, 2008) or hypothetical amounts of sexual activity (Holt, Newquist, Smits, & Tiry, 2014; Lawyer, Williams, Prihodova, Rollins, & Lester, 2010). Other tasks, such as the one developed by Johnson and Bruner (2012), assess the preference for immediate unprotected sexual activity over delayed protected sexual activity with various hypothetical partners. In such tasks, the preference for protected sex tends to decrease as the delay before having protected sex increases, especially with partners that were previously judged by the participant as particularly attractive or less likely to have a sexually transmitted infection (Wongsomboon & Robles, 2017). Such patterns of sexual discounting have been linked to a larger number of sexual partners (Collado, Johnson, Loya, Johnson, & Yi, 2017) and risky sexual behaviors (Johnson & Bruner, 2012). Additionally, one study has found that sexual discounting, but not money discounting, correlated with the propensity for sexual excitation (Lawyer & Schoepflin, 2013). However, the empirical support for the superiority of sexuality-specific tasks in predicting sexual behavior is scarce as few studies have directly tested this hypothesis.

Impulsivity in Perpetrators of Sexual Violence

Most studies investigating the associations between impulsivity and sexual violence have been conducted with samples of incarcerated sexual offenders. Several studies have found general lack of self-control, as assessed by a trained clinician, to be linked to sexual reoffending (e.g., Mann et al., 2010). The UPPS-P impulsivity model has never been used with sexual offenders, but studies using other self-report measures have found that they report higher levels of general and motor impulsivity than men from the general population (Carvalho & Nobre, 2012; Giotakos, Markianos, Vaidakis, & Christodoulou, 2003). Moreover, rapists tend to report more impulsivity (Carvalho & Nobre, 2012; Olver & Wong, 2006) and to commit more opportunistic sexual crimes than child molesters (Kingston, Yates, & Firestone, 2012; Mann & Hollin, 2007; Yates & Kingston, 2006). Also, sex offenders have been found to present substantial impairments in cognitive inhibition compared the general population, with rapists performing more poorly than child molesters on a Stroop task (Joyal, Beaulieu-Plante, & de Chanterac, 2014). Joyal et al.'s meta-analysis concluded that the cognitive profile of rapists is similar to that of non-sexual offenders, thus yielding support to the hypothesis of a generalized lack of cognitive control in rapists. Whether or not they display impulsive delay discounting is unknown since, to our best knowledge, such tasks have never been used with sexual offenders.

One must be careful when applying results from the literature on sexual offenders to non-criminal samples. Criminal samples tend to overrepresent perpetrators of severe sexual assaults such as rape (Ingemann-Hansen, Brink, Sabroe, Sorensen, & Charles, 2008), when in fact most sexual assaults are never reported to the authorities and consist of unwanted sexual contacts without penile penetration (Brennan & Taylor-Butts, 2008). Nevertheless, similar associations between self-report impulsivity and sexual coercion perpetration have been found in student samples (Carvalho & Nobre, 2012; Mouilso et al., 2013; Petty & Dawson, 1989). For instance, Mouilso et al. showed that perpetrators, compared to non-perpetrators, report higher levels of impulsivity on several facets of the UPPS-P model, namely negative and positive urgency, as well as lack of premeditation. No single dimension could be identified as a unique predictor of sexual coercion, suggesting that these traits may be collectively associated with an increased risk of having used sexual violence. Also, DeGue and DiLillo (2004) found links between sexually coercive behaviors and general delinquency in male college students, highlighting the frequent coexistence of different kinds of antisocial behaviors even in non-criminal samples. The absence of studies on delay discounting in sexual offenders also applies to the literature on non-incarcerated sexual coercion perpetrators. Given the current state of the literature, it is essential to develop new measures designed to test domain-general and domain-specific assumptions in male college students who report sexual coercion perpetration (Carrier Emond, Nolet, Cyr, Rouleau, & Gagnon, 2016).

Interestingly, a debate between general and specific conceptualizations of self-control also prevails in the literature on sexual violence. Generalist perspectives (i.e., general theory of crime; Gottfredson & Hirschi, 1990) argue that lack of self-control is the single individual factor that predicts all types of criminal behavior. Such theories consider sexual violence as simply one of many manifestations of antisocial tendencies and conceptualize lack of self-control as a key antisocial feature that manifests itself consistently across life domains, causing reckless criminal and non-criminal behavior. Criminals would be dysregulated individuals who engage in criminal behavior when provided with opportunity; therefore, accounting for the fact that sex offenders, and especially rapists, tend to commit different types of criminal offense (i.e., sexual, violent, nonviolent). Consistent with generalist explanations, self-regulation difficulties have been found to predict all types of recidivism (Hanson & Morton-Bourgon, 2004) and even to be particularly predictive of sexual recidivism (Grieger, Hosser, & Schmidt, 2012). Specialist theories conceptualize sexual aggression as distinct from other forms of aggression and attempt

to better understand why some individuals commit sexual aggressions, and others do not. Indeed, if self-regulation difficulties are central to the sexual offending (Ward & Beech, 2006) and reoffending (Ward, Hudson, & Keenan, 1998) processes, they alone are insufficient to fully explain sexual violence perpetration (Wilson, Mouilso, Gentile, Calhoun, & Zeichner, 2015). Specialist perspectives recognize that criminals tend to display high levels of impulsivity, but postulate that these have to interact with specific individual (e.g., difficulty to resist sexual gratification, hostility toward women, deviant sexual interests) and situational (e.g., peer pressure) factors to cause sexual offending (Wilson et al., 2015).

This debate between generalist and specialist perspectives on sexual crimes is distinct from the debate between domain-general and domain-specific views on impulsivity; hypotheses relevant to the former debate require comparing individuals who have committed different types of criminal offenses, which is not the case of the current study. However, the general theory of crime shares one key prediction with domain-general perspectives on impulsivity: Men who engage in sexually coercive behavior should display more impulsive non-sexual decision making.

Current Study

The present study aimed to assess the associations between the five facets of the UPPS-P impulsivity model, delay discounting of money and sexual activity, and sexual coercion perpetration by comparing two groups of male college students: those who report past use of sexual coercion and those who do not. Beyond verifying if sexual coercion perpetrators display deficits in choice impulsivity, the present study aimed to test if potential impairments would be better understood by a domain-general or a domain-specific perspective on impulsivity. Considering the empirical evidence supporting a link between general impulsivity and sexual aggression, our first hypothesis was that sexual coercion perpetrators, compared to non-perpetrators, would display higher levels of both choice impulsivity and self-reported impulsivity, including steeper rates of discounting in both monetary and sexual versions of a delay discounting task, and higher levels of negative urgency, positive urgency, and lack of premeditation. However, consistent with domain-specific perspectives, our second hypothesis was that discounting of sexual activity would be the strongest behavioral predictor of sexual coercion perpetration, over and beyond non-sexual measures.

Method

Participants

A total of 101 male students from three universities in the city of Montreal were recruited through online ads and posters displayed on various campuses to participate in a larger research project on male sexuality and impulsivity. Inclusion criteria were (1) being 18–35 years old, (2) being sexually active, (3) identifying as predominantly heterosexual, (4) being able to read French with ease, and (5) not having a history of psychosis or hallucinations. As both sexual coercion perpetration and impulsive decision making tend to decrease with age (Hanson, 2002; Reimers et al., 2009), we only recruited participants who were 35 years old and younger. Two participants did not attend to the laboratory session, and due to a technical problem, one participant had missing data on the outcome measure. Data from these three participants were therefore excluded.

The age of the remaining 98 participants ranged between 19 and 34 years with a mean age of 22.77 (SD 3.19). The majority identified as exclusively heterosexual (95.9%) and reported an annual income below 20,000C$ (87.8%). Forty-nine participants (50%) were currently in a romantic relationship, 44 were single (44.9%), and five were married (5.1%). In terms of their cultural origins, most identified as Northern Americans (41.8%) or as Western Europeans (36.7%).

Measures and Procedure

Prior approval was obtained from the institutional ethics board for all procedures. All respondents were given a telephone screening interview that started with a brief description of the study, followed by questions assessing the study inclusion criteria. Respondents who met the aforementioned study inclusion criteria were provided with additional details on the study. Potential participants were informed that the entire study would take approximately 2 h to complete and would include an online survey assessing different dimensions of personality and various sexual behaviors, and a testing session at our laboratory. Individuals who agreed to participate received an e-mail providing them with a participant number and a secure URL link to complete the online survey, which they had to complete before the testing session. The online survey contained the informed consent form. All participants gave informed consent and received a print version of the consent form at the beginning of the testing session. During that session, participants completed several tasks, including a delay money discounting task and a sexual discounting task, as described below. As a part of a larger research project,[1] participants also completed other tasks that are not directly relevant to the current analyses and are therefore not described here. Participants were debriefed at the end of the testing session and received 35$ (CAD) for their participation.

[1] As part of the larger project, participants completed measures of risky sex, problematic drinking, romantic attachment style, propensity to sexual excitation and sexual inhibition, and action control orientation. Participants also completed a four-condition stop-signal task, a Stroop task, and a dot-probe task. These variables were included in the project to test research questions that are distinct from the present study.

Sexual Coercion Perpetration

A 16-item French adaptation of the Sexual Experiences Survey (SES; Brousseau et al., 2012; Koss & Gidycz, 1985; Poitras & Lavoie, 1995) was used to assess the experience of sexual coercion perpetration. The SES has demonstrated good psychometric properties (Testa, Hoffman, Lucke, & Pagnan, 2014). The scale consists of behavioral descriptions combining one of three sexual outcomes: (1) unwanted sexual contacts, (2) attempted rape, or (3) rape, and one tactic used to obtain the outcome (e.g., verbal pressure, use of a position of authority, taking advantage of the victim's intoxication, physical force). Participants indicated whether or not they had engaged in each behavior since the age of 14 years. An example of an item of this scale is "Have you ever had sexual intercourse with a woman when she did not want to by using some degree of physical force (e.g., twisting her arm, holding her down etc.)?" Participants were classified as perpetrators if they endorsed any item, or as non-perpetrators, if they denied any sexual coercion perpetration. In the present sample, 45 participants were categorized as non-perpetrators and 53 as perpetrators. Forty-nine participants reported having used verbal pressure, two using a position of authority over the victim, four taking advantage of the victim's intoxication, and five using physical force. The majority of unwanted sexual outcomes included oral, vaginal or anal penetration or attempted penetration (67.9%).

Self-Report Impulsivity

A validated short French version of the UPPS-P Impulsive Behavior Scale (Billieux et al., 2012; Whiteside, Lynam, Miller, & Reynolds, 2005) was used to assess five dimensions of impulsivity: negative urgency (e.g., "When I am upset I often act without thinking"), positive urgency (e.g., "I tend to lose control when I am in a great mood"), lack of perseverance (e.g., "I finish what I start," reverse coding), lack of premeditation (e.g., "My thinking is usually careful and purposeful," reverse coding), and sensation seeking (e.g., "I quite enjoy taking risks"). The instrument consists of 20 items (four per dimension) scored on a Likert scale ranging from 1 ("I strongly agree") to 4 ("I strongly disagree"). In this study, alphas ranged from .77 (sensation seeking) to .89 (lack of perseverance).

Social Desirability

The Marlowe–Crowne Social Desirability Scale-13 (MCSD-13; Crowne & Marlowe, 1960; Reynolds, 1982) is a 13-item measure assessing desire for social approval. The instrument consists of 13 true or false items describing behaviors that are socially approved but unlikely to occur and behaviors that are socially disapproved but likely to occur. Individuals who endorse numerous unlikely approved behaviors and deny numerous likely disapproved behaviors obtain a higher score on this scale. An example of an item is "No matter who I'm talking to, I'm always a good listener." The current study found a Cronbach's alpha of .70 for this instrument.

Discounting Tasks

Rates of discounting for both money and sexual activity were measured using computerized discounting tasks and procedures similar to those used in previous studies (Lawyer & Schoepflin, 2013; Lawyer et al., 2010; Richards, Zhang, Mitchell, & Wit, 1999). Task order was randomized for individual participants. The procedure consisted of a series of forced choices in which participants had to choose between receiving a larger delayed reward or a smaller immediate reward. Participants were seated in front of a computer monitor and read directions provided on the screen. Participants were informed that they would not receive any of the rewards that they chose, but they were instructed to make their decisions as if they did. Participants pressed the space bar to progress through instructional screens and then pressed "c" or "m" for choice questions. Participants selected either "c" for immediate amounts or "m" for delayed amounts.

Money discounting task Participants chose between $10 to be received after five different delays (1 day, 1 week, 1 month, 6 months, and 1 year) and a smaller amount of money available immediately. The amount of the immediate reward offered at the beginning of each series of choices (i.e., each delay) was $5. After each choice, a titrating procedure similar to that used by Rodzon, Berry, and Odum (2011) adjusted the immediate reward up or down based on the participants' response. If he selected the immediate reward, the amount of the next immediate reward decreased. Conversely, if the participant selected the delayed reward, the amount of the next immediate reward increased. On the first trial, the adjustment was half of the difference between the immediate and delayed reward (i.e., $2.50). For each following trial, the immediate reward was augmented or decreased by half of the previous adjustment, producing continuously smaller adjustments of the immediate reward. The titrating procedure was independent of each delay, and each delay comprised a series of six trials. The value of the immediate reward on the sixth trial of a series provided the indifference point for that delay.

Sexual discounting task Following the procedure used by Lawyer and Schoepflin (2013), participants were asked, at the beginning of the task, to imagine a kind of sexual activity that they found particularly pleasurable and to refer to this kind of sexual activity throughout the task. Participants chose between 30 min of sexual activity to be received after five different delays (1 day, 2 days, 1 week, 1 month, and 6 months) and a smaller amount of sexual activity available immediately. Because sexual rewards are discounted more rapidly than money, the delays in the sexual discounting task were shorter than in the money discounting task in order to adequately assess variability at shorter delays and ensure that delayed rewards were meaningful (Lawyer & Schoepflin, 2013). The amount of the immediate

reward offered at the beginning of each series of choices (i.e., each delay) was 15 min. The titrating procedure used to adjust the immediate reward and determine the indifference point was identical to that used in the money discounting task.

Data Analysis

Area Under the Curve

Raw delay discounting data consisted of two sets (one for each task) of five indifference points (one for each delay) for each participant. In order to compare data across tasks and to measure links between discounting tasks and self-report variables, areas under the curve (AUC; Myerson, Green, & Warusawitharana, 2001) were calculated for each discounting task. AUCs tend to produce data that follow the normal distribution, making them appropriate for parametric statistical analyses. AUC estimates range between 0 and 1, with smaller AUC values indicating more impulsive discounting, that is a relative preference for smaller sooner rewards.

Identification of Non-Systematic Responders

Two algorithms described by Johnson and Bickel (2008) were used to assess the orderliness of data and identify non-systematic discounting functions. These algorithms flag as non-systematic patterns of responding in which (1) any indifference value that is at least 20% greater than the preceding indifference value, or (2) the last indifference value that is not smaller than the first one by at least 10%. The algorithms identified 16 non-systematic money discounting patterns and eight non-systematic sexual discounting patterns. Since the results did not change when including non-systematic data, they were included in the analyses in order to maintain the most representative sample possible.[2]

Results

Comparisons Between Perpetrators and Non-perpetrators of Sexual Coercion

Self-Report Variables

A series of independent-samples *t* tests were conducted to compare scores of perpetrators and non-perpetrators on the social desirability scale, and on the five dimensions of the UPPS-P scale. As shown in Table 1, perpetrators of sexual coercion obtained lower scores on social desirability and higher scores on both positive and negative urgency.

Discounting Tasks

A mixed-design ANOVA with discounting task (monetary discounting, sexual discounting) as a within-subject factor and sexual coercion perpetration (perpetrators, non-perpetrators) as between-subjects factor revealed a significant main effect of task $F(1, 96) = 60.63, p < .001$, partial $\eta^2 = .39$. The main effect of group was not significant, $p = .836$. Main effects will not be further interpreted since the interaction effect between discounting task and sexual coercion perpetration was significant, $F(1, 96) = 8.07, p = .005$, partial $\eta^2 = .08$ (see Fig. 1), indicating that the difference between money discounting and sexual discounting varied between the two groups. To break down this interaction, pairwise comparisons with Bonferroni correction for familywise error were performed comparing each level of discounting task across perpetrators and non-perpetrators of sexual coercion. These comparisons revealed that perpetrators of sexual coercion discounted sexuality ($M = .33$, SD .26) more steeply than money ($M = .65$, SD .25), $p < .001$. Non-perpetrators of sexual coercion also discounted sexuality (M = .42, SD .28) significantly more than money ($M = .57$, SD .31), $p = .001$, but the mean difference between the two tasks was twice as large in perpetrators as in non-perpetrators.

Relationships Among Discounting Tasks and Self-Reported Impulsivity

Bivariate correlations between the discounting tasks and self-report measures were performed within each group (see Table 2). Consistent with previous analyses, money discounting and sexual discounting were more strongly correlated among non-perpetrators of sexual coercion than among perpetrators. Also, for non-perpetrators, money discounting was negatively correlated with positive and negative urgency, meaning that individuals who were more impulsive in the money task also reported being more vulnerable to rash action in the presence of intense emotions. Instead, among perpetrators, better performances on that same task were related to higher sensation seeking. In both groups, social desirability was negatively correlated with negative urgency but uncorrelated with delay discounting tasks.

Prediction of Sexual Coercion Perpetration

A hierarchical logistic regression was performed to assess prediction of sexual coercion status (perpetrators of sexual coercion versus non-perpetrators) first on the basis of the self-report measures previously found to be related to sexual coercion perpetration through paired comparisons (i.e., social desirability, negative and positive urgency), then on the basis of each delay discounting task (i.e., money discounting AUCs, sexual discount-

[2] A series of independent sample *t* tests indicated no significant differences between systematic and non-systematic responders on age and self-report measures (all *p*s > .05). A chi-square test of independence showed that the percentage of participants reporting sexual coercion perpetration did not differ between systematic (57.3%) and non-systematic responders (41.7%), $\chi^2(1, n = 99) = 1.794, p = .18$. Similar results were obtained when non-systematic responders were excluded from the analyses.

Table 1 *T* tests comparing perpetrators and non-perpetrators on self-report variables

	Perpetrators[a]		Non-perpetrators[b]		*t*	*d*	*p*
	M	SD	*M*	SD			
Social desirability	5.75	3.07	7.69	2.37	3.52[c]	.72	.001
Negative urgency	9.30	2.74	7.31	2.28	3.87	.79	<.001
Positive urgency	11.09	2.65	9.69	2.77	2.56	.52	.01
Sensation seeking	11.81	2.52	11.36	2.06	.97	.20	.335
Lack of perseverance	7.66	2.83	6.93	2.04	1.44	.30	.154
Lack of premeditation	6.92	2.26	6.27	1.72	1.59	.33	.115

[a]$n = 53$, [b]$n = 45$, [c]Levene's test indicated unequal variances ($F = 4.51$, $p = .036$), so degrees of freedom were adjusted from 96 to 95.21

ing AUCs). Discounting tasks were introduced in the model at two distinct steps to better assess the contribution of each measure. For this analysis, raw data were transformed into *z* scores in order to obtain comparable odd ratios. Bivariate correlations among the variables used in this analysis as well as statistical diagnostic (VIF) indicated that multicollinearity was not a problem.

The first step, which included social desirability, negative urgency, and positive urgency, provided a significant increase in prediction over a constant only model, with a Nagelkerke R^2 of 21.9%, an approximate of the variance in perpetration status explained by the model (see Table 3). However, none of the variables predicted unique variance in this first step of the model. The second block, which introduced money discounting AUCs, produced a nonsignificant 2.9% increase of the Nagelkerke R^2. At this point, none of the variables predicted unique variance in sexual coercion perpetration status. The third block, which introduced sexual discounting AUCs in the model, significantly improved the predictive validity of the model to 29.8%. In the final model, negative urgency, money discounting, and sexual discounting all predicted unique variance in sexual coercion perpetration. Participants with higher negative urgency as well as participants with smaller sexual discounting AUCs (i.e., more impulsive) were more likely to belong to the sexual coercion perpetrator group, whereas participants with smaller money discounting AUCs were more likely to belong to the non-perpetrator group. The final model correctly classified 65.3% and achieved good fit as indicated by the nonsignificant Hosmer and Lemeshow test, $\chi^2(8) = 11.42, p = .179$.

Discussion

Previous research on the links between impulsivity and sexual violence has mostly used measures that do not take into account intraindividual variability in impulsive behavior. However, impulsivity is more and more conceptualized as a multifaceted construct that can vary considerably between dimensions in each individual (Whiteside et al., 2005), from one type of impulsivity measure to the other (Sharma et al., 2014), and across life domains (Tsukayama et al., 2012). The present study was designed to compare the levels of impulsivity between perpetrators and non-perpetrators of sexual coercion in a sample of male college students on the five facets of the UPPS-P model of impulsivity and on both monetary and sexual versions of the delay discounting task. The second aim was to assess the contribution of each of the relevant variables to the prediction of sexual coercion perpetration status (i.e., perpetrators versus non-perpetrators) to verify our hypothesis of a domain-specific phenomenon in the relationship between decision making and sexual coercion perpetration.

Contrarily to our first hypothesis, our results do not align with a generalist perspective on impulsivity, which would predict higher levels of self-reported impulsivity and more impulsive decision making on both money and sexual discounting in sexual coercion perpetrators. Instead, when delay discounting tasks were compared across the two groups, perpetrators differed from non-perpetrators in the level of intraindividual variability in their decision making about sex and money, rather than displaying more impulsive decision making on both tasks. Regarding the UPPS-P, impulsivity in the presence of intense positive and negative emotions (i.e., negative and positive urgency), but not lack of premeditation, was higher among perpetrators. Ultimately, when all the variables were accounted for in the logistic regression, only negative urgency, smaller sexual discounting AUCs (i.e., more impulsive), and larger money discounting AUCs (i.e., less impulsive) were significant predictors of past perpetration of sexual coercion. If impulsivity were a unitary construct, all impulsivity measures would be highly correlated and their contribution in predicting sexual violence would be redundant. However, it was not the case in our sample, as behavioral and self-report measures of impulsivity were only modestly correlated and each explained distinct portions of the variance in sexual coercion, with the two discounting tasks having opposite associations with sexual coercion perpetration. Thus, our study yields empirical support to the view that impulsivity is not a unitary concept (Sharma et al., 2014; Whiteside & Lynam, 2001) and highlights the importance of using multiple measures to obtain a clear portrait of the links between self-control and sexual violence.

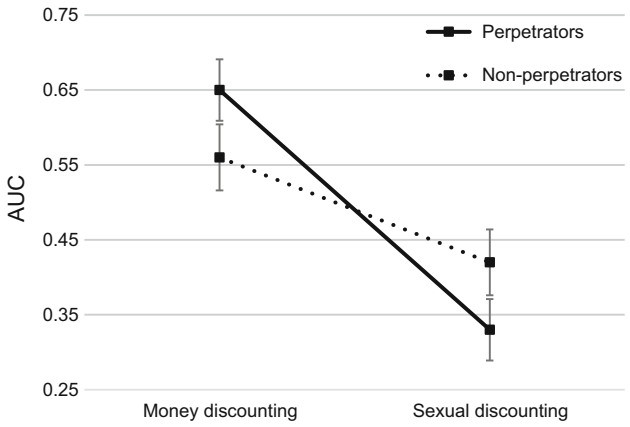

Fig. 1 Mean area under the curve (AUC) for each delay discounting task across perpetrators and non-perpetrators of sexual coercion. Error bars represent standard error

Role of Negative Urgency

The association between negative urgency and sexual coercion is coherent with several studies that have found sexual offenders to display poor emotion regulation skills (e.g., Grieger et al., 2012). Considering the cross-sectional nature of our study, the role that negative urgency might play in sexual coercion cannot be determined, but different hypotheses can be formulated. Negative emotions and conflicts are frequent precursors to sexual crimes against women (Polaschek, Hudson, Ward, & Siegert, 2001). It is possible that men high in negative urgency are more at risk of impulsively engaging in sexual coercion when seeking sexuality as a means of coping with negative emotions (Polaschek et al., 2001). Experimental evidence showed that negative emotions can increase the genital response of some men to non-consensual sexual scenarios (Lalumière, Fairweather, Harris, Suschinsky, & Seto, 2016; Yates, Barbaree, & Marshall, 1984). Another possibility is that men high in negative urgency are less equipped to cope with the negative emotions that may be triggered by a sexual refusal. Indeed, the non-consent of a potential sexual partner constitutes an obstacle to sexual gratification that can cause frustration. It can also be experienced as an interpersonal rejection, which could generate shame and anger in sensitive individuals. Research has shown that a significant proportion of sexual assaults against women are motivated by grievance (Mann & Hollin, 2007) and that sexual coercion perpetrators have more insecure attachment styles than non-perpetrators (Abbey, Parkhill, Clinton-Sherrod, & Zawacki, 2007), making them vulnerable to rejection cues. Combined with a lack of adequate emotional regulation skills, the negative emotions engendered by a sexual refusal could overcome the capacity—or the motivation—of some men to control their behavior. Such an effect could make them more likely to engage in behaviors that they would otherwise refrain from, sexual coercion for instance. If that were the case, then teaching men how to adequately regulate their negative emotions and reorient their behavior toward non-sexual goals when faced with a sexual refusal might reduce sexual coercion.

Positive urgency and social desirability were also lower in perpetrators, but ultimately did not predict sexual coercion perpetration when other variables were accounted for. Concerning positive urgency, this pattern of results seems to indicate that individuals who commit sexual coercion perpetration display more impulsive behavior under intense emotions in general, but that it is their inability to control themselves when experiencing negative emotions that are particularly relevant to sexual coercion. Regarding the relationship between social desirability and sexual coercion perpetration, one possible interpretation is that the denial of past use of sexual coercion perpetration was a deceptive response style employed by some non-perpetrators in order to maintain a positive self-presentation. On the other hand, the logistic regression showed that the variance explained by social desirability could be better accounted for by the other variables in the model, most likely by negative urgency considering the correlation between these two measures. This finding is coherent with Uziel's (2010) argument that social desirability may be a measure of interpersonally oriented self-control, rather than a measure of deceptive response style. According to Uziel, social desirability captures a

Table 2 Correlation matrix of all variables in perpetrators and non-perpetrators of sexual coercion

Variables	1	2	3	4	5	6	7	8
1. Money discounting AUC	–	.30 *	.05	− .01	.23	.02	− .07	− .23
2. Sexual discounting AUC	.51**	–	− .07	− .09	.13	− .11	− .11	.04
3. Negative urgency	− .46**	− .16	–	.71***	.14	.27	.36**	.50***
4. Positive urgency	− .36*	− .30*	.49**	–	.25	.11	.24	− .24
5. Sensation seeking	− .05	− .06	.16	.29	–	.07	.02	− .21
6. Lack of perseverance	− .06	.05	.16	.12	− .16	–	.41**	− .28*
7. Lack of premeditation	− .20	− .03	.33*	.55***	− .02	.387**	–	− .25
8. Social desirability	− .01	− .07	− .13	− .13	.05	.25	− .17	–

Correlations for sexual coercion perpetrators ($n = 53$) are presented above the diagonal, and correlations for non-perpetrators ($n = 45$) are presented below the diagonal

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3 Hierarchical logistic regression predicting sexual coercion perpetration status

Predictor	β	*SE*	Odds ratio	Block		Model		
				χ^2	*df*	χ^2	*df*	Nagelkerke R^2
Block 1: self-report variables				17.52**	2	17.52**	3	.219
Social desirability	−.48	.27	.62					
Negative urgency	.56	.34	1.75					
Positive urgency	.12	.29	1.13					
Block 2: money discounting				2.63	1	20.14***	4	.248
Social desirability	−.37	.28	.69					
Negative urgency	.67	.35	1.96					
Positive urgency	.16	.30	1.18					
Money discounting AUC	.38	.24	1.46					
Block 3: sexual discounting				4.62*	1	24.71***	5	.298
Social desirability	−.33	.29	.72					
Negative urgency	.76*	.37	2.13					
Positive urgency	.07	.31	1.07					
Money discounting AUC	.61*	.27	1.85					
Sexual discounting AUC	−.56*	.27	.57					

$N = 98$; * $p < .05$; ** $p < .01$; *** $p < .001$

strong inclination toward communal goals that might act as an effective motivation for regulating behavior in social contexts. Within such a framework, it makes sense that it would be negatively associated with sexual coercion perpetration and be better accounted for by a measure that was designed to assess emotional (dys)regulation.

Optimal Non-Sexual Decision Making

A more optimal pattern of decision making about money was a predictor of sexual coercion perpetration. This result does not line up with the empirical studies showing that a generalized pattern of impulsivity predicts sexual aggression (e.g., Eher et al., 2012). It is important to keep in mind that most studies that investigated the link between impulsivity and sexual coercion did so in samples of sexual offenders, who are more likely to have used severe forms of sexual coercion (Ingemann-Hansen et al., 2008) and to have engaged in a wide array of maladaptive behaviors in the past (Hanson & Morton-Bourgon, 2004). Thus, many empirical findings might not be generalizable to the present sample, which consisted of participants who, unlike many convicted sexual offenders (Joyal et al., 2014), possessed sufficient intellectual and self-control abilities to be admitted to a superior education program. Moreover, only a small proportion (9.4%) of our participants reported using coercive tactics that are likely to reach the threshold for a criminal offense, such as physical force and victim's intoxication.

Thus, among the educated young men recruited in the present study, the ones who made more long-term oriented decisions about money were also the ones more at risk of having perpetrated sexual violence, likely by using some form of manipulation. In this context, the good performances of the perpetrators on the money discounting task could indicate that these individuals are oriented toward maximizing personal gain and that they are optimal decision-makers in "cool" situations. A profile of coercive behaviors combined with good planning abilities is compatible with the concept of the "successful psychopath," which stands for individuals who possess the fundamental characteristics of psychopaths such as elevated self-interest but are successful in their psychopathic endeavors (Mullins-Sweatt, Glover, Derefinko, Miller, & Widiger, 2010). Such individuals would display low levels of general impulsivity and normal or even enhanced cognitive functioning, which would allow them to use covert strategies in order to attain their goals while avoiding detection (Gao & Raine, 2010). For some men, non-physical sexual coercion might have represented a strategic compromise to maximize gains and limit losses in the context of a sexual refusal. In other words, it might have allowed them to obtain immediate access to sex (Harris, Rice, Hilton, Lalumiere, & Quinsey, 2007) without exceeding their level of tolerance for violence or being exposed to significant legal risks. That is not to say that all sexual coercers, who represented more than half of our male college sample, are psychopaths, but rather that some of the perpetrators might display subclinical levels of psychopathic traits that can be functional when combined with higher levels of intelligence (Wall, Sellbom, & Goodwin, 2013). This explanation must be considered as tentative, and studies assessing the relationship between non-impulsive psychopathic traits such as manipulativeness and delay discounting are necessary.

Alternative explanations for the link between optimal non-sexual decision making and sexual coercion should also be

considered. For instance, although hypothetical rewards have been found to constitute a valid proxy for real rewards (Bickel & Marsch, 2001), it should be reiterated that the choices made by participants in the discounting task were not real financial decisions. Therefore, it is possible that optimal decision making in this task did not assess optimal decision making in real life, but rather other personality variables such as the desire to appear financially responsible. The lack of a significant correlation between social desirability and money discounting challenges this hypothesis in the present study. Still, future studies should include a measure of real-life financial stability to ensure that money discounting task has proper external validity in their sample.

Specificity for Sexual Discounting

When all variables were taken into account in the regression model, high sexual discounting was a significant predictor of sexual coercion perpetration and yielded a significant increase in the variance explained by the regression model. The link between sexual coercion and steep sexual discounting is in accord with other studies having found a similar association with risky sexual behaviors (Collado et al., 2017; Johnson & Bruner, 2012). However, contrarily to our second hypothesis, sexual discounting was not the strongest predictor of the regression model; the odds ratio suggests that it actually was the weakest predictor, behind high negative urgency and low money discounting.

In accordance with previous studies on sexual discounting (Holt et al., 2014; Jarmolowicz et al., 2014), sexuality was discounted more steeply than money by the whole sample. After testing different hypotheses to explain this effect, Jarmolowicz et al. concluded that, especially for men, sex is a commodity that does not retain its value as time goes, a phenomenon that would favor immediate sexual gratification regardless of the long-term consequences. Our data suggest that this difference in the decision-making process is more important in individuals who have engaged in sexual coercion in the past, possibly indicating that intraindividual variability is a valid indicator of domain-specificity in impulsivity. This is consistent with Tsukayama et al. (2012) who have found that the tendency to engage in impulsive behaviors varies at the within-person level from one domain to the other. Following this line of thought, it is possible that other problematic sexual behaviors, such as risky sex or excessive pornography consumption, would be associated with a steeper sexual discounting compared to non-sexual discounting. Future studies of sexual discounting should include non-sexual discounting tasks in order to test this hypothesis.

Interestingly, introducing sexual discounting in the regression model increased the strength of the relationships between sexual coercion and both money discounting and negative urgency, suggesting that sexual discounting acted as a suppressor variable. A suppressor variable is a variable that explains a proportion of the variance that represented noise in the relationship between sexual coercion perpetration and money discounting (Watson, Clark, Chmielewski, & Kotov, 2013). Considering this suppression effect, our results seem to indicate that the two non-sexual predictors (i.e., negative urgency and money discounting) only emerge as meaningful when the sexuality-specific predictor (i.e., sexual discounting) is controlled for.

Limitations and Implications

Although the present study provides interesting results to better understand the role of impulsivity in sexual assault, findings must be interpreted in the context of certain limitations. First, the analyses used in this study did not compare participants according to the frequency of their sexually coercive behaviors nor as a function of the severity of these acts; therefore, no clear conclusions can be drawn regarding the links between impulsivity and the various forms of sexual violence. A larger sample size would likely have led to higher occurrences of severe coercion, allowing to run more sophisticated statistical analyses. Studies replicating our findings with larger samples would also allow to better understand the relationship between the predictors by testing the predictive power of their interaction. Another limitation resides in the use of a self-report measure to distinguish perpetrators of sexual coercion from non-perpetrators as it could have resulted in various memory and self-presentation biases. However, few alternatives exist when studying sexual assault in non-criminal samples (Testa et al., 2014). The rate of sexual coercion perpetration found in the current study (54%) was high relative to most studies having recruited student samples and found rates between 10 and 40% (e.g., Brousseau et al., 2012; Kennair & Bendixen, 2012). Different explanations might be proposed for the rate we found. Firstly, the SES (Koss, Gidycz, & Wisniewski, 1987) is a comprehensive measure that includes coercive behaviors that do not meet the legal definition of a sexual aggression, hence producing higher sexual coercion rates than more conservative measures. Also, the present study was advertised as a study on male sexuality, and before giving consent to take part in the study, participants were informed that they would be exposed to sexually explicit material during the laboratory session (in tasks that are not presented in the present paper). There is evidence that individuals who are willing to participate in such studies have a more positive and liberal view on sexuality (Dawson et al., 2017). It is therefore possible that men who have a more inhibited and conservative sexuality were underrepresented in our study, which might have inflated the rate of sexual coercion. Since our goal was not to report a representative prevalence of sexual coercion perpetration, but rather to understand how impulsivity relates to this phenomenon, the possibility that sexual coercion was overrepresented in our sample does not critically undermine our results. Finally, the results of the present study might not be generalized to young heterosexual men from the community, especially to those who are less educated or less functional than college students.

Nevertheless, the current study contributes to the understanding of the links between impulsivity and sexual coercion perpetration in male college students. While the literature on sexual offenders led to believe that the young men who have committed sexual coercion would be more impulsive on both delay discounting tasks, our findings indicate that sexually coercive behaviors are more likely to be committed by those who are the ablest to make optimal non-sexual decisions. Furthermore, their decision-making process seems to be less oriented toward long-term gain when it comes to sexuality. Thus, our results emphasize the importance of evaluating different facets of impulsivity, using self-report and behavioral measures, in order to fully understand its links with sexual assault. Rather than supporting a generalist perspective on impulsive decision making, the present study's findings are more consistent with a moderate position according to which sexual coercion perpetrators could be prone to reckless behavior specifically in the sexual domain or in the presence of negative emotions, but engage in optimal decision making in non-sexual domains.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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