Impulsivity and Sexual Assault

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Introduction

The processes that underlie sexual assault perpetration and victimization are varied and complex, but impulsivity is one factor related to both perpetrators and survivors. Impulsivity is generally described by a range of disadvantageous or potentially harmful behaviors, while impulsive sexual decision-making refers to patterns of choices surrounding sexual behaviors with little regard for or forethought of the potential for negative consequences. Impulsivity broadly presents as a factor associated with perpetration of sexual assault. Conversely, impulsive sexual decision-making appears to be a consequence of sexual assault for some survivors.

Impulsivity

Impulsivity is not a well-defined construct, yet it is well researched. Impulsivity frequently is used to describe the way we make behavioral choices and traits we may have. These descriptions include (but are not limited to) a diminished ability to delay gratification, acting without forethought or sufficient forethought of consequences, disinhibition or lack of self-discipline, self-reported diminished abilities to self-regulate (i.e., impulsiveness as a personality trait), and inordinate sensation seeking (Costa & McCrae, 1992; de Wit, 2008; MacKillop et al., 2016; Odum, 2011; Weafer, Baggott, & de Wit, 2013; Whiteside & Lynam, 2001). Several models and hypotheses have been formulated to understand impulsivity, finding some unique facets of impulsivity and some construct overlap. Much of the extant research, when taken together, suggests that impulsivity is composed of three main facets: impulsive choice, impulsive action, and impulsive personality traits (MacKillop et al., 2016).

Impulsive choice reflects a tendency to devalue rewards based upon a temporal delay in receiving the reward (i.e., delay discounting or delay of gratification; Ainslie, 1975; Logue & King, 1991; Schneider & Lysgaard, 1953). Delay discounting is a measurable behavioral phenomenon, often used to assess impulsive choice by a task involving a series of choices between two rewards (one available immediately or a larger reward available after a delay). Individual patterns of delay discounting are typically measured by establishing the subjective value of a large amount of money across a series of delays (e.g., the immediate subjective value of $100 in a day, a week, a month; Rachlin, Raineri, & Cross, 1991) but can also be determined for other nonmonetary

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outcomes as well such as food, substance use, and sexual outcomes (e.g., Johnson & Bruner, 2012; Lawyer, 2008; Lawyer & Schoepflin, 2013; Lawyer, Williams, Prihodova, Rollins, & Lester, 2010; Odum & Rainaud, 2003; Rasmussen, Lawyer, & Reilly, 2010). Lower subjective values of delayed outcomes are indicated by a steeper "rate" of delay discounting, suggesting a pattern of preference for smaller-sooner outcomes over larger-delayed outcomes, indicative of difficulty with delaying gratification.

Impulsive action accounts for an inability to inhibit a motor response when it would be otherwise beneficial or necessary (e.g., Fillmore & Weafer, 2013; Rosvold, Mirsky, Sarason, Bransome, & Beck; 1956). There are several laboratory tasks used to measure impulsive action, such as the Go/No-go Task (GNG), the Stop Signal Task (SST; Fillmore & Weafer, 2013), and the Continuous Performance Test (CPT; Rosvold, Mirsky, Sarason, Bransome, & Beck; 1956). These tasks all require the examinee to respond to a specific cue (e.g., visual stimulus such as an arrow pointing one way or the other) by either inhibiting a prepotent motor response (e.g., mouse click, button click) or engaging in the said motor response, depending upon the stimulus. Impulsive action is indicated when an individual makes a motor response when otherwise instructed to inhibit that action.

Impulsive personality traits refer to patterns of thoughts, feelings, and behaviors related to one's ability to self-regulate behavior (e.g., Patton, Stanford, & Barratt 1995; Whiteside, Lynam, Miller, & Reynolds 2005). These traits are frequently measured by self- and other-report questionnaires that sample a range of qualities. The NEO-Personality Inventory-Revised assesses neuroticism, extraversion, openness, agreeableness, and conscientiousness, and includes several traits (including impulsivity) within these main categories (Costa & McCrae, 1992). A measure that is more focused upon impulsivity is the Barratt Impulsiveness Scale (BIS; Patton et al., 1995). Within this scale, there are three subtypes of impulsiveness, including attentional, motor, and nonplanning impulsivity. Attentional impulsivity refers to the inability to sustain attention to a task, which includes the subjectively rated difficulty of doing so and interfering thoughts that may occur while trying to concentrate. Motor impulsivity suggests a tendency to act in a disinhibited fashion. Nonplanning impulsivity reflects a lack of ability to plan and dedicate adequate time to contemplate a decision, as well as avoidance of or displeasure in challenging mental tasks. Together, impulsivity is a complex construct, wrought with vague description or conflicting definitions amongst researchers, but it is certainly related to a variety of problematic outcomes.

Impulsivity and Perpetrators of Sexual Assault

Sexual Assault Perpetration and Impulsive Choice

Sexual assault perpetration is one such issue related to impulsivity. Impulsive choice differentiated offenders (sexual and nonsexual) from nonoffenders by using a delay discounting measure such that offenders more greatly devalued hypothetical monetary rewards due to delay in their receipt, as compared to nonoffenders (Arantes, Berg, Lawlor, & Grace, 2013; Hanoch, Rolison, & Gummerum, 2013). In other words, offenders demonstrated greater impulsive choice tendencies regarding financial gain. Conversely, delay discounting of hypothetical money did not differentiate juvenile offenders and nonoffenders (Wilson & Daly, 2006). Of note, the impulsive choice literature (in relation to sexual perpetration) mainly utilizes sex offender populations, rather than a more representative sample of perpetrators. Incarcerated sexual offenders overrepresent perpetrators in other sexual assault research, as most assaults are never reported and therefore most perpetrators are community members (Ingemann-Hansen, Brink, Sabroe, Sorensen, & Charles, 2008).

In one study of college men, those who self-reported having perpetrated sexual assault by use of verbal coercion demonstrated significantly greater impulsive choice for sexual outcomes but

not monetary outcomes, as compared to men who denied perpetration (Emond, Gagnon, Nolet, Cyr, & Rouleau, 2017). This implies that college perpetrators of sexual assault demonstrate domain-specific discounting for sexual outcomes. In other words, these perpetrators did not exhibit broad impulsive choice across a variety of situations, but rather were specifically impulsive when faced with sexual decision-making tasks.

Sexual Assault Perpetration and Impulsive Action. Some mixed evidence suggests that incarcerated adult sexual offenders evidence more impulsivity than pedophilic perpetrators on measures of impulsive action of prepotent motor responses (Carvalho & Nobre, 2012; Joyal, Beaulieu-Plante, & de Chanterac, 2014). This suggests that pedophiles have more self-control over their overt behaviors, whereas perpetrators of sexual violence against adults struggle more with disinhibition of their behaviors. However, Kalal (2000) found that self-reported impulsive action related to lack of motor control did not differentiate pedophilic offenders from nonsexual violent offenders nor those of a community sample, and Snowden, Smith, and Gray (2017) found that impulsive motor actions did not differentiate a sexual and nonsexual offender sample from a community sample. These mixed findings indicate a clear need for further research regarding impulsive action among sexual assault perpetrator groups, as well as a need to study impulsive sexual actions.

Sexual Assault Perpetration and Impulsive Traits. Those who have perpetrated sexual assault against women typically endorse various contributing factors, including antisocial (i.e., psychopathic) traits, difficulty incorporating societal and legal behavioral expectations, authority problems, family conflicts, underachievement, and impulsivity (DeGue & DiLillo, 2004; Giotakos, Markianos, Vaidakis, & Christodoulou, 2003; Hoertel, Le Strat, Schuster, & Limosin, 2012; Kosson, Kelly, & White, 1997; Mouilso, Calhoun, & Rosenbloom, 2016; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003). Impulsivity is frequently combined with other behavioral patterns or traits to form the construct of psychopathy or antisocial personality (Guay, Ruscio, Knight, & Hare, 2007; Hare, 2003; Lewing, 2006), which complicates understanding the unique influence of impulsivity on perpetration. For example, those meeting criteria for attention-deficit/hyperactivity disorder (ADHD) and conduct disorder (CD; a disorder characterized by antisocial behaviors) are significantly more likely to employ physical and sexual aggression in relationships (Theriault & Holmberg, 2001). However, when Theriault and Holmberg (2001) accounted for impulsive action (in this case, verbal disinhibition), ADHD and CD were no longer significant predictors of aggression.

Zinzow and Thompson (2015a) found that college men who perpetrated sexual assault reported more impulsivity and engagement in risky behaviors, such as high-risk drinking, drug use, and having a higher number of sexual partners than nonperpetrating controls. Furthermore, men who admitted perpetrating multiple sexual assaults scored significantly higher on measures of antisocial personality traits (e.g., low empathy, impulsivity, superficial charm, pervasive anger) and sexually aggressive beliefs, as compared to single offenders. Those men admitting to more severe tactics of sexual assault, such as physical force, also reported significantly more antisocial personality traits and sexually aggressive beliefs as compared to those who used verbal coercion and nonperpetrators (Zinzow & Thompson, 2015b). Within another college sample, impulsive and antisocial traits distinguished perpetrators of sexual assault from nonperpetrators (Mouilso & Calhoun, 2013).

However, some researchers report weak relationships between impulsivity traits and sexual assault. Voller and Long (2010) measured personality differences, using the NEO-PI-R (Costa & McCrae, 1992) between college men, who were divided into three groups based on perpetration status, specifically perpetrators of rape, sexual assault perpetrators, and nonperpetrators. Perpetrators of rape endorsed significantly different personality traits than sexual assault perpetrators, who were actually more similar to nonperpetrators. Rape perpetrators scored significantly lower on agreeableness, extraversion, and

conscientiousness, and scored higher on neuroticism than non-perpetrators. Contrary to other findings, rape perpetrators did not significantly differ from other groups on impulse control or self-discipline. Voller and Long (2010) hypothesized that these groups did not differ from each other on measures of impulsivity because the sample group consisted of college men, who may have better impulse control and have therefore not been arrested for their sexual aggression (as compared to incarcerated offenders).

Wegner, Pierce, and Abbey (2014) sampled a community group of single, socioeconomically and racially diverse young men who had reported perpetrating at least one act of sexual aggression. The findings indicated that perpetrators who had a consensual sexual encounter with their victim(s) before the assault(s) reported greater traits of impulsivity related to lack of forethought and sensation seeking, as compared to perpetrators who assaulted their victim(s) first. The clinical significance of this finding may be questionable, as the perpetrator group with higher impulsivity had mean ratings indicative of indifference (i.e., far closer to "neutral" ratings than ratings of agreement with traits measured). This sample was a subset from a larger study, which included nonperpetrators as well (Abbey, Jacques-Tiura, & LeBreton, 2011). Abbey et al. (2011) found a significant relationship between perpetration of sexual aggression and traits of impulsivity, but this relationship was indirect and better explained by hostile masculinity (i.e., dominating, aggressive attitudes toward women) and heavy alcohol consumption.

Variability of Impulsivity and Perpetration. Impulsivity is likely not a rigid or single-faceted trait with a stable relationship with sexual assault perpetration. Various types of impulsivity (e.g., inattentiveness, behavioral impulsivity, nonplanning) are positively correlated with problem sexual behaviors in a young adult community sample, including preoccupation with sexuality or being sexually active, inability to control repetitive sexual fantasies, inability to control sexual urges, and out-of-control repetitive sexual behavior (Leppink, Chamberlain, Redden, & Grant, 2016). Thompson, Kingree, Zinzow, and Swartout (2015) sampled university men's beliefs about rape, frequency of sexual aggression, impulsivity, and sexual compulsivity. The authors found that various types of sexual aggression styles emerged over the men's four years in college, including consistently low sexual aggression, decreasing sexual aggression, increasing sexual aggression, and consistently high sexual aggression. These participants' self-reported impulsive actions (e.g., acting before stopping and thinking) were positively correlated to the men's reported changes in sexual aggression (i.e., the group that reported engaging in decreasing levels of sexual aggression also reported less impulsivity over time). The authors hypothesize that intervention efforts targeted at risk behaviors, such as reducing impulsivity, may reduce perpetration of sexual aggression.

Impulsivity and Survivors of Sexual Assault

Sexual Assault and Coping. Sexual assault survivors sometimes engage in strategies, such as avoidant coping, in attempts to manage overwhelming distress. Avoidant coping strategies are used to relieve distress without confronting the origin of the distress itself (Ullman, Peter-Hagene, & Relyea, 2014) and increase risk of developing posttraumatic psychopathology following exposure to a trauma (e.g., Benotsch et al., 2000; Mellman, David, Bustamante, Fins, & Esposito, 2001). In particular, for survivors of interpersonal violence, avoidant coping significantly predicts posttraumatic stress disorder (PTSD) symptoms at two different time points, the first within a month of the index trauma and the second at follow-up one year later (Krause, Kaltman, Goodman, & Dutton, 2008). Thus, avoidant coping behavior is typically viewed as maladaptive, as it increases vulnerability for developing long-term psychological distress. One common maladaptive coping behavior following sexual trauma is impulsive sexual decision-making (i.e., risky sexual behavior).

Risky Sexual Behavior. Risky sexual behavior is relatively common from adolescence to adult-

hood. The CDC (2015) found that, among high school students, 41% have experienced sexual intercourse and 30% have had sexual intercourse in the previous 3 months; 43% reported that they did not use condoms during the last time and 21% drank alcohol or used drugs before having sexual intercourse. Risky sexual behavior can include increased promiscuity, sexual intercourse without a condom, and early sexual activity (Beadnell et al., 2005; Levy, Sherritt, Gabrielli, Shrier, & Knight, 2009). These behaviors increase risk for negative health outcomes, such as sexually transmitted infections (STIs), HIV/AIDS, and unexpected pregnancy (e.g., Bryan, Schmiege, & Magnan, 2012).

Risky Sexual Behavior and Sexual Victimization. In the case of sexual victimization, traumatic experiences can have varying effects on survivors' decision-making tendencies in future sexual situations. The role of childhood sexual trauma is particularly important, as childhood sexual abuse (CSA) predicts the likelihood of engaging in sexual activity on the first date or with a stranger (Molitor, Ruiz, Klausner, & McFarland, 2000; Walker et al., 1999). Women with a history of CSA and/or adolescent sexual victimization also have a higher number of consensual sexual partners, reduced use of condoms during intercourse, a higher incidence of sexual intercourse with strangers, increased pregnancies during adolescence, higher rates of sexually transmitted infections including HIV, are more likely to be a younger age at the time of first consensual sexual intercourse, and have higher rates of sexual assault after the age of 16 years (e.g., Elze, Auslander, McMillen, Edmond, & Thompson, 2001; Fergusson, Horwood, & Lynskey, 1997; Rodriguez-Srednicki, 2001; Siegel & Williams, 2003) than women without CSA histories.

Adult sexual trauma is related also to risky sexual behavior in women. Multiple assaults are associated with higher levels of risk behaviors than single assaults, and risky behavior is highest in sexual and physical assault groups in comparison to nonvictim groups with sexual traumatization as the only significant predictor of risky sexual behavior (Davis, Combs-Lane, & Jackson, 2002). Furthermore, Green et al. (2005) found that female college students exposed to a single sexual assault incident tend to report significantly more risky sexual behavior than those who have experienced no trauma, a physical trauma, or a noninterpersonal trauma (i.e., traumatic loss). Violent sexual assault for females in adolescence or adulthood also is significantly associated with anticipation of a higher negative reaction from sexual partners if the victim refuses unprotected sex (Masters et al., 2014).

Risky sexual behavior also occurs following sexual trauma exposure in men. For example, several studies indicate that sexually abused men exhibit increased levels of hypersexuality, prostitution, reduced use of condoms during sexual intercourse, and high numbers of consensual sexual partners (e.g., DiIorio, Hartwell, & Hansen, 2002; O'Leary, Purcell, Remien, & Gomez, 2003; Paul, Catania, Pollack, & Stall, 2001) relative to nonassaulted men. Sexually traumatized men are also more likely than men without a history of sexual trauma to have higher rates of STIs, multiple sexual partners, and higher rates of partner pregnancy (Jinich et al., 1998; Lodico & DiClemente, 1994; Raj, Silverman, & Amaro, 2000) than men without a history of sexual trauma.

Characteristics of the trauma are important to consider as well in men, with greater frequency of CSA associated with higher rates of risky sexual behavior (Paul et al., 2001), and higher coercion during CSA related to elevated rates of risky sexual behavior and HIV diagnosis (Jinich et al., 1998). The relationship between CSA and risky sexual behavior is mediated by a higher incidence of sexual intercourse with strangers, frequent drug use during sexual intercourse, and recently having an abusive partner (Paul et al., 2001). Also, in comparison to adolescent females with a history of CSA, adolescent males are more likely to have higher numbers of consensual sexual partners and engage in sexual intercourse that results in pregnancy (Raj et al., 2000).

Risky Sexual Behavior as Avoidant Coping. Polusny and Follette (1995) theorize that risky sexual behavior may be a form of avoidant coping in which behavioral strategies are used to avoid and/or reduce negative internal emotional

experiences following trauma, including reexperiencing and numbing PTSD symptoms. Emotional avoidance is a process that entails disproportionately high negative evaluations of unpleasant internal experiences (e.g., intrusive thoughts, dissociative flashbacks), an unwillingness to endure these experiences, and efforts to reduce, control, numb, or escape from them (Polusny & Follette, 1995).

Risky sexual behavior can also be understood as avoidant coping perpetuated by the temporary alleviation or suppression of aversive posttraumatic distress and subsequent relief (Polusny & Follette, 1995). These behaviors can also be described as tension-reduction behaviors in that they soothe, distract, and/or reduce debilitating negative emotionality associated with the traumatic event (Briere, 1992, 2001). Thus, risky sexual behavior may be a behavioral avoidant coping strategy that is negatively reinforced by the short-term reduction of distress despite long-term posttraumatic difficulties and increased risk of revictimization (e.g., Livingston, Testa, & VanZile-Tamsen, 2007) and/or other negative health outcomes, such as unwanted pregnancy or sexually transmitted infections (e.g., Bryan et al., 2012).

Risky Sexual Behavior and Impulsivity. Risky sexual behavior following sexual trauma may be mediated by a variety of different factors, including condom use self-efficacy (Thompson, Potter, Sanderson, & Maibach, 1997), sexual assertiveness (Morokoff et al., 1997), and/or self-esteem (Low, Jones, MacLeod, Power, & Duggan, 2000). However, one aspect of risky sexual behavior that has received relatively little study is the influence of impulsivity on these health-related decisions for sexual trauma survivors, which may be vitally relevant to understanding risky sexual behavior (Hoyle, Fejfar, & Miller, 2000). Measures of impulsive choice may be a potential avenue of exploration to determine how state and trait impulsivity influence risky sexual behavior for this clinical population. Considering delay discounting (i.e., a behavioral measure of impulsivity) is associated with sexual risk taking, such as unsafe sexual activity, sexual infidelity, and infrequent condom use (e.g., Daugherty & Brase, 2010; Johnson & Bruner, 2012; Lawyer & Mahoney, 2017), measures of impulsive choice may be essential in elucidating this relationship.

Impulsivity and Discounting for Sexual Activity. Sexual decision-making and risk-taking can be measured with behavioral measures of impulsive choice. Steep rates of discounting for sexual activity would indicate that an individual prefers small amounts of sexual activity over longer—and perhaps more pleasurable—sexual activity at a later date. For instance, these discounting procedures are composed of questions such as "which do you prefer, 3 min of sexual activity right now or 10 min of sexual activity in 1 week?" Delay discounting can be influenced by the nature of the commodity (i.e., domain specificity), with evidence that individuals exhibit higher rates of discounting for sexual activity than money (e.g., Jarmolowicz, Bickel, & Gatchalian, 2013). Higher rates of sexual, but not monetary, discounting are associated with HIV sexual risk behavior and sexual promiscuity (Jarmolowicz, Lemley, Asmussen, & Reed, 2015; Johnson & Bruner, 2012). Lawyer and Schoepflin (2013) have also found varying effects of domain specificity, with sexual activity discounting predicting sexual excitability, but not nonsexual outcomes or sexual inhibition. The relationship between delay discounting and risky sexual behavior has received relatively minimal empirical focus to date. However, examining impulsive choice patterns that are contingent upon the commodity (i.e., sexual activity) is important to accurately reflect sexual trauma survivors' engagement in impulsive behavior within the context of sexual health.

For example, Johnson and Bruner (2012) developed and established a discounting procedure with clinical implications for risky sexual behavior. Cocaine-dependent participants indicated their likelihood of having immediate unprotected sex (i.e., without a condom right now) or delayed protected sex (e.g., with a condom in 3 h) with specific photographed individuals judged to be sexually desirable when no condom was available right away. Participants demonstrated significantly greater discounting (i.e., preference for unprotected sex right now) for

partners considered to be the most sexually desirable or least likely to have an STI versus those found least sexually attractive or most likely to have an STI (Johnson & Bruner, 2012). Risk of STI and/or unwanted pregnancy may be more indicative of risky healthy behaviors within the context of sexual activity. Thus, this discounting procedure could be particularly relevant for elucidating how moment-to-moment cognitive, emotional, and physiological experiences and processes can affect the use of risky sexual behavior as an avoidant coping mechanism for sexual trauma survivors in a controlled, laboratory setting.

The mechanisms that underlie the relationship between impulsivity and sexual risk-taking behavior following sexual trauma remain unclear. Impulsivity is a multidimensional construct that includes a range of disparate individual difference factors that remain relatively stable. For instance, impulsivity is at times behaviorally characterized as a deficit in inhibitory control (Logan, Cowan, & Davis, 1984), an insensitivity to delayed consequences (e.g., Madden & Bickel, 2010), and a tendency toward risk-taking (Green & Myerson, 2013). In addition, insensitivity to risky or punishing outcomes (e.g., STIs, unwanted pregnancies) can be measured with a variety of laboratory measures including the probability discounting task (Green & Myerson, 2013). This task is similar to the delay discounting task, except that individuals choose between a series of relatively small but certain outcomes and a larger but probabilistic outcome. Higher subjective values of probabilistic outcomes are indicated by a shallower 'rate' of probability discounting, suggesting a pattern of preference for larger/uncertain outcomes over smaller/certain outcomes, indicative of a tendency toward engaging in risk-taking.

Although several studies have assessed impulsive or risky sexual behavior using self-report measures (e.g., Turchik & Garske, 2009), behavioral measures of impulsivity-related constructs explain unique variance in negative health-related behaviors such as alcohol use and associated problems above and beyond self-report measures of impulsivity (e.g., Fernie, Cole, Goudie, & Field, 2010). Therefore, the use of behavioral/laboratory measures of impulsivity may be essential to understanding risky sexual behavior following sexual trauma. In particular, delay discounting and probability discounting, but not response inhibition, are significantly associated with risky sexual behavior in young adults (Lawyer & Mahoney, 2017). The robustness of these relationships between impulsivity and risky sexual behavior suggests that traumatic sexual experiences may increase generalized impulsivity, resulting in a higher likelihood to engage in risky sexual behavior. Indeed, Moore et al. (2017) found that impulsivity was significantly related to risky sexual behavior with sexual potentially traumatic events significantly mediating this relationship. Furthermore, some research suggests that sexually abusive experiences may precede damaged cognitive mechanisms such as reduced self-esteem and reality testing strategies that increase the likelihood of risky sexual behaviors (e.g., inaccurately evaluating risk, having multiple sexual partners, reduced condom use; Zurbriggen & Freyd, 2004), further implicating decision-making processes. More substantial behavioral research in controlled settings to corroborate these self-report findings is unequivocally necessary to understand the function of these behaviors.

Conclusions and Future Directions

Impulsivity and Perpetration. With regard to the role of impulsiveness in sexual assault perpetration, findings are complicated and it may be that certain types of impulsivity are uniquely related to particular sexual assault perpetration. Research suggests that impulsivity is associated with more severe perpetration (Yeater, Lenberg, & Bryan, 2012) and recidivism (Thompson et al., 2015; Waite et al., 2005). Other findings indicate that impulsivity is indirectly related to perpetration and better accounted for by other factors, such as substance abuse and/or hostile masculinity (e.g., Abbey et al., 2002; Abbey et al., 2011; Baltieri & de Andrade, 2008), or not related at all in the case of some highly deviant perpetrators (Beauregard

& Leclerc, 2007; Carvalho & Nobre, 2012; Giotakos et al., 2003; Joyal et al., 2014). Given these conflicting findings, there is more to investigate within the relationship between indicators of impulsivity and perpetration of sexual assault.

Future research involving sexual assault perpetration and impulsivity should utilize an operational definition of the type of impulsivity of interest. MacKillop et al. (2016) provide some guidance with their categorization of impulsive choice, action, and personality traits that may be useful for researchers. Research should expand to also include impulsivity specifically related to sexual assault behaviors. Studies would benefit from specifying the type of perpetration assessed, as well as inclusion of a variety of perpetrator groups. Groups might include juvenile and adult perpetrators of juveniles, children, and adults, as well as incarcerated, community, and college samples. Types of sexual assault (e.g., groping, attempted rape, rape) could be another useful categorization to help understand differential relationships with impulsivity. Specification and measurement of impulsivity, perpetration, and assault type will hopefully clarify the complex relationship between these factors. Once these relationships are better understood, research may shift focus onto intervention efforts, as there is very limited extant empirical literature on impulsivity intervention and sexual assault prevention.

Impulsivity and Victimization. The limited research on the interconnections between sexual trauma, impulsivity, and sexual risk behaviors allows relatively few substantive statements, but points to a rich opportunity for researchers. Future research should compare risky sexual behavior within clinical samples of sexually traumatized individuals formally diagnosed with PTSD from sexual trauma exposure, individuals with a history of sexual trauma and subclinical PTSD symptoms, individuals with no sexual trauma history (but other forms of trauma exposure), and individuals with no trauma history. Furthermore, beyond using behavioral measures of impulsivity, future studies could be strengthened with psychophysiological measures of anxious arousal such as measures of skin conductance, systolic and diastolic blood pressures, heart rate activity, and facial electromyography often used with individuals with PTSD (Pole, 2007) to corroborate self-reported emotional distress and its influence on risky sexual behavior.

Considering the potential for negative health sequelae of risky sexual behavior (e.g., sex with HIV-positive individuals or intravenous drug users, unprotected sex, multiple sex partners) including STIs and unwanted pregnancy (Zietsch, Verweij, Bailey, Wright, & Martin, 2010), as well as the increased risk of revictimization for sexually traumatized individuals (e.g., Messman-Moore, Walsh, & DiLillo, 2010), it is imperative to elucidate underlying factors that drive relationships between CSA/sexual assault, impulsivity, and risky sexual behavior. Prospective studies to establish temporality/causality with randomly selected community and clinical samples that examine a wide range of factors, including state and trait impulsivity, that may underlie the relationship between sexual trauma and risky sexual behavior is highly warranted in the effort to engage in primary, secondary, and tertiary prevention of both sexual victimization and the path to revictimization.

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