IMPROVING SEXUAL HEALTH: IMPULSIVITY AND THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND RISKY SEXUAL BEHAVIORS IN AT RISK ADOLESCENT GIRLS

by

NIKITA RAMAKRISHNAN

A THESIS

Presented to the Department of Psychology
and the Robert D. Clark Honors College
in partial fulfillment of the requirements for the degree of
Bachelor of Arts

June 2018

An Abstract of the Thesis of

Nikita Ramakrishnan for the degree of Bachelor of Arts
in the Department of Psychology to be taken June 2018

Title: Impulsivity and the Relationship Between Adverse Childhood Experiences and Risky Sexual Behaviors in At Risk Adolescent Girls

Approved: _____

Dr. Atika Khurana

Research links early childhood adversity to sexual risk behaviors during adolescence, but little is known about whether individual differences in impulsivity can impact this association (Kovensky & Leve, 2017). Baseline data from 122 at-risk adolescent girls participating in the longitudinal "Safe, Healthy, Adolescent Relationships and Peers" (SHARP) study was analyzed to examine impulsivity as a moderator of the association between early adversity and sexual risk behaviors. Nearly two-thirds of the sample was recruited from the Department of Youth Services (DYS), and the remaining from community agencies and schools serving at-risk girls in Lane County, Oregon. Results revealed that impulsivity was not a significant moderator of the relation between adverse childhood experiences and risky sexual behaviors. Future research should investigate the same hypothesis with specific categories of adverse childhood experiences and explore the mediating role of impulsivity in better understanding the relation between early adversity and sexual risk behaviors in adolescent girls.

Acknowledgements

I would like to thank many people who played a role in my senior year at the University of Oregon, beyond the thesis requirement. Firstly, I am endlessly grateful that Dr. Atika Khurana welcomed me into her research with such upbeat positivity. I have utmost respect for her statistical intelligence, grace even when deadlines approach, and hardworking ethics. I am also thankful for Rachel Kovensky's efforts in collecting the current data, as well as the time she took to communicate this knowledge to me. I appreciate Rachel's meetings by the Hedco fireplace, dedication to analyze data, and reassurance. Professor Mai-Lin Cheng contributed to the quality of this work during our Thesis Prospectus class, in which she debunked feelings of intimidation, dread, and insecurity about the thesis.

Further, I would like to thank my partner, Syd Gilinsky, for the critical care she showed me when intimidation, dread, and insecurity were unavoidable in the process. No one could toss me a bag of chips for fuel, push me into the shower for a writing break, and open my laptop for motivation with more love than her. Similarly, I thank my sister and mother, Sarika and Sudha Ramakrishnan, for receiving my apologies and allowing me space to hide away and write. Lastly, I thank Gabriel Haw, fellow Psychology thesis writer, for opening up his time, mind, and statistical resources to me on multiple distressing occasions, and for being a friend I can count on. Thank you all for accompanying me on this thesis journey, and more significantly, my entire senior year. I will cherish the lessons you have taught me as I move onto to pursue more research training to become a psychologist.

Table of Contents

Introduction

Each year, youth between the ages of 15 and 24 make up nearly half of the 20 million new STDs reported in the United States today (CDC, 2015). Behaviors that have been shown to predict such consequences among U.S. high school students are; sexual initiation prior to high school graduation (prevalence rate 41%), having had sexual intercourse with four or more individuals (11.5%), not using a condom during the last time of intercourse (43%), and not using birth control pills or other contraception during the last time of intercourse (73%) (CDC, 2015). Female adolescents are at increased risk for these negative sexual health outcomes associated with risky sexual behaviors (RSB), with one in four reporting a history of an STD and with girls between the ages of 18-24 making up the largest proportion of unintended pregnancies (Dir, Coskunpinar, Cyders, 2014). Although the overall incidence of teen pregnancies and sexually transmitted infections among adolescent girls has declined in recent years (CDC, YRBSS, 1991-2015), it remains a significant public health concern. Further, even among female adolescents, some groups may be at greater risk for RSB and negative health consequences. This study focuses on a sample of at-risk girls to better understand the relation between exposure to early adversity and RSB.

Throughout my undergraduate career at the University of Oregon, my focus has been on preventing sexual violence by providing platforms for education. As an intern on the Sexual Wellness Advocacy Team, I facilitate discussions on sexual consent, how to communicate sexual boundaries, and the major problem of rape

among college students. I presented on similar topics in an annual workshop intended for first year students called, “Get Explicit”. The young adults that make up my audiences often voice confusion: how do you know if someone is too drunk to consent to having sex? where can I get tested for STDs? Seeing such confusion among college students motivates me to research RSB in adolescence and to highlight the need for sexual education at an even younger age. Additionally, I served as a research assistant for one year in the Trauma Psychology research lab, working to improve therapy for survivors of nonconsensual sexual contact. This experience taught me about intervention methods for trauma survivors like practicing mindfulness meditation. I was trained to lead trauma survivors through the study. It was paramount for me to treat these participants with trauma-informed care when administering the potentially triggering survey and heart rate activity. Participants often thanked the research team for searching for better therapy practices for survivors. The purpose of the current study was also to improve treatment for girls who are survivors of childhood adversity or who engage in poor sexual health practices. My educational background in both Psychology and Women, Gender, and Sexuality Studies informs my feminist values and drives my empathy for adolescent girls in the juvenile justice system and my desire to encourage a more positive future for them. Next year, I will continue pursuing research interests in sexual violence prevention and the experience of sexual trauma (a form of childhood adversity) in Oklahoma State University’s Counseling Psychology doctoral program. The knowledge and experience I have gained throughout my undergraduate career has inspired me to take on the

current project, which asks how differences in the impulsivity of adolescent girls impacts the association between enduring childhood adversity and engagement in adolescent risky sexual behaviors.

To better understand the impact of impulsivity on this association, I analyzed data from the "Safe, Healthy, Adolescent Relationships and Peers" (SHARP) Study. Data were collected by researchers at the Prevention Science Institute at the University of Oregon. This project aims to minimize negative sexual experiences and optimize sexual health for underserved populations, such as justice-involved girls. Understanding the role of impulsivity in the relation between ACEs and RSB will inform the methods that researchers and practitioners implement to address these risks, myself included as my career progresses.

Disproportionate Impact on Risky Sexual Behaviors (RSB) on At Risk Girls

Both girls and boys engage in RSB, yet females experience additional sexual and mental health consequences in comparison to males (Thurheimer et al., 2016). Reproductive complications for adolescent girls include pelvic inflammatory disease, ectopic pregnancy, infertility, and cervical cancer (Thurheimer et al., 2016). Each of these health problems are frequently caused by sexually transmitted diseases (STD) and can damage reproductive organs.

Further, youth are the least likely age group to get human immunodeficiency virus (HIV) care within one month of infection and only 10.2% ever get tested (CDC, 2015). HIV is most commonly transmitted through anal or vaginal sex and can also be transmitted from an infected mother to her baby. HIV

attacks the CD4 cells in a person's body, weakening the immune system over time. HIV can be controlled by medicine for some years, but ultimately leads to excess expenditures for medical costs and early death (CDC, 2018). Girls' tendency to not seek HIV treatment allows this sexual health concern to go untreated for longer periods of time and become more detrimental to their wellbeing.

In addition to being at-risk for a host of health consequences related to RSB, girls may also be faced with the challenges associated with unintended pregnancy. Consequently, teen mothers often face lower educational attainment, poverty, and limited career opportunities (Unger, Moline, & Teran, 2000). In other words, becoming pregnant as a teenager is an obstacle to pursuing higher education or even completing high school. This reality results in teen mothers often being less qualified for jobs that allow them to financially provide for both their baby and themselves. Amidst these stressful life circumstances, sexually active girls often display lower self-esteem (Kershaw, Lewis, et al., 2006) and teenage mothers face an increased likelihood of experiencing depression (Unger et al., 2000). A study of 20,000 U. S. adolescents reported that girls experienced significantly more depressive symptoms from engaging in similar RSBs as boys, including early sexual intercourse, sexual intercourse while under the influence of alcohol or drugs, inconsistent condom use, and high lifetime number of sexual partners (Waller, et. al, 2006). Therefore, negative effects on mental health add to the disproportionate vulnerability girls face by engaging in RSB. These data underscore the importance of developing effective prevention and intervention programs aimed at reducing girls' engagement in RSB.

The Relationship Between ACEs and RSB

Adverse childhood experiences are defined by 10 categories including emotional, physical and sexual abuse, emotional or physical neglect, divorced/separated parents, witness of domestic abuse in the home, household alcohol or substance abuse, mental illness of a household member, and incarceration of a household member. The Chronic Disease Prevention and Health Promotion (CDC, 1998, Atlanta GA) initiated the first ACE Survey in 1998 with adults in the Kaiser Health Plan. The findings correlated childhood exposure to abuse or household dysfunction to several leading causes of death and diseases such as cancer, chronic lung disease, and liver disease. As ACE scores increased, so did participants' number of negative health outcomes (Felitti et al., 1998). This dose-response relationship means that people who experience early adversity are at higher risk for additional traumas, and also more health problems (Levenson & Grady, 2016). The CDC's research pioneered the importance society placed on trauma research by demonstrating these later effects on health risk behaviors, health status, and disease prevalence.

Among the various health risks predicted by ACEs is sexual risk (Marshall, Spohr, Taxman, and Walters; Naramore, Bright, Epps, and Hardt, 2017). Sexual risk can include behaviors like early sexual initiation, unprotected sexual involvement, and multiple sexual partners that can lead to adverse health outcomes such as STIs/HIV as well as unintended pregnancies (Khurana et al., 2015). Early sexual initiation, typically defined as having engaged in vaginal sexual intercourse before age 15, has been linked to inconsistent condom use, multiple sexual partners, and

teenage pregnancies (Smith, 1997). Those who experience early adversities are at greater risk for involvement in early and risky sexual involvement, including STIs/HIV (Campbell, Walker, and Egede, 2016).

In particular, youth involved in the juvenile-justice system are at even greater risk for both ACEs and subsequent RSB. For instance, studies report that over 90% of youth in the juvenile justice system have experienced one or more traumatic events, and 52% report having engaged in unprotected sex in the past month, making them two to five times more likely to be diagnosed with HIV or AIDS (Marshal, Spohr, Taxman, Walters, 2017). Girls involved with the juvenile justice system are therefore a critical population vulnerable to risky sexual involvement due to their heightened exposure to early adversity.

Previous studies trying to understand the relation between ACEs and RSB have found depression to play a mediational role. In one study, major depression was found to mediate the relationship between ACEs indicators (physical, emotional, and sexual abuse) and HIV/STI contraction among men. Similarly, for women, major depression mediated the relationship between physical/emotional abuse and both parental violence and HIV contraction (Brown et al., 2016). This study examines the relation between ACEs and RSB using the Traumagenics Dynamics Model (Finkelhor & Browne, 1985). Three of the four dynamics—betrayal, stigmatization, and powerlessness—are used to explain psychological impacts of abuse that lead to engaging in RSB. Abuse by family members may leave a child feeling betrayed. Specifically, sexual abuse may shame a child to believe they are stigmatized by society and parental violence in the home may make a

child feel powerless to the conflict around them (Brown et al., 2016). Therefore, the psychological impacts of betrayal, stigmatization, and powerlessness leave children with little resources or support systems for positive and healthy sexual education. Within the Traumagenics Dynamics Model, Brown and other researchers create a platform to explain girls' sexual risk-taking, considering the psychological impact of childhood trauma in order to inform prevention efforts.

Impulsivity is a consistent predictor of RSB (Khurana et al., 2015) especially among at-risk populations. In a meta-analytic review of 81 studies, researchers found a strong positive relationship between impulsivity and RSB. Furthermore, the relationship was stronger among adolescent girls as compared to boys, validating the importance of examining this relationship among female youth (Dir et al., 2014). Measures of cognitive, behavioral, and personality-based impulsivity show associations with risky sexual behaviors such as inconsistent condom use and increased risk for STIs and HIV (Demos, Heatherton, & Kelley, 2012; Dévieux et al., 2002; Curry et al., 2018). Given that individual differences in impulsivity can predict RSB, the current study investigates if impulsivity might exacerbate the effect of ACEs on RSB. A related study by Oshri et al. (2017) found that impulsivity mediated the relation between retrospective reports of child abuse or neglect on adult substance use (Oshri et al., 2017). Given impulsivity's association with early adversity and risk-taking, the current study examines the moderating roles of impulsivity in the relationship between ACEs and RSB using a sample of at-risk girls.

Girls in the Juvenile Justice System

Two-thirds of the current sample represents the marginalized intersections of being youth, female, and part of the juvenile justice system. By 2010, the number of girls arrested rose steeply by 50%, accounting for 30% of all juvenile arrests (Leve, VanRyzin, & Chamberlain, 2015); Sickmund & Puzzanchera, 2014). Not only is the population of justice involved girls growing in size, but they are also a group most at risk for engaging in RSB (Leve et al., 2015).

In a study on girls in the juvenile justice system, researchers found that 76% of girls had experienced at least one act of sexual abuse before the age of 13. The sample also represented experiences of physical abuse, witnessing domestic violence, and parental incarceration. Girls in the juvenile justice system are estimated to be 200 times more likely to be exposed to trauma than their typically developing peers (Smith, Leve, & Chamberlain, 2006). While categories of ACEs are shown to correlate with juvenile justice involvement, studies also show that involvement in the juvenile justice system itself is related to adolescent RSB (Smith et al., 2006; Leve et al., 2015; Naramore, Bright, Epps, & Hardt, 2017; Marshall et al., 2017; Campbell et al., 2016). The cause for the correlation between ACEs and justice-involvement, as well as justice-involvement and RSB, is not yet clear, but researchers have speculated that exposure to adversity makes the traumatized youth more emotionally reactive and likely to engage in coercive and noncompliant behaviors (Smith et al., 2006). These behaviors could defy the law more generally, making the connection to justice-involvement, or defy caregivers, making the connection to RSB. For this reason, the current study assesses the

relation between ACEs and RSB in justice-involved girls, and further examines if some girls may be at greater risk due to difficulties in impulse control. Alongside exposure to childhood adversity and RSB engagement, youth in the juvenile justice system also tend to have higher rates of impulsivity, which is a consistent and strong predictor of RSB (White, et. al, 1994).

The current sample of justice-involved girls is likely to report higher rates of ACEs, RSB engagement, and higher impulsivity, based on past literature. Justice-involved youth who report more childhood adversity have a more difficult time rehabilitating and are more likely to re-offend (Naramore, Bright, Epps, Hardt, 2017). In the current study, assessing the prevalence of ACEs in the at-risk population will indicate their likely high risk for re-offending. Similar to Naramore et al.'s (2017) findings, the results from this study will help in better understanding the risks and needs of maltreated youth who demonstrate higher levels of impulsivity.

Impulsivity as a Predictor of RSB

Impulsivity is a tendency to act on the spur of the moment without fully considering the consequences of one's actions (Khurana & Romer, 2018). The current study uses the Barratt-Impulsivity Scale 11 (BIS-11) as a combined biological, social, cognitive, and behavioral inventory of impulsiveness (Fossati, Di Ceglie, Acquarini, and Barratt, 2001). Participants reported on their ability to "concentrate" and "plan easily", as well as their struggles with "racing thoughts" and becoming "easily bored". Impulsivity can be operationalized in a variety of

ways using tests of cognitive measures such as inhibitory control, behavioral tasks such as delay of gratification, and self-report surveys. BIS-11, the measure used to assess impulsivity in this study, is a widely used self-report measure with good psychometric properties (Stanford et al., 2009).

Some studies have found that impulsivity is linked to the effect of ACEs on juvenile offending. For example, in a study with 22,575 juvenile offenders, categorized based on "serious, violent, and chronic (SVC) offenders" and "one and done (O&D) offenders", higher rates of ACEs were associated with greater likelihood of being a SVC offender. Further, higher rates of impulsivity were found in the SVC offenders when compared with the O&D offenders, indicating impulsivity as a potential factor facilitating the relationship between ACEs and more severe offenses (Fox, Perez, Cass, Baglivio, & Epps, 2015).

In summary, findings show that girls in the juvenile justice system are much more likely to have endured adverse childhood experiences than their non-offending peers and are more likely to engage in RSB. In addition, high rates of impulsivity in this population (Dévieux, 2002; White et al., 1994; Curry et al., 2018; Fox et al., 2015) might increase their likelihood of involvement in RSB. The current study uses the multidimensional measure of impulsivity, the BIS-11, to understand the effect of impulsivity on the relationship between ACEs and RSB.

Method

Participants

Researchers collected baseline data from 122 at-risk adolescent girls (Mean age = 15.4 years, SD = 1.48) participating in the "Safe, Healthy, Adolescent Relationships and Peers" (SHARP) study. Nearly two-thirds of the sample (62.8%; n=76) were recruited from the Department of Youth Services (DYS). The remaining girls were recruited from community agencies serving at-risk girls in Lane County, Oregon, including Ophelia's Place, Kelly Middle School, the Boys and Girls Club, and First Place Family Center. Girls in the sample self-identified into the following racial-ethnic groups: 62.3% non-Hispanic White, 6.6% non-Hispanic Black, 12.3% Hispanic, 10.7% more than one race, and 8.3% other racial-ethnic backgrounds including Native American, Asian American, and Pacific Islander. The researchers first gained approval by the Institutional Review Board for the interviews administered with community participants. Then, researchers obtained consent from both caregivers and youth prior to completing in-home interviews or interviews in the research lab. In both scenarios, girls answered surveys on a computer or Microsoft tablet with a researcher present.

Measures

Adverse Childhood Experiences Survey

The ACE survey (Felitti et al., 1998) includes 10 categories of adverse childhood experiences: emotional, physical and sexual abuse, emotional or

physical neglect, divorced/separated parents, witness of domestic abuse in the home, household alcohol or substance abuse, mental illness of a household member, and incarceration of a household member (refer to Index 1). Current study participants tallied the adverse childhood experiences they had been exposed to and provided their total ACE score (range: 0-10) to the interviewer. We did not obtain the specific types of ACEs in girls' childhood due to mandatory reporting requirements. This measure has been shown to be both a valid and reliable measure of early adversity (Dube, Williamson, Thompson, Felitti, and Anda, 2004).

Barratt-Impulsiveness Scale

Impulsivity was assessed using the Barratt-Impulsiveness Scale (BIS-11), which includes 25 items. Participants were asked to respond to statements such as, "I do things without thinking", "I am a careful thinker", and "I am self-controlled". Responses were classified through a Likert-type scale ranging from 1=Rarely/Never to 4=Almost Always/Always. Total scores of 72 or higher signify high impulsivity. The BIS-11 correlates to similar measures of impulsivity: the Zuckerman Sensation-Seeking Scale, Eyesenck Impulsiveness Scale, Behavioral Inhibition/Activation Scales, and Behavioral Measures of Impulsiveness. Although more studies on the BIS 11 will bolster the overall validity of the measure, the BIS 11 shows high convergent validity and is commonly used as a construct of impulsivity in both research and clinical settings (Stanford et. al, 2009).

Sexual Experiences Survey

The Sexual Experiences Survey identifies risky sexual behaviors in participants.

This scale includes 8 items that assess involvement in a range of sexual behaviors including frequency of kissing, touching above or below the waist, the pressure to go further sexually, use of safe sex practices, and number of sexual partners (Kim et al., 2013). Capaldi, Stoolmiller, & Owen (2002) found this scale to be a valid and reliable in measuring RSB in a ten-year longitudinal study on STD contraction in young men (2002).

Control Variable

The present study controlled for the age of adolescent girls at the time of baseline assessment. Older adolescent girls are likely to have engaged in more RSB, hence we controlled for the effect of this variable in our model.

Analytic Approach

A two-way interaction term in multiple regression analysis was used to test the moderating effect of impulsivity on the association between ACEs and RSB. Specifically, a continuous-by-continuous interaction between impulsivity and ACEs was added as a predictor to the model, in addition to main effects of the mean centered variables. In case the interaction was non-significant, findings from the model with the main effects of the two variables, without the interactions term, would be presented. The effect of age was controlled for. All bivariate and regression analyses were conducted in SPSS. The hypothesized model is depicted in Figure 1.

Figures

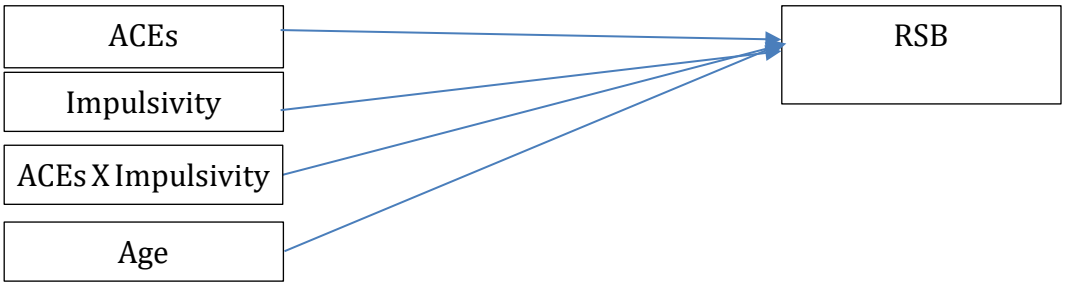

Figure 1: This figure represents the hypothesized predictors of RSB, including the interaction of ACEs and Impulsivity to predict RSB.

Results

Descriptive statistics and bivariate correlations for all variables are reported in Table 1. Age (r = 0.53, p < 0.001) and ACEs (r = 0.32, p < 0.001) were significantly and positively correlated with sexual risk, suggesting that older girls and those with higher ACEs scores reported higher levels of RSB. Impulsivity was not significantly correlated with age, (r = -0.06, p =0.52), ACEs (r = 0.14, p = 0. 13), or sexual risk (r = 0.16, p = 0.09).

Regression Analysis

In the direct effects model, we tested the effects of ACEs, impulsivity, and age on RSB outcome. This model explained 36.8% of the variance (F (3, 114) = 22.11, p<.001). The main effect of ACEs, B(SE) = 0.08 (0.02), β = 0.24 p =0.02, age, B(SE) = 0.25 (0.04), β = 0.51 p <0.001, and impulsivity, B(SE) = 0.01 (0.01), β = 0.15 p =0.05 was significant.

In the second step, the interaction term between impulsivity and ACEs was entered. The effect of the interaction term was non-significant B(SE) = -0.00(0.00),

β = -0.07, p = 0.38. Hence, the interaction term was dropped and only the main effects of ACEs, impulsivity, and age were retained.

Tables

Variables	1	2	3	4
1. Age	–	0.10	-0.06	0.53***
2. ACEs	0.10	–	0.14	0.32***
3. Impulsivity	-0.06	0.14	–	0.16
4. Sexual risk behavior	0.53***	0.32***	0.16	–
M	15.39	3.08	57.55	.01
SD	1.48	2.33	8.23	.73
Range	18.09	10.00	88.00	2.10

*Note. *p < .05 **p < .01 ***p < .001*

Table 1: Descriptive Statistics and Correlations for Variable in Model.

This table indicates significant correlations between variables.

Limitations

The following limitations should be noted when interpreting present findings. First, the data were collected using self-report measures, which could have resulted in social desirability bias and conformant bias. Second, although we examined these relations in a high-risk sample of girls, majority of who were involved in the juvenile justice system, our findings are not generalizable beyond this population, and are limited in terms of sample size and power. Third, we

controlled for the effect of age, which explained a significant amount of variance in the outcome. Future studies should examine the effect of other confounding variables such as socioeconomic status that has been linked to ACEs, impulsivity, and RSB (Danese et al., 2009; Lynham et al., 2000; Madise, Zulu, and Ciera, 2007). Finally, our ACEs measure was based on a total score of number of adverse experiences reported and did not differentiate between the type of adverse experiences (e.g., physical versus sexual abuse victimization). Given that the specific adverse childhood experiences (e.g., sexual abuse) can have a stronger effect on RSB, future research should examine associations with specific type of adverse childhood experiences.

Clinical Implications and Future Research

Existing data relates exposure to ACEs with RSB engagement, with a higher prevalence in justice-involved girls. This population is at increased risk for sexual health consequences, such as STD contraction, early pregnancy, and cervical cancer. Until now, no study has investigated impulsivity as a moderator of the relation between ACEs and RSB. Our analyses revealed that both ACEs and impulsivity only had direct effects on RSB in our sample. The association of ACEs with RSB was not contingent on the levels of impulsivity. Impulsivity's direct effect on RSB was not as strong ($p = 0.05$), likely due to the small sample size; nevertheless, interventions that focus on reducing impulsive tendencies in at-risk girls could help reduce involvement in risky sexual behaviors. This suggestion is based on present findings as well as prior studies (Khurana et al., 2015)

documenting direct effects of impulsivity on early sexual initiation and inconsistent condom use.

While few interventions have been done to specifically reduce RSB, therapy models that target impulse control, in general, are empirically supported. First, mindfulness meditation is one approach that has been used to reduce levels of impulsivity. Mindfulness involves body relaxation, emotional awareness, and training to remain present or attentive to the present moment (Yao et al., 2016). Researchers found that adults with internet gaming disorder who practiced mindfulness meditation alongside group therapy showed decline in levels of impulsivity (Yao et al., 2016). Similarly, opioid-dependent individuals who also received mindfulness-based intervention, reported lower levels of impulsivity ((Yaghubi, Zargar, and Akbari, 2017). Youth who have been exposed to early adversity may benefit from these types of intervention techniques. The focus of emotional awareness in mindfulness meditation may be helpful in managing some of the intensity of risky sexual desires.

In addition, self-compassion-focused therapy has been implemented to reduce emotion dysregulation and impulsivity. Self-compassion involves kindness toward oneself, a connection to humanity or lack of isolation, and being mindful (Loess & Waltz, 2015). Similar to meditation, this therapy practice reinstates a client's ability to process their bodily awareness and mindfulness, with the goal of increasing compassion for oneself and others. more slowly. In a study investigating borderline personality disorder (BPD), self-compassion was a moderator in the relationship between emotion dysregulation and BPD symptoms,

which included impulsivity (Loess & Waltz, 2015). That is, the more self-compassion one reported, the less likely they were to have emotion dysregulation trigger their BPD symptoms.

Finally, cognitive behavioral therapy (CBT) is a supported practice for substance abuse, by managing impulsive decision making and intense reward seeking behaviors (Dong & Potenza, 2014). CBT targets negative thought patterns, which could include negative self-esteem or recurring desires, in order to change unwanted behaviors, such as RSB. The therapy practices included as part of CBT have been effective in reducing impulsivity and associated risk-taking in adolescents (Heller, Pollack, Ander, R., & Ludwig, 2013). Future research should test the effectiveness of these methods in relation to change in RSB engagement over time.

Further, reducing children's exposure to early adversity is the ideal solution to reducing a host of negative health outcomes, including RSB as indicated by this study. This primary prevention approach, based on the findings, includes raising awareness of ACEs and the negative impact they can have on children's lives, child abuse prevention programs, and increased availability for mental health care. Secondary interventions focus on programs that provide families with tools to address the negative outcomes often associated with ACEs, including programs such as child protective service agencies and therapy modalities that observe parent-child interactions (Oral et al., 2016). Finally, CBT is a common approach to tertiary intervention, which alleviates the post-traumatic stress, depression, and anxiety that can result from experiencing ACEs (Oral et al., 2016). Most important,

these programs, agencies, and therapy approaches must be delivered with trauma-informed care (TIC), meaning that services recognize trauma symptoms and are capable of responding in a knowledgeable way with policies, procedures, practices, and ways to prevent re-traumatization (Oral et al., 2016). TIC ensures that clients are assisted with safety, provided with options, and treated with an absence of prejudice.

Additionally, sex education is a widely used prevention method of RSB, especially for at risk adolescent girls who are more likely to be engaging in RSB. One study recruited 54 adolescents from the evening reporting center, an alternative to incarceration, and provided them with an 8-week sex education program that addressed knowledge and beliefs about HIV/AIDS and substance use, peer influence, and partner relationships (Donenberg, Emerson, Mackesy-Amiti, & Udell, 2014). At a 3 month follow up, the program had successfully increased HIV testing, HIV knowledge, and positive beliefs and attitudes toward HIV prevention (Donenberg et al., 2014). The program was adjusted to address Latino and African American audiences as well. Like the Preventing HIV/AIDs Among Teens (PHAT Life) program, sex education programs should be tailored to the growing population of justice-involve girls. Such programs should require HIV testing, encourage safe sex practices and positive views of sexuality, and perhaps, include conversations about impulsive thoughts and behaviors.

Finally, future research should examine the mediating role of impulsivity as it is possible that early adversity negatively impacts the development of impulse control, which in turn leads to greater RSB. Similar mediational effects of

impulsivity were noted by Oshri and colleagues (2017) in relation to childhood abuse and later substance abuse. Even though present study findings regarding moderation were non-significant, the direct effects of ACEs and impulsivity were significant even after controlling for each other's effect as well as that of age. As such, regardless of an individual's ACE score, interventions aimed at reducing impulsivity among at-risk girls would be effective in reducing their risky sexual involvement. Impulsivity is also a predictor of substance use (Khurana et al., 2017) and other delinquent behaviors (White et al., 1994). Thus, providing interventions focused on improving self- control would be beneficial in terms of preventing a range of negative health outcomes including substance dependence and violence. Future research should also explore if intervention approaches that are effective in addressing the needs of girls exposed to early adversity could be incorporated with self-control focused interventions in providing a more holistic approach to reducing RSB in at-risk girls.

Bibliography

Brown, M. J., Masho, S. W., Perera, R. A., Mezuk, B., Pugsley, R. A., & Cohen, S. A. (2017). Sex disparities in adverse childhood experiences and HIV/STIs: mediation of psychopathology and sexual behaviors. AIDS and behavior, 21(6), 1550-1566.

Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. American journal of preventive medicine, 50(3), 344-352.

Capaldi, D. M., Stoolmiller, M., Clark, S., & Owen, L. D. (2002). Heterosexual risk behaviors in at-risk young men from early adolescence to young adulthood: prevalence, prediction, and association with STD contraction. Developmental psychology, 38(3), 394.

The Centers for Disease Control and Prevention. (2018). *HIV/AIDs Basics.*

The Centers for Disease Control and Prevention. (2015). *Teen Pregnancy Prevention and United States Students.*

The Centers for Disease Control and Prevention. (1991-2015). *Trends in the Prevalence of Sexual Behaviors and HIV Testing National YRBS: 1991—2015.*

Curry, I., Luk, J. W., Trim, R. S., Hopfer, C. J., Hewitt, J. K., Stallings, M. C., ... & Wall, T. L. (2018). Impulsivity Dimensions and Risky Sex Behaviors in an At-Risk Young Adult Sample. Archives of sexual behavior, 47(2), 529-536.

Danese, A., Moffitt, T. E., Harrington, H., Milne, B. J., Polanczyk, G., Pariante, C. M., ... & Caspi, A. (2009). Adverse childhood experiences and adult risk factors for age-related disease: depression, inflammation, and clustering of metabolic risk markers. Archives of pediatrics & adolescent medicine, 163(12), 1135-1143.

Demos, K. E., Heatherton, T. F., & Kelley, W. M. (2012). Individual differences in nucleus accumbens activity to food and sexual images predict weight gain and sexual behavior. Journal of Neuroscience, 32(16), 5549-5552.

Dir, A. L., Coskunpinar, A., & Cyders, M. A. (2014). A meta-analytic review of the relationship between adolescent risky sexual behavior and impulsivity across gender, age, and race. Clinical Psychology Review, 34(7), 551-562.

Donenberg, G. R., Emerson, E., Mackesy-Amiti, M. E., & Udell, W. (2015). HIV-risk reduction with juvenile offenders on probation. Journal of child and family studies, 24(6), 1672-1684.

Dong, G., & Potenza, M. N. (2014). A cognitive-behavioral model of Internet gaming disorder: theoretical underpinnings and clinical implications. Journal of psychiatric research, 58, 7-11.

Dube, S. R., Williamson, D. F., Thompson, T., Felitti, V. J., & Anda, R. F. (2004). Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. Child abuse & neglect, 28(7), 729-737.

Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, . . . Marks. (1998). Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine, 14(4), 245-258.

Finkelhor, D., & Browne, A. (1985). The traumatic impact of child sexual abuse: a conceptualization. American Journal of orthopsychiatry, 55(4), 530.

Fossati, A., Di Ceglie, A., Acquarini, E., & Barratt, E. S. (2001). Psychometric properties of an Italian version of the Barratt Impulsiveness Scale-11 (BIS-11) in nonclinical subjects. Journal of clinical psychology, 57(6), 815-828.

Fox, B. H., Perez, N., Cass, E., Baglivio, M. T., & Epps, N. (2015). Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. Child Abuse & Neglect, 46, 163-173.

Heller, S., Pollack, H. A., Ander, R., & Ludwig, J. (2013). Preventing youth violence and dropout: A randomized field experiment (No. w19014). National Bureau of Economic Research.

Kim, H. K., Pears, K. C., Leve, L. D., Chamberlain, P. & Smith D. K. (2013). Intervention Effects on Health-Risking Sexual Behavior Among Girls in Foster Care: The Role of Placement Disruption and Tobacco and Marijuana Use, Journal of Child & Adolescent Substance Abuse, 22:5, 370-387, DOI: 10.1080/1067828X.2013.788880

Khurana, A., Romer, D., Betancourt, L. M., Brodsky, N. L., Giannetta, J. M., & Hurt, H. (2015). Stronger working memory reduces sexual risk taking in adolescents, even after controlling for parental influences. Child development, 86(4), 1125-1141.

Khurana, A. & Romer, D. (2018). Impulsivity in Adolescence: History and consequences. In Stephen Hupp and Jeremy Jewell (Eds.) *The Encyclopedia of Child and Adolescent Development.* Wiley Blackwell.

Kovensky, R. & Leve, L. (2017). Adverse Childhood Experiences (ACEs) and Sexual Risk Behavior in Adolescent Girls: The Mediating Role of Externalizing Behaviors. Poster Presentation.

Leve, L., Van Ryzin, M., & Chamberlain, P. (2015). Sexual risk behavior and STI contraction among young women with prior juvenile justice involvement. Journal of HIV/AIDS & social services, 14(2), 171-187.

Loess, P., & Waltz, J. (2015). Borderline Personality Disorder Symptoms, Emotion Regulation, and Self-Compassion.

Madise, N., Zulu, E., & Ciera, J. (2007). Is poverty a driver for risky sexual behaviour? Evidence from national surveys of adolescents in four African countries. African journal of reproductive health, 11(3), 83-98.

Marshall, B., Spohr, S. A., Taxman, F. S., & Walters, S. T. (2017). The Effect of Childhood Household Dysfunction on Future HIV Risk among Probationers. Journal of health care for the poor and underserved, 28(2), 754-769.

Naramore, R., Bright, M. A., Epps, N., & Hardt, N. S. (2017). Youth arrested for trading sex have the highest rates of childhood adversity: a statewide study of juvenile offenders. Sexual Abuse, 29(4), 396-410

Oral, R., Ramirez, M., Coohey, C., Nakada, S., Walz, A., Kuntz, A., ... & Peek-Asa, C. (2015). Adverse childhood experiences and trauma informed care: the future of health care. Pediatric research, 79(1-2), 227.

Oshri, A., Kogan, S. M., Kwon, J. A., Wickrama, K. A. S., Vanderbroek, L., Palmer, A. A., & Mackillop, J. (2017). Impulsivity as a mechanism linking child abuse and neglect with substance use in adolescence and adulthood. Development and psychopathology, 1-19.

Sickmund, M., & Puzzanchera, C. (2014). Juvenile offenders and victims: 2014 national report.

Smith, D. K., Leve, L. D., & Chamberlain, P. (2006). Adolescent girls' offending and health-risking sexual behavior: The predictive role of trauma. Child maltreatment, 11(4), 346-353.

Smith, C. A. (1997). Factors associated with early sexual activity among urban adolescents. Social work, 42(4), 334-346.

Stanford, M. S., Mathias, C. W., Dougherty, D. M., Lake, S. L., Anderson, N. E., & Patton, J. H. (2009). Fifty years of the Barratt Impulsiveness Scale: An update and review. Personality and individual differences, 47(5), 385-395.

Thurheimer, J., Sereika, S., Founds, S., Downs, J., & Charron-Prochownik, D. (2016). Efficacy of the READY-Girls Program on General Risk-Taking Behaviors, Condom Use, and Sexually Transmitted Infections Among Young Adolescent Females With Type 1 Diabetes. The Diabetes Educator, 42(6), 712-720.

Unger, J. B., Molina, G. B., & Teran, L. (2000). Perceived consequences of teenage childbearing among adolescent girls in an urban sample. *Journal of Adolescent Health*, *26*(3), 205-212.

Waller, M. W., Hallfors, D. D., Halpern, C. T., Iritani, B. J., Ford, C. A., & Guo, G. (2006). Gender differences in associations between depressive symptoms and patterns of substance use and risky sexual behavior among a nationally representative sample of US adolescents. *Archives of Women's Mental Health*, *9*(3), 139.

White, S. F., Cruise, K. R., & Frick, P. J. (2009). Differential correlates to self-report and parent-report of callous–unemotional traits in a sample of juvenile sexual offenders. Behavioral Sciences & the Law, 27(6), 910-928.

White, J. L., Moffitt, T. E., Caspi, A., Bartusch, D. J., Needles, D. J., & Stouthamer-Loeber, M. (1994). Measuring impulsivity and examining its relationship to delinquency. Journal of abnormal psychology, 103(2), 192.

Yaghubi, M., Zargar, F., & Akbari, H. (2017). Comparing Effectiveness of Mindfulness-Based Relapse Prevention with Treatment as Usual on Impulsivity and relapse for methadone-treated patients: A Randomized Clinical Trial. Addiction and Health, 9(3), 156-165.

Yao, Y. W., Chen, P. R., Chiang-shan, R. L., Hare, T. A., Li, S., Zhang, J. T., ... & Fang, X. Y. (2017). Combined reality therapy and mindfulness meditation decrease intertemporal decisional impulsivity in young adults with Internet gaming disorder. Computers in Human Behavior, 68, 210-216.