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Adverse Childhood Experiences and Sexual Functioning: A Mediation Analysis of Difficulties in Emotional Regulation

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An Undergraduate Thesis Submitted in Partial Fulfillment

of the Requirements for the University Honors Program

East Tennessee State University

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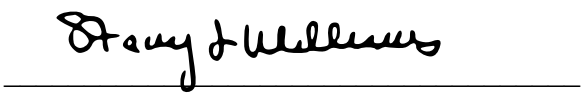


Dr. Stacey Williams, Thesis Reader

ACES, DERS, and Sexual Functioning

Abstract

Sexual dysfunction can lead to a negative impact upon a person's mental and relational health, including relational and overall distress, poor relationship and sexual satisfaction, and clinical mood disorders such as depression. Moving upstream to identify factors that may predict sexual dysfunction would therefore be beneficial for early intervention in at-risk populations. History of childhood trauma is one such factor that may influence sexual functioning later in life. While adverse childhood experiences (ACEs) have been less studied in association with sexual dysfunction, there is some evidence to indicate that they may be related. ACEs have been shown to increase the risk of physical and psychological conditions (such as physical inactivity, obesity, heart disease, substance use, depression, and anxiety) which can then impede sexual functioning; further, a study of sex therapy patients found that their ACE scores were significantly higher than those in community samples. Additionally, difficulties in emotion regulation (DERS) may also play an important role in this relationship, as they have been shown to mediate the relationship between ACEs and several subsequent health risks. The purpose of this study was to determine whether there was a significant relationship between ACEs and sexual problems, and further, if emotion regulation difficulties mediated this relationship. College students ($N = 696$) were recruited to complete an online survey of their health behaviors. The overall regression model was significant, $F(2, 692) = 5.78$, $p = .003$, but explained only 1.6% of the variance in sexual functioning. Although ACEs significantly predicted both sexual functioning ($b = 0.60$, $t(694) = 3.40$, $p < 0.001$) and DERS ($b = 2.08$, $t(694) = 4.83$, $p < 0.001$), DERS did not significantly predict sexual functioning ($b = -0.01$, $t(694) = -0.63$, $p = 0.52$), and did not emerge as a significant mediator of the relationship between ACEs and sexual functioning ($b = -.02$, CI [-

.08,.05]). Further, in contrast to hypotheses, participants with higher ACE scores actually reported higher sexual functioning relative to participants with lower ACE scores in this sample. Results highlight the complexities of the relationship between ACEs and current sexual functioning. While difficulties in emotion regulation are still likely to be clinically significant for individuals with trauma histories, they do not appear to be a major contributing factor to difficulties in sexual functioning.
Keywords: Sexual functioning, sexual health, adverse childhood experiences, emotional regulation

Adverse Childhood Experiences and Sexual Functioning: A Mediation Analysis of Difficulties in Emotional Regulation

Sex is a basic human function, and an activity participated in by nearly all of the adult population. Given the correlations between sexual health and physical, psychological and relational health (Heiman, 2002), it is important for healthcare providers to understand the depth and complexity of sexual problems to truly be able to treat such issues. Upsets in sexual health can be caused by upsets in physical health, for example, and consequently cause relational distress and overall distress. Clinically low levels of sexual desire and arousal are linked with poorer relationship satisfaction and sexual satisfaction, as well as mood disorders such as depression (Dube et al., 2019). Given the potential for far-reaching implications of poor sexual functioning, understanding factors that can predict sexual functioning is important, including factors such as early childhood trauma or emotional regulation issues.

Sexual functioning refers to the ways the body responds to stimulation during the sexual response cycle. Dysfunction can occur under the broad categories of pain, arousal, desire, and orgasm. Sexual dysfunction includes disorders causing lack of sexual interest or desire, difficulty obtaining or maintaining erections, difficulty reaching orgasm or premature orgasm, and painful intercourse. Occasional sexual dysfunctions are more common than often believed, occurring frequently even in nonclinical samples (Kinzl et al. 1996). In one study, 38.2% of men and 22.8% of women reported having experienced one or more sexual problems, with 4.2% of men and 3.6% of women meeting the DSM-5 morbidity criteria for one or more problems (Mitchell et al., 2015). Of those reporting problems, more than half of both sexes reported such problems lasting six months or more. Patients suffering from sexual dysfunction also reported low sexual satisfaction and clinically significant dissociation, depression, and psychological distress (Bigras

et al., 2017). The same study found couples also reported relational attachment insecurities, including both anxious and avoidant attachment and couple distress. These problems affect not only the patients experiencing dysfunction, but also their partners. Research shows that partners of those with sexual problems may report lower sexual functioning, sexual satisfaction, relationship satisfaction, and communication than their control counterparts (Dube et al., 2019).

Adverse Childhood Experiences (ACEs) are measures of abuse, neglect, and household dysfunction which may cause trauma before the age of 18 (Felitti et al., 1998). The scale includes items such as parental substance abuse, physical and emotional neglect and abuse, and parental incarceration. ACEs are also common among the general population. The original study reported that 52.1% of adults had some kind of ACE exposure (Felitti et al., 1998). These exposures increase the risks for developing various psychological and somatic symptoms, as well as negative health behaviors in adults. ACEs were highlighted as an imperative research topic by researchers initially studying connections in the leading causes of death in American adults. They were found to increase the risk of psychological and somatic symptoms which can then impede sexual functioning, such as substance use, depression, suicide attempts, physical inactivity, severe obesity, ischemic heart disease, chronic lung disease, and cancer (Felitti et al., 1998). In addition to indirect impacts on sexual health, Felitti et al. found that ACE exposures were linked to a history of sexually transmitted infections and higher numbers of sexual partners. This data shows both a direct and indirect link between ACEs and sexual health, as ACEs increase the likelihood of sexual risk behaviors as well as overall health problems. Family dysfunction contributes to development of sexual disorders in both adult men and women and is a better predictor than childhood sexual abuse, despite CSA frequently being the focus of sexual problems research (Kinzl et al., 1996). A study of sex therapy patients found that their sample

had ACE scores far greater than community samples, sometimes twice as high (Bigras et al., 2017). Though most research in this field is cross-sectional and cannot claim cause-effect relationships, there is a significant correlation between higher ACE exposures and sexual problems. The current study aims to explore the connection between ACEs and sexual problems in adults to further illustrate the importance of well-rounded treatment plans involving sexual dysfunction.

The effects of emotional regulation are also important to understanding the relationship between ACEs and sexual problems. Greater suppression of emotion or expression of anger is linked to poorer social well-being, which entails lower social support, social satisfaction and quality, and romantic relationship quality (Chervonsky & Hunt, 2017). Not only does this add to the effects of sexual dysfunction on romantic relationships, but poor emotional regulation effectively lessens the social support which would aid in resilience. By contrast, greater expression of general and positive emotions is linked to positive social outcomes (Chervonsky & Hunt, 2017). Emotional regulation does play a role in overall health, as well. In those with childhood trauma (ACEs), emotional regulation significantly mediates physical and mental health problem outcomes (Cloitre et al., 2019). Given this relationship, it is imperative to explore the specific effects emotional regulation difficulties may have on the relationship between ACEs and sexual dysfunction.

Emotional regulation has the potential to provide a mediating link between ACEs and sexual problems as this study seeks to observe. The links between ACEs and posttraumatic stress disorder (PTSD), depression, and physical health symptoms are all significantly mediated by emotional regulation (Cloitre et al., 2019). In addition to mediating ACEs and their risk factors from the original study, emotional regulation plays a role in the health of sexual relationships.

Maladaptive emotional regulation contributes to psychological distress, which indirectly affects sexual outcomes (Tutino et al., 2017). When displaying greater difficulties regulating negative emotion, women report higher depression and anxiety and lower relationship satisfaction, and men report higher depression, anxiety, and sexual distress (Dube et al., 2019). Another study found that adolescents with difficulties in emotion regulation skills (DERS) were less likely to engage in exclusive relationships and reported higher numbers of sexual partners (Shuster et al., 2020).

The current study aims to explore the nature of the relationship between ACEs and sexual health among adults. In addition, this study seeks to understand the potential mediation of emotional regulation between these two factors. Though studies have investigated DERS before as a mediator for ACEs and various risks/outcomes, sexual health has not received the necessary attention as an outcome of this dynamic. This study will specifically explore these relationships as they pertain to a nonclinical sample of college students surveyed about a spectrum of their health behaviors.

Thoroughly examining these relationships would allow healthcare professionals to pursue more cohesive, inclusive treatments for sexual problems which address the variety of etiology for sexual dysfunctions. The first hypothesis is that ACEs will positively correlate with sexual problems. The second hypothesis is that ACEs will positively correlate with DERS. The third hypothesis is that DERS will positively correlate with sexual problems. The final hypothesis is that DERS will mediate the relationship between ACEs and sexual problems.

Method

Participants and Procedures

ACES, DERS, and Sexual Functioning

The College Student Health Behaviors Study recruited participants from the SONA pool of students at East Tennessee State University who were over the age of 18. The target demographic for this study was students over the age of 18 of any gender identity or sexual orientation, who were sexually active.

These students were directed to the REDCap platform to fill out the survey and were able to skip questions or discontinue at any time. Participants were required to indicate they had read through and agreed to the consent form, which included an introduction dictating the purpose of the study and the potentially sensitive subjects within. Those who completed the survey were granted 1.5 research credits through the SONA program.

The survey first covers sexual functioning with the Changes in Sexual Functioning Questionnaire (CSFQ-14), then the presence of childhood trauma with the ACE scale, and finally emotional regulation with the DERS. The independent variable will be measured by the ACE scores. The dependent variable will be measured by the CSFQ-14, and the mediator measured by the DERS.

Measures

Demographic data was collected which included items about age, gender identity, sexual orientation, and socioeconomic status. These measures were important to show the generalizability of results from this study across college students as well as to show demographics which may stand out as more at-risk of sexual problems.

The Changes in Sexual Functioning Questionnaire (CSFQ-14) is a survey of 14 items, differentiated by the participant's sex (Keller et al., 2006). It asks questions about sexual enjoyment, desire, arousal, and orgasm. Participants respond on a five-dimension Likert or

frequency scale for each question to determine their score. An example question asks, "How often do you become aroused and then lose interest?"

The Adverse Childhood Experiences (ACE) study questionnaire was created to measure the effects of traumatic exposures in childhood on adult health risks (Felitti et al., 1998). It covers categories of abuse, neglect, and household dysfunction. The ACE questionnaire is a 10-item survey which asks participants questions pertaining to their first 18 years of life. The scale includes questions such as "Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?"

Lastly, the Difficulties in Emotional Regulation Scale (DERS) consists of questions guiding participants to self-assess their ability to process, understand, and control their emotions (Gratz & Roemer, 2004). There are 36 items framed in a five-point Likert scale from 1- "Almost Never" to 5- "Almost Always." For example, one item states, "I am attentive to my feelings."

Analytic Strategy

Statistical analyses were conducted using SPSS version 3.00 with Process macro. The proposed mediation model was tested using Hayes Process Model 4 with 5,000 Bootstrap samples. Individual regression paths within the model were also examined to explore the relationships between each of the individual factors as well as the whole.

Results

Participants

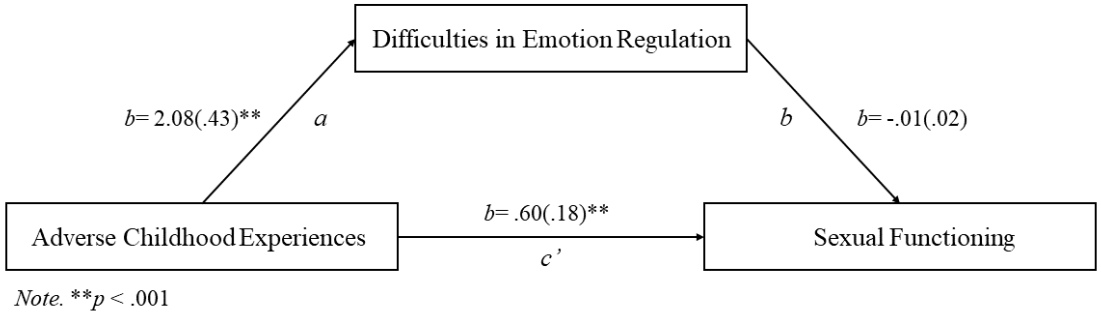
The study's participants were primarily white (79.1%), heterosexual (86.2%) females (71.9%) in their freshman year of college (48.5%). While not the majority, roughly a quarter of the sample were first-generation college students (25.5%). The mean age was 20.62 (*SD* =

4.574) ranging from 18 to 54. More than half of participants reported at least one ACE exposure (61.7%). For more demographic information, see Table 1.

Study Outcomes

Figure 1

Results Model of Mediation Analysis



The overall regression model was significant, $F(2,692) = 5.78$, $p = .003$, but explained only 1.6% of the variance in sexual functioning. Although ACEs significantly predicted both sexual functioning ($b = 0.60$, $t(694) = 3.40$, $p < 0.001$) and DERS ($b = 2.08$, $t(694) = 4.83$, $p < 0.001$), DERS did not significantly predict sexual functioning ($b = -0.01$, $t(694) = -0.64$, $p = 0.52$), and did not significantly mediate the relationship between ACEs and sexual functioning ($b = -.02$, CI [-.08,.05]). Further, in contrast to the hypotheses, participants with higher ACE scores reported higher sexual functioning relative to participants with lower ACE scores in this sample.

Discussion

The current study sought to explore the relationships between the history of ACEs and sexual functioning, and whether difficulties in emotion regulation arose as a mediating factor between them. While the hypothesis that ACEs predicted both difficulties in emotion

regulation and sexual functioning was supported, the data failed to support other hypotheses. Emotion regulation difficulties did not show a significant link to sexual functioning, nor did it mediate the relationship between ACEs and sexual functioning.

While difficulties in emotion regulation are still likely to be clinically significant for individuals with trauma histories, they do not appear to be a major contributing factor to difficulties in sexual functioning. Much of the previous literature examining emotion regulation difficulties and sexual health has focused on the link with sexual risk behaviors, rather than sexual functioning. While the link between difficulties in emotion regulation and sexual risk behaviors has been supported (e.g., Shuster et al., 2020), current results suggest that this relationship may not hold true for sexual functioning. This may illustrate the use of risky sexual behaviors as a means of coping with emotions in the absence of better emotional regulation skills. Rather than affecting bodily sexual health, difficulties in emotional regulation may lead to the unhealthy use of these risk behaviors for self-regulation.

Another finding from the current study that was counter to hypotheses was the positive relationship between ACEs and sexual functioning; that is, as a participant's ACE score increased, their measure of sexual functioning was likely to increase as well. It is possible that the unexpected positive relationship between ACEs and sexual functioning could be due to the age cohort of the sample. Sexual functioning scores were increased by frequency of sexual activity, which is typically higher among college-aged individuals (Twenge, 2017). Relatedly, the difference between sexual risk and sexual functioning may be pertinent in understanding this result as well; individuals with high ACE scores may be engaging in higher rates of risky sexual behavior, thus artificially inflating their sexual functioning scores, particularly the items related to frequency of sexual activity.

To explore this theory, a post-hoc regression analysis was conducted to examine relations between ACEs and two items from Sexual Risk Survey, which was used in the overall data collection but not relevant to this study. The regression showed a significant relation between ACEs and total sexual partners both in the past year (B= .133, SE= .041, p < .0005) and over a lifetime (B= .194, SE= .133, p < .0005). This finding illustrates that those with a history of trauma in this sample were more likely to engage in risky sexual behaviors, in addition to those behaviors being more likely from the age demographic of the sample.

Limitations

A major limitation of this study is believed to explain the surprising results—the data was pulled from a larger dataset which only included college-aged individuals of a narrow demographic. The sexual behavior of college-aged individuals tends to be higher in frequency as was shown by the overall dataset. Sexual risk behaviors are also significantly increased by ACEs (Mandrigues, 2023). Based on this information, it is possible that different results would have been achieved with a more generalizable sample consisting of a wider array of ages.

In addition, online recruitment for participants comes with its own limitations. Though the target audience of college students at a mid-sized university were the only people with access to the survey, self-selection bias was still a risk. The overall survey was advertised as data collection on college students' health behaviors, which may have influenced whether or not individuals with certain behaviors or characteristics chose to participate.

Further research should target a wider sample demographic to control for sexual risk behaviors which may alter the validity of sexual functioning measures. A longitudinal study

could also be used to test if the history of ACEs influences sexual functioning differently at different points of life.

Conclusions

Overall, the current study was able to shed some interesting light on the relationship between ACEs and sexual health in college-aged individuals. Adverse childhood experiences had significant relationships with both difficulties in emotional regulation and sexual functioning; however, DERS did not mediate the relationship with the latter. In addition, it was found that ACEs predicted higher sexual functioning scores in this sample, contrary to the hypotheses. Results highlight the complexities of the relationship between ACEs and sexual functioning.

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Table 1

Demographic Characteristics of the Participants

Sample Characteristics	*n*	%	*M*	*SD*
Age			20.62	4.574
Gender				
Female	687	71.9		
Male	261	27.3		
Transgender Man	4	.4		
Genderqueer	4	.4		
Sexual orientation				
Heterosexual	811	86.2		
Gay	17	1.8		
Lesbian	20	2.1		
Bisexual	52	5.5		
Pansexual	16	1.7		
Asexual	5	.5		
Queer	2	.2		
Questioning	15	1.6		
Other	3	.3		
Race				
White (Caucasian/European American)	745	79.1		
Latino/a or Latin American	25	2.7		
Black or African American	96	10.2		
Asian or Pacific Islander	32	3.4		
Native American/Alaskan Native	3	.3		
Multi-Ethnic	29	3.1		
Other	12	1.3		
Year				
Freshman	463	48.5		
Sophomore	177	18.6		
Junior	176	18.4		
Senior	128	13.4		
Graduate Student	4	.4		
Other	4	.6		
First generation				
Yes	242	25.5		
No	707	74.5		
Income				
Less than $15,000	150	16.8		
$15,100-30,000	123	13.8		
$30,100-45,000	100	11.2		
$45,100-60,000	106	11.9		
Over $60,100	251	28.2		
Don’t know	161	18.1		

Note. $n = 957$

Table 2
Descriptives of Total Scores for Measures

	N	Minimum	Maximum	*M*	*SD*
Sexual Functioning	739	22.00	70.00	47.9323	10.75438
DERS	878	36.00	168.00	88.2232	26.20741
ACEs	869	.00	10.00	1.7871	2.18963
Valid N	695				