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## **The Roles of Violence Exposure and Gender on the Relationship Between Adolescent Psychopathic and Conduct Disorder Traits and the Capability for Suicide**

Tiffany Harrop

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THE ROLES OF VIOLENCE EXPOSURE AND GENDER ON THE RELATIONSHIP  
BETWEEN ADOLESCENT PSYCHOPATHIC AND CONDUCT DISORDER TRAITS  
AND THE CAPABILITY FOR SUICIDE

by

Tiffany Harrop

A Dissertation  
Submitted to the Graduate School,  
the College of Education and Human Sciences  
and the School of Psychology  
at The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

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## ABSTRACT

Suicide represents one of the leading causes of mortality for adolescents. Externalizing behaviors, such as psychopathic and conduct disorder traits, represent risk factors for adolescent suicide. Investigation of suicide capability is especially important, as it is theorized to distinguish individuals who evince suicide ideation from those who progress to making a suicide attempt. Currently, associations between psychopathic and conduct disorder traits and capability in youth are understudied, as well as factors that may potentiate these associations, such as exposure to violence and gender. The aim of this study was to explore the interactive nature of psychopathic and conduct disorder traits, violence exposure, and gender as related to prediction of capability for suicide. Results indicate the moderation models were largely nonsignificant; however, findings reveal that psychopathic and conduct disorder traits confer risk for suicide capability, and suggest continued study in youth samples is warranted. Clinical implications, limitations, and future directions are examined.

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## DEDICATION

I would like to dedicate this dissertation project to my husband (Mario Carl), whose unwavering support and patience made achieving this milestone (and so much more) possible. I am also deeply grateful to my mother (Kathy Harrop), father (Bob Harrop), and family members. Their encouragement throughout my educational journey has been immeasurable. And finally, I would like to thank my friends, who provided constant validation and humor when it was needed most.

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## CHAPTER I – INTRODUCTION

Research by the Centers for Disease Control and Prevention (CDC, 2018)

indicates suicide is the second leading cause of death for individuals 15-24 years of age in the United States. Although findings show an association between externalizing traits and suicidal behavior in juveniles (e.g., Bridge, Goldstein, & Brent, 2006), examination of particularly problematic externalizing behaviors (e.g., psychopathic and conduct disorder traits) and specific risk factors for suicidal behavior (e.g., capability for suicide) have gone understudied in adolescent populations. Additionally, mechanisms underlying these observed relationships have received minimal attention. Both exposure to violence and gender have received consideration within the psychopathy, conduct disorder, and suicide literatures respectively (J. Anestis, Anestis, & Preston, 2018; Colins et al., 2016; Krischer & Sevecke, 2008), but no research has explored the impact of these variables on the association between adolescent psychopathic and conduct disorder traits and the capability for suicide. The present study aims to expand upon the extant literature by examining the moderating roles of violence exposure (victimization and witnessing violence) and gender on the relationship between adolescent psychopathic and conduct disorder traits and the capability for suicide in a sample of at-risk juveniles completing a residential military-based training and education program.

### Youth Psychopathic and Conduct Disorder Traits and Suicidal Behavior

Externalizing behaviors represent important risk factors for suicidal behavior in adolescent populations, with researchers reporting associations between youth externalizing traits, including behaviors associated with psychopathic tendencies (e.g. impulsivity, antisociality), and suicidal ideation and attempts (Brent et al., 1994; Bridge

et al., 2006; Conner et al., 2014; Sourander, Helstela, Haavisto, & Bergroth, 2001; Wei et al., 2016; Witte et al., 2008). Increased risk of suicidal behavior for adolescents with co-occurring externalization and depression has also been documented, with findings demonstrating externalizing symptoms confer risk for suicidal behavior even when accounting for internalizing pathology (Goldston et al., 2009; Javdani et al., 2011; Sourander et al., 2001; Vander Stoep et al., 2011). Less attention has been paid to links between adolescent psychopathic and conduct disorder traits and suicidal behavior. Youth with psychopathic and conduct disorder traits represent an especially severe subset of those evincing externalizing behavior (Lynam et al., 2007; Salekin, 2017), and examination of relations between these traits and suicidal behavior affords nuanced insight regarding the association between youth externalizing traits and suicide. Further, investigation of the association between psychopathic and conduct disorder traits and suicide in juveniles may have meaningful implications regarding risk assessment and intervention in a population already considered at risk due to elevated externalizing traits that impact functioning across different domains and confer vulnerability to severe pathology and negative outcomes (e.g., antisociality, criminality) later in life (Lynam et al., 2007; Salekin, 2017).

Psychopathy is regarded as a multidimensional construct represented by a constellation of interpersonal, affective, and behavioral traits (Edens, Marcus, Lilienfeld, & Poythress, 2006; Hare & Neumann, 2008; Salekin, 2017). Psychopathic and conduct disorder traits evince overlap, with research indicating the frequent co-occurrence of callous-unemotional traits and conduct disorder (Colins, Andershed, Salekin, & Fanti; Eisenbarth, Demetriou, Kyrandies, & Fanti, 2016; Fanti, 2013; Frick, Ray, Thornton, &

Kahn, 2014), so much so that callous-unemotional traits have become a specifier for conduct disorder in the fifth edition of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013). However, conduct disorder traits are comprised of behavioral manifestations of antisociality (e.g., lying, cruelty toward animals, property damage), and as such, examination of both psychopathic and conduct disorder traits may offer insight into possible distinctions regarding associations to suicidal behavior (Fanti, 2018; Moffit et al., 2008).

To date, few studies have investigated relations of adolescent psychopathic or conduct disorder traits to suicidal behavior. Javdani and colleagues (2011) explored the association of psychopathic traits (i.e., impulsivity, callous-unemotional, narcissism) and depressive pathology to suicidal ideation, plans, and prior attempts, and self-injurious behavior. A positive relationship between impulsive-antisocial psychopathic traits (impulsivity) and suicide attempts, above and beyond depression symptoms, was found. The interpersonal-affective traits (callous-unemotional) conferred protection against suicide attempts for females only. In samples of both adult and adolescent offenders, researchers found a small-sized significant association between impulsive-antisocial features of psychopathy and suicidal behavior, while no association was found between the interpersonal-affective psychopathic features and suicidality (Douglas, Herbozo, Poythress, Belfrage, & Edens, 2006). These results are similar to findings from adult samples, demonstrating reliable associations between suicidality (i.e., ideation and behavior) and impulsive-antisocial psychopathy traits and inconsistent (sometimes inverse) associations with interpersonal-affective traits (J. Anestis et al., 2016; Buchman-Schmitt, Brislin, Venables, Joiner, & Patrick, 2017; Douglas et al., 2008; Harrop et al.,

2017; Venables et al., 2015; Venables et al., 2018; Verona, Patrick, & Joiner, 2001; Verona, Hicks, & Patrick, 2005; Verona, Sprague, & Javdani, 2012).

Regarding links between conduct disorder and suicidal behavior in youth, studies have found associations between conduct disorder and suicide attempts in both female twin (Glowinski et al., 2001) and psychiatric inpatient (Goldston et al., 2009) samples. Additionally, research examining a sample of adults with a history of conduct disorder found that conduct disorder was associated with greater occurrence of suicide attempts in adulthood for females only, suggesting the presence of these traits during adolescence may confer longer-term risk for suicidal behavior (Morcillo et al., 2012). The present study aims to expand upon the previous work by examining nuanced relations between youth psychopathic/conduct disorder traits and capability for suicide.

#### Psychopathic and Conduct Disorder Traits and Capability for Suicide

The interpersonal theory of suicide (ITS; Joiner, 2005; Van Orden et al., 2010) provides a testable model of suicide and posits that three components are jointly necessary and sufficient for death by suicide. Perceived burdensomeness (belief that one is a burden on others) and thwarted belongingness (belief that one lacks close, meaningful relationships) relate to suicidal desire and thoughts, whereas capability for suicide relates to the ability to enact lethal self-harm. Klonsky and May (2014) proposed that risk factors for suicide must be considered in terms of their role in the progression from suicidal ideation to action and suggest that capability facilitates this progression. The three-step theory (3ST; Klonsky and May, 2015) builds upon the ITS by expanding upon capability. According to the 3ST, capability for suicide includes three components: dispositional, acquired, and practical. Dispositional capability refers to genetic factors

associated with sensitivity to pain and fearlessness of death. Acquired capability, as originally conceptualized by the ITS, is developed through repeated exposure to experiences that are painful and/or provocative (PPEs) and that facilitate habituation to painful stimuli and reduced fear of death. Practical capability relates to factors increasing the ease of a suicide attempt, such as access to and knowledge of lethal means. The 3ST posits that suicide capability represents an important target for both research and intervention, as it may differentiate those who think about suicide from those who go on to make an attempt or die by suicide. Currently, there is a dearth of information regarding associations between psychopathic and conduct disorder traits and capability in youth. Investigation of capability in adolescents may provide important information regarding risk factors specific to the progression from ideation to action in juveniles. Capability may be particularly salient for juveniles as they face stressors such as physiological, emotional, and behavioral changes that heighten risk of desire for suicide and engagement in suicidal behaviors (Sourander et al., 2001; Verona & Javdani, 2011). Additionally, exploring capability in adolescents, especially those possessing traits associated with greater capability (e.g., psychopathic and conduct disorder traits), may be valuable in order to identify targets for early intervention.

Psychopathic and conduct disorder traits are thought to relate to capability through a number of pathways. Specific characteristics associated with psychopathy and conduct disorder (e.g., impulsivity, fearlessness, aggression, disregard for rules) may relate to engagement in painful and fear-inducing experiences and serve as a link to acquired capability. Research on associations between psychopathic traits and acquired capability provides evidence for this pathway, indicating positive associations between

both the interpersonal-affective and impulsive-antisocial psychopathy facets and acquired capability across diverse samples (J. Anestis et al., 2016; Harrop et al, 2017). The characteristics of psychopathic and conduct disorder traits (e.g., impulsive and rule-breaking behavior, low fear) discussed above as relating to PPEs may also facilitate associations to practical capability through engagement in risky behavior that increases exposure to lethal suicidal means (e.g., firearms). Moreover, psychopathic/conduct disorder traits may be indicators of dispositional features contributing to capability. J. Anestis and colleagues (2018) examined psychopathy and capability in adult male and female gun owners and found positive associations between interpersonal-affective psychopathic traits and both acquired and practical capability indicators (e.g., experience/comfort with firearms), with some gender differences noted. The impulsive-antisocial traits were positively associated with acquired capability in females and inversely related to practical capability in males. These results provide support for psychopathic traits as factors of dispositional capability that exert influence on both acquired and practical capability and indicate that gender may have implications on these associations.

Overall, preliminary support exists for associations between psychopathic traits and capability in adult samples. Findings indicate several pathways through which psychopathic traits relate to capability and suggest that associations may differ across males and females. These results indicate that individuals with psychopathic traits may be at an increased risk for suicide capability; however, evidence of these specific relations in youth is lacking. Given that suicide represents the second leading cause of death for adolescents and young adults (CDC, 2016) and youth with psychopathic and conduct

disorder traits are at greater risk for maladaptive outcomes (Lynam et al., 2011; Salekin, 2017), exploring this relationship in juvenile populations has important implications. Furthermore, examination of factors that may potentiate this association, such as exposure to violence (salient to both psychopathy/conduct disorder and capability) and gender, may provide understanding of those at greatest risk and indicate possible targets for treatment in adolescent populations.

### The Potential Moderating Role of Exposure to Violence

Across adult and juvenile populations, the link between psychopathic/conduct disorder traits and violence has been well-established (Bernhard et al., 2018; Blais, Solodukhin, & Forth, 2014; Camp, Skeem, Barchard, Lilienfeld, & Poythress 2013; Reidy et al., 2017). Although psychopathic/conduct disorder traits are indicators of risk for engaging in violent behavior (Edens, Skeem, Cruise, & Cauffman, 2001; Murray & Farrington, 2010; Neumann & Hare, 2008; Viljoen, McLachlan, & Vincent, 2010), findings also point to a link between youth psychopathic and conduct disorder traits and several types of violence exposure, including both victimization and witnessing violent acts (Bernhard et al., 2018; Campbell, Porter, & Santor, 2004; Farrington, Ullrich & Salekin, 2010; McCabe, Hough, Yeh, Lucchini, & Hazen, 2005; Sharf, Kimonis, & Howard, 2014; Tatar et al., 2012; Vaughn et al., 2009). Theoretically, while early experiences with violence (e.g., experiencing physical abuse, witnessing interpersonal violence) may contribute to the development of psychopathic and conduct disorder traits (Bernhard et al., 2018; Campbell et al., 2004; Dargis & Koenigs, 2017; Farrington et al., 2010), it is also possible that features associated with psychopathy and conduct disorder, such as impulsivity, sensation-seeking, and reduced fear reactivity, may increase the

likelihood of experiencing or witnessing violence, as these individuals may be more inclined to engage in risky behavior or be drawn to experiences involving violence (e.g., playing violent video games, physical altercations). Individuals with psychopathic and conduct disorder features may also have parents who evince similar traits (e.g. impulsivity, fearlessness, antisociality) and are more apt to engage in behaviors placing their children in situations that may involve experiences of violence.

Evidence supports an association between violence exposure (including exposure to video game violence) and both psychopathic/conduct disorder traits and components of capability (Bryan & Cukrowicz, 2011; Bryan, Sinclair, & Heron, 2016; Campbell et al., 2004; Farrington et al., 2010; Gauthier et al., 2014; Kimmig, Andringa, & Derntl, 2018; McCabe et al., 2005; Mitchell, Jahn, Guidry, & Cukrowicz, 2015; Rooney, Hill, Oosterhoff, & Kaplow, 2019). Exposure to violence is considered a form of PPEs and, when occurring in the presence of psychopathic and conduct disorder traits, it follows that violent experiences may potentiate the relationship between psychopathy and conduct disorder and capability by further increasing risk. Exposure to violence may also relate to practical capability, with individuals gaining knowledge of/comfort with lethal means (e.g., firearms) through experiencing or witnessing violence against others. Further, dispositional capability may facilitate exposure to fear-inducing and painful events (e.g., violent experiences).

Investigating the impact on the interactive nature of psychopathic/conduct disorder traits and exposure to violence on capability may have important implications for understanding compounding risk for suicide attempts or successful completion of suicide if suicidal desire develops. Findings will increase knowledge regarding the

capability for suicide in adolescent populations as well as highlight potential areas for intervention. To our knowledge, no research has examined the role of violence exposure on the association between psychopathic/conduct disorder traits and capability for suicide.

### The Potential Moderating Role of Gender

Across all variables of interest (i.e., psychopathic and conduct disorder traits, violence exposure, capability), divergent associations between males and females have been noted. Psychopathic traits differ in mean-level psychopathy scores, with males evincing slightly to moderately higher scores than females (Cale & Lilienfeld, 2002; Miller, Watts, & Jones, 2011; Muñoz, Abate, Sharp, & Venta, 2019; Stafford & Cornell, 2003). Similarly, conduct disorder traits have been found to be more common in males compared to females (Berkout, Young, & Gross, 2011; Loeber, Burke, Lahey, Winters, & Zera, 2000).

Gender differences have also been reported in associations between psychopathic and conduct disorder traits and external correlates (Charles, Acheson, Mathias, Furr, & Dougherty, 2012; Hicks, Vaidyanathan, & Patrick, 2010; Maniglio, 2014; Watts, Donahue, Lilienfeld, & Latzman, 2017), including exposure to violent experiences, although results in this regard are somewhat mixed. When specifically examining associations between variables of abuse and neglect and psychopathic and conduct disorder traits, some researchers have reported positive associations that are similar across gender (Miller et al., 2011), some have found positive relations in males but not females (Krischer & Sevecke, 2008), and others have reported stronger positive associations between females as compared to males (Colins et al., 2016; Maniglio, 2014).

Although informative, these studies explored associations between psychopathic/conduct disorder traits and childhood abuse/maltreatment, precluding examination of wider experiences of violence exposure (e.g., witnessing violence in the community). As associations between gender and violence exposure may differ across violent events (e.g., males are exposed to more community violence, females to greater levels of sexual abuse), it is possible that the moderating effect of gender on the relationship between psychopathic and conduct disorder traits and abuse/maltreatment may not generalize to more global violence exposure (Richters & Martinez, 1993; Schwab-Stone et al., 1999; Tolin & Foa, 2006; Zona & Milan, 2011). More research, therefore, is warranted to investigate the role of gender on the relationship between psychopathic and conduct disorder traits and exposure to violence.

Prevalence of suicidal behaviors also diverges across gender. Females are more likely to attempt suicide, while males are more likely to die by suicide (Bridge et al., 2006; Ross & Heath, 2002). Males also show higher levels of acquired capability than females (M. Anestis, Bender, Selby, Ribeiro, & Joiner, 2011; Donker, Batterham, Van Orden, & Christensen, 2014; Witte, Gordon, Smith, & Van Orden, 2012). Furthermore, as previously discussed, gender differences have been observed in the association between psychopathic and conduct disorder traits and capability for suicide (J. Anestis, Anestis, & Preston, 2018; Javdani et al., 2011; Morcillo et al., 2012). Together, these findings warrant consideration of the interactive nature of psychopathic and conduct disorder traits, violence exposure, and gender as related to the risk of capability for suicide.

## The Present Study

Both psychopathic and conduct disorder traits and exposure to violence are associated with suicide capability in adult and adolescent samples. Violence exposure, when occurring in the presence of psychopathic and conduct disorder traits, may further predispose individuals to greater capability for suicide and these relations may differ across genders. Investigations of these associations in juveniles has meaningful implications, as suicide is a leading public health concern for this population (CDC, 2016) and youth with psychopathic and conduct disorder traits represent a subgroup of adolescents at risk for a host of problematic outcomes. Despite the importance of this research, the potentiating roles of violence exposure and gender on the associations between psychopathic and conduct disorder traits and capability for suicide in adolescents are understudied.

It is hypothesized that impulsive-antisocial (i.e., daring-impulsive) and interpersonal-affective (i.e., callous-unemotional, grandiose-manipulative) psychopathic traits, along with conduct disorder traits, will be positively associated with exposure to violence and capability for suicide in an adolescent sample, (J. Anestis et al., 2018; Glowinski et al., 2001; Goldston et al., 2009; Harrop et al., 2017; Javdani et al., 2011). It is expected that exposure to violent events will exert a potentiating effect on the relationships between all psychopathic and conduct disorder facets and capability. Given the gender differences noted above, the impact of gender on the aforementioned associations will be explored. It is proposed that males will evince higher scores on measures of psychopathic and conduct disorder traits than females. Due to the analyses of

interactions being exploratory in nature, no *a priori* hypotheses have been made regarding the interactive effects of gender.

## CHAPTER II – METHOD

### Participants

Participants were youth (aged 16-19) completing a residential military-based training and education program. This is a federally funded program for at-risk adolescents who have stopped attending or are behind a grade level in school and are unemployed. Adolescents voluntarily enrolled or were enrolled by a parent in the 22-week program, which focuses on provision of courses at the high school and college level as well as practical and job-related skills, physical fitness, community service and responsibility, and discipline.

Of the initial sample of 547 adolescents, 139 participants were excluded due to excessive missingness (greater than 50 percent) on the variables of interest. The resulting study sample included 408 participants ( $M_{age} = 16.71$ ,  $SD = 0.69$ ; 77.90% male; 65.40% White; see Table 1 for more demographic information). Of these participants, 19.40% reported a prior suicide attempt, with the number of attempts ranging from 1 to 35 ( $M = 3.54$ ,  $SD = 4.46$ ). Excluded participants did not significantly differ with respect to age, racial identity, history of suicide attempts, or mean scores on the study variables of interest compared to the full sample; however, they were more likely to identify as male,  $\chi^2(1) = 10.57$ ,  $p = .001$ ,  $\Phi_c = 0.14$ ).

Table 1 *Demographic characteristics across samples*

	Full Sample	Primary Study Sample	Video Game Violence Subsample
N	547	408	137
Age (Mean, SD)	16.72 (0.70)	16.71 (0.69)	16.72 (0.66)
% Male	81.20	77.90	89.10
Race			
% White	64.00	65.40	63.60
% Black/African American	24.30	22.30	24.80
% Hispanic/Latinx	2.30	2.40	0.80
% Asian/Pacific Islander	0.40	0.30	0.80
% American Indian/Alaskan Native	1.20	1.60	1.60
% Multiracial	3.30	3.40	1.60
% Other	4.50	4.70	7.00
% Participants with Past Suicide Attempt	19.00	19.40	18.20

## Procedure

Participants were recruited from a larger, ongoing data collection, and data for this research was collected over several sessions across different cohorts. Approval from relevant regulatory bodies was received prior to the start of the initial data collection. Before beginning the data collection protocol, all participants provided informed assent and were informed they could discontinue participation at any time. Those individuals who did not wish to participate in the data collection procedures were allowed to leave. The program director served as the legal guardian of all adolescents enrolled in the program and, as such, provided informed consent for all participants. The protocol included a series of self-report measures that participants completed while seated at a computer in a classroom-like environment.

## Measures

Descriptive statistics and internal consistency coefficients for all study measures are reported in Table 2.

*Proposed Specifiers for Conduct Disorder Scale (PSCD; Salekin & Hare, 2016).*

The PSCD is a 24-item self-report questionnaire designed to measure three facets of psychopathic traits from childhood to adolescence (grandiose-manipulative, callous-unemotional, and daring-impulsive), along with items assessing conduct disorder symptoms. Respondents rate each item on a scale from 0 (*Not True*) to 2 (*True*). As this measure is unpublished, information regarding its psychometric properties in other samples is not yet available.

*Suicide Capacity Scale (SCS-3; Klonsky & May, 2015).* The SCS-3 is a 6-item, self-report instrument, assessing dispositional, acquired, and practical capability to

engage in lethal self-harm. Items range from 0 (*Strongly Disagree*) to 6 (*Strongly Agree*). The SCS-3 has demonstrated the ability to reliably distinguish suicide ideators from those who have made an attempt (Klonsky & May, 2015). In a sample of university students from the United Kingdom, the SCS-3 total score yielded a Cronbach's alpha ( $\alpha$ ) = .73 (Dhingra, Klonsky, and Tapola, 2018).

*Acquired Capability for Suicide Scale (ACSS; Bender, Gordon, Breslin, & Joiner, 2011).* The ACSS is a 20-item self-report measure designed to assess fearlessness about death and tolerance of physical pain. Items are scored on a scale of 0 (*Not At All Like Me*) to 4 (*Very Much Like Me*). The ACSS has demonstrated good internal consistency across undergraduate, clinical outpatient, and veteran samples with alphas ranging from .83-.88 (Bender, Gordon, Breslin, & Joiner, 2011; Monteith, Menefee, Pettit, Leopoulos, & Vincent, 2013; Smith, Cukrowicz, Poindexter, Hobson, & Cohen, 2010).

*Exposure to Violence.* In order to assess both direct victimization and witnessing violence perpetrated on others, 11 items were modified from the Juvenile Victimization Questionnaire (JVQ; Hamby, Finklehor, Ormrod, & Turner, 2004), relating to themes such as exposure to community violence, property victimization, and witnessing and indirect victimization. All 11 items were summed to create a composite variable of participants' overall exposure to violence. Item responses use a dichotomous rating scale (no = 0, yes = 1). Four items address directly experiencing violence, and seven items assess witnessing violence (see Appendix A for all items).

*Exposure to Video Game Violence.* Video game violence exposure was assessed utilizing methodology similar to that used by Gauthier et al. (2014). Participants reported the titles of their five most frequently played video games. Each game reported was then

coded based on rating information provided by the Entertainment Software Rating Board (ESRB). The ESRB is a self-regulating body for the video game industry that provides ratings summaries on video games based on age-appropriateness (e.g., Everyone, Everyone 10 years and older, Teen) and content descriptors (e.g., blood, fantasy violence, drug reference) that influence the age-appropriate rating assignment. Both age-appropriateness and violent content descriptor information was utilized for coding purposes in this study.

Video games were coded as a 0 if they included no content descriptors referencing violence (e.g., cartoon violence, intense violence), irrespective of the age-appropriateness rating (e.g., Mature). If a violent content descriptor was provided for the game, then the game was coded as a 1, if it was rated as Everybody; 2, if it was rated as Everybody 10+; 3, if it was rated Teen; 4, if it was rated Mature; and Adults Only was coded as 5. Scores on each participant's most frequently played games were summed to create a composite variable of exposure to violent video game content for each participant.

Only a subset of participants ( $n = 131$ ) completed the video game violence measure and were used in analyses that include this variable. Notably, those who completed the video game violence items were not significantly different in age, racial identity, prior suicide attempts, or mean levels of the study variables compared to the primary study sample. Participants in this subset were more likely to identify as male  $\chi^2(1) = 6.27, p = .012, \Phi = -0.11$ .

*Self-Injurious Thoughts and Behaviors Interview – Self Report – Short Form (SITBI-SR-SF; Muehlenkamp, Walsh, & McDade, 2010).* The SITBI-SR-SF is a self-

report measure developed from the Self-Injurious Thoughts and Behaviors Interview (SITBI, Nock et al., 2007), a structured interview designed to assess for the frequency and nature of suicidal thoughts and behaviors, including suicidal ideation, suicidal gestures, plans for suicide, prior attempts, and non-suicidal self-injury. The SITBI has demonstrated excellent interrater reliability (average  $k = .99$ ,  $r = 1.0$ ) and strong test-retest reliability spanning a 6-month period of time (average  $k = .70$ , intraclass correlation coefficient = .44). The present study utilized information assessing number of lifetime suicide attempts for descriptive purposes.

#### Data Analytic Approach

*T*-tests were utilized to examine mean differences on the variables of interest (psychopathic and conduct disorder traits, violence exposure, video game violence exposure, ACSS, and SCS) by gender, with Cohen's *d* used as the effect size measure for comparisons (0.20 = small effect, 0.50 = medium effect, 0.80 = large effect; Cohen, 1988). Zero-order relationships between psychopathic traits, violence exposure measures, and suicide capability scales were examined for the full sample and separately for males and females. Correlation coefficients (*r*) of 0.10, 0.30, and 0.50 indicating small, medium, and large effects respectively, indicated effect size (Cohen, 1988). Fischer *r*-to-*z* transformations were used to compare the size of the correlations across gender.

For the proposed moderation analyses, hierarchical linear regressions using the PROCESS macro (Model 3 and Model 1; Hayes, 2017) for SPSS were modeled. Psychopathic and conduct disorder traits served as the independent variables, exposure to violence and gender served as the moderator variables, and capability for suicide (measured via ACSS and SCS) served as the outcome variable. First, three-way

interactions were modeled separately for each PSCD facet (e.g., grandiose-manipulative\*violence exposure\*gender predicting ACSS; PROCESS Model 3). For each model, one of the capability variables (either ACSS or SCS) was entered as the outcome variable (Y); one of the psychopathy or conduct disorder facets was entered as the independent variable (X); and violence exposure (M) and gender (W) were entered as moderator variables (M). In all, eight three-way interaction models were estimated, rotating out the four PSCD facets as the independent variable and the two capability measures as the outcome variable. For any non-significant three-way interactions, planned follow-up two-way interactions were modeled (e.g., grandiose-manipulative\*violence exposure predicting ACSS, grandiose-manipulative\*gender predicting ACSS; PROCESS Model 1). Simple slopes analysis was utilized to examine any significant interaction terms for the three-way and two-way interactions. The direct effects of psychopathic and conduct disorder traits predicting ACSS or SCS were also examined via regression models in SPSS. For all regression analyses, f square ( $f^2$ ) is reported as the effect size indicator (small = 0.02, medium = 0.15, large = .35; Cohen, 1998).

*Post hoc* regression analyses with the above-described moderation and regression models were run with video game violence exposure entered as a covariate, as exposure to violent video games has been indicated in prior research as a possible painful and provocative event, associated with fearlessness about death, a component of suicide capability (Gauthier et al., 2014; Mitchell et al., 2015). Demographic information for the subset of participants responding to the video game violence measure can be found in Table 1.

An *a priori* power analysis was conducted using G\*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the sample size necessary to ensure sufficient power to detect a small-sized interaction effect for the planned three-way moderation analyses. This analysis was based on the multiple regression analyses utilized for this study, with a small effect size ( $f^2$ ) of .02, an alpha of .05, a standard power level of .80, and a total of one tested predictor and nine total predictors (Cohen, 1988). The results of the power analysis showed that a minimum of 395 participants would be needed to achieve an appropriate power level for the interaction analyses. Power analyses for the direct effects of psychopathic and conduct disorder traits predicting ACSS and SCS estimated that between 31 and 395 would be necessary to detect small to medium ( $r$ s ranging from .02 to .28) effect sizes, based on prior studies (J. Anestis et al., 2018; Harrop et al., 2017).

### CHAPTER III - RESULTS

Do males and females differ on their reported levels of psychopathic and conduct disorder traits, exposure to violence, and suicide capability?

Results from the t-tests, including sample size for all analyses, are reported in Table 2. As predicted, across the specifiers of psychopathic and conduct disorder traits, higher mean scores were observed for males compared to females, constituting small effects (grandiose-manipulative,  $d = 0.28$ ; callous-unemotional,  $d = 0.31$ ; daring-impulsive,  $d = 0.24$ ; conduct disorder,  $d = 0.23$ ); however, only the mean difference between males and females on the grandiose-manipulative scale reached statistical significance ( $p = .039$ ). Exposure to violent experiences was equivalent across gender ( $d = 0.00$ ), whereas males reported higher mean levels of exposure to video game violence than females ( $d = 0.35$ ). Regarding suicide capability, males had higher mean levels of ACSS ( $d = 0.55$ ; medium effect) than females, and this difference was statistically significant ( $p = .000$ ). In contrast, differences in mean scores on the SCS across gender were not found ( $d = 0.00$ ).

Table 2 *Descriptive statistics, gender differences, and internal reliability for study measures*

	<i>M (SD)</i>		Male	<i>n</i>	Female	<i>n</i>	<i>d</i>	$\alpha$
	Total	<i>n</i>						
<i>PSCD Traits</i>								
Grandiose-Manipulative	6.05 (2.87)	389	6.12 (2.77)	298	5.33 (3.15)	69	0.28	0.72
Callous-Unemotional	4.28 (3.43)	384	4.33 (3.48)	291	3.72 (3.29)	71	0.31	0.84
Daring-Impulsive	6.64 (3.21)	383	6.76 (3.26)	293	5.99 (3.10)	68	0.24	0.79
Conduct Disorder	5.25 (3.85)	391	5.37 (3.91)	299	4.47 (3.59)	70	0.23	0.87
<i>Violence Exposure</i>								
Exposure to Violence	5.84 (2.98)	324	5.84 (3.08)	248	5.83 (2.52)	54	0.00	-
Video Game Violence	10.88 (4.92)	139	11.06 (5.01)	116	9.33 (4.73)	15	0.35	-
<i>Suicide Capability</i>								
ACSS	47.99 (14.40)	371	49.41 (13.82)*	275	41.82 (13.60)*	71	0.55	0.82
Suicide Capacity Scale	20.25 (9.93)	406	20.13 (10.07)	308	20.08 (9.91)	74	0.00	0.84

\*Statistically significant difference,  $p < 0.05$ . PSCD = Proposed Specifiers for Conduct Disorder; ACSS = Acquired Capability for Suicide Scale.

What are the zero-order associations among psychopathic and conduct disorder traits, violence exposure, and capability for suicide?

Results of the intercorrelations across all study variables are located in Table 3 (sample size included). As hypothesized, grandiose-manipulative, callous-unemotional, daring-impulsive, and conduct disorder traits were all positively associated with suicide capability. The psychopathic and conduct disorder scores were all statistically significantly related to ACSS (*ps* ranging from 0.01-0.05), reaching medium-sized effects (*rs* ranging from 0.32-0.37). Associations with SCS were similarly statistically significant across the psychopathic and conduct disorder scales (*rs* ranging from .12-.30); however, only the relationship with daring-impulsive traits constituted a medium effect ( $r = 0.30$ ).

Also consistent with expectations, the psychopathic and conduct disorder traits were all positively related to exposure to violence (*rs* ranging 0.13-0.36). All associations were statistically significant (*ps* ranging from 0.01-0.05), and the relationship between violence exposure and conduct disorder constituted the largest-sized effect (medium;  $r = 0.36$ ). In the subsample of participants reporting exposure to violent video games, video game violence was negligibly related to psychopathic and conduct disorder traits (*rs* ranging from -0.10-0.10). Associations between video game violence and capability were small (*rs* ranging from 0.13-0.19), although only the association with ACSS reached statistical significance ( $r = 0.19$ ;  $p < 0.05$ ).

Table 3 *Descriptive statistics, gender differences, and internal reliability for study measures*

	1	2	3	4	5	6	7	8
1. <i>Grandiose-Manipulative</i>	-							
2. <i>Callous-Unemotional</i>	<b>0.53**</b>	-						
3. <i>Daring-Impulsive</i>	<b>0.50**</b>	<b>0.38*</b>	-					
4. <i>Conduct Disorder</i>	<b>0.42**</b>	<b>0.39**</b>	<b>0.61**</b>	-				
5. <i>Exposure to Violence</i>	0.25**	0.13*	0.21**	<b>0.36**</b>	-			
6. <i>Video Game Violence</i>	-0.10	0.05	0.10	0.08	0.04	-		
7. <i>Suicide Capacity Scale</i>	0.12*	0.13*	<b>0.30**</b>	0.20**	0.21**	0.13	-	
8. <i>Acquired Capability for Suicide Scale</i>	<b>0.32*</b>	<b>0.34*</b>	<b>0.35**</b>	<b>0.37**</b>	0.29**	0.19*	<b>0.41**</b>	-

Note: N ranges from 115-406. Bold = medium or large correlational effect size (Cohen, 1988). \*  $p < 0.05$ ; \*\*  $p < 0.01$

Results of the intercorrelations amongst the study variables by gender can be found in Table 4 (*ns* for males and females provided). The video game violence variable was not included in the correlational analysis by gender due to low sample size for female participants (i.e.,  $n = 8$ ). The size of the intercorrelations between psychopathic/conduct disorder traits and the measures of exposure to violence and suicide capability were largely statistically equivalent between males and females. A significantly larger correlation was found for males compared to females for the association between grandiose-manipulative traits and SCS ( $z = 2.57, p = .005$ ), while the association between callous-unemotional traits and ACSS was significantly larger for females than males ( $z = -2.29, p = .011$ ).

Table 4 *Intercorrelations amongst study measures by gender*

	1	2	3	4	5	6	7
1. <i>Grandiose-Manipulative</i>	-	<b>0.61**</b>	<b>0.38*</b>	<b>0.45**</b>	0.26	-0.23	<b>0.38**</b>
2. <i>Callous-Unemotional</i>	<b>0.50**</b>	-	<b>0.46**</b>	<b>0.53**</b>	0.26	0.13	<b>0.56*</b>
3. <i>Daring-Impulsive</i>	<b>0.54**</b>	<b>0.38**</b>	-	<b>0.62**</b>	<b>0.32*</b>	<b>0.32*</b>	0.29*
4. <i>Conduct Disorder</i>	<b>0.43**</b>	<b>0.38**</b>	<b>0.61**</b>	-	<b>0.35*</b>	<b>0.33*</b>	<b>0.44**</b>
5. <i>Exposure to Violence</i>	0.26**	0.10	0.20**	<b>0.37**</b>	-	0.27	0.27
6. <i>Suicide Capacity Scale</i>	0.16*	0.13	0.29**	0.16*	0.19**	-	<b>0.49**</b>
7. <i>Acquired Capability for Suicide Scale</i>	<b>0.30**</b>	0.28**	<b>0.35**</b>	<b>0.35**</b>	<b>0.31**</b>	<b>0.41**</b>	-

Males ( $n = 308$ ) below diagonal; females ( $n = 74$ ) above diagonal. Bold = medium or large correlational effect size. \*  $p < 0.05$ ; \*\*  $p < 0.01$

What interactive and direct effects predict suicide capability?

*Three-Way Interactions: Violence Exposure & Gender as Concurrent Moderators*

In total, eight three-way interactions between psychopathic and conduct disorder traits, violence exposure, and gender were modeled predicting capability for suicide (see Tables 5-6 for the regression results, including size of sample). None of these models reached statistical significance. Effect sizes ( $f^2$ ) were examined for the three-way interactions, and results indicated that the interaction terms had no effect on the prediction of suicide capability (all  $f^2 < 0.00$ ) across the models.

The same eight three-way interactions were modeled, with video game violence exposure added to the model as a covariate (see Tables 7-8, sample size information included). Similar to results from the planned analyses, none of the models were statistically significant; however, examination of effect sizes across the models revealed the grandiose-manipulative\*violence exposure\*gender, callous-unemotional\*violence exposure\*gender, and the conduct disorder\*violence exposure\*gender interactions predicting ACSS constituted small effects (all  $f^2$ s = 0.02). All additional three-way interactions exhibited negligible to no effect ( $f^2$ s ranging from 0.01-0.00).

Table 5 *Direct and interactive effects of psychopathic and conduct disorder traits, violence exposure, and gender predicting ACSS*

	$R^2$	$\Delta R^2$	$B(CI)$	$f^2$	$n$
Grandiose-Manipulative	<b>0.10</b>			<b>0.11</b>	315
Grandiose-Manipulative*Violence Exposure	0.14	0.00	-0.03 (-0.25-0.19)	0.00	217
Grandiose-Manipulative *Gender	0.14	0.00	0.28 (-0.99-1.55)	0.00	300
Grandiose-Manipulative*Violence Exposure*Gender	0.19	0.00	0.34 (-0.33-1.00)	0.00	208
	$R^2$	$\Delta R$	$B(CI)$		
Callous-Unemotional	<b>0.12</b>			<b>0.14</b>	310
Callous-Unemotional* Violence Exposure	0.17	0.00	-0.06 (-0.23-0.11)	0.00	214
Callous-Unemotional*Gender	<b>0.17</b>	<b>0.02</b>	<b>1.83 (0.59-3.07)</b>	<b>0.03</b>	295
Callous-Unemotional*Violence Exposure *Gender	0.23	0.00	0.43(-0.56-0.65)	0.00	205
	$R^2$	$\Delta R$	$B(CI)$		
Daring-Impulsive	<b>0.12</b>			<b>0.14</b>	308
Daring-Impulsive*Violence Exposure	0.16	0.00	-0.02 (-0.20-0.16)	0.00	214
Daring-Impulsive*Gender	0.16	0.00	-0.06 (-1.28-1.16)	0.00	293
Daring-Impulsive*Violence Exposure *Gender	0.20	0.00	0.08 (-0.46-0.62)	0.00	205
	$R^2$	$\Delta R$	$B(CI)$		
Conduct Disorder	<b>0.14</b>			<b>0.16</b>	315
Conduct Disorder*Violence Exposure	0.16	0.00	0.08 (-0.07-0.24)	0.01	218
Conduct Disorder*Gender	0.18	0.00	0.67 (-0.38-1.73)	0.01	300
Conduct Disorder*Violence Exposure *Gender	0.19	0.00	-0.11 (-0.64-0.41)	0.00	209

Bold = statistically significant direct effect or interaction (CI does not contain zero). *Note:* For three-way interactions, indices are reported for Step 3 of the model when the three-way interaction term is entered. For two-way interactions, indices are reported for Step 2 of the model when the two-way interaction term is entered.

Table 6 *Direct and interactive effects of psychopathic and conduct disorder traits, violence exposure, and gender predicting SCS*

	$R^2$	$\Delta R^2$	$B(CI)$	$f^2$	$n$
Grandiose-Manipulative	<b>0.01</b>			<b>0.01</b>	299
Grandiose-Manipulative*Violence Exposure	0.04	0.00	-0.01 (-0.18-0.17)	0.00	214
Grandiose-Manipulative *Gender	0.02	0.01	-0.64 (-1.61-0.32)	0.01	285
Grandiose-Manipulative *Violence Exposure*Gender	0.04	0.00	0.21 (-0.30-0.72)	0.00	202
	$R^2$	$\Delta R$	$B(CI)$		
Callous-Unemotional	<b>0.02</b>			<b>0.02</b>	295
Callous-Unemotional* Violence Exposure	0.06	0.00	-0.01(-0.14-0.12)	0.00	212
Callous-Unemotional*Gender	0.02	0.00	0.03 (-0.85-0.91)	0.00	281
Callous-Unemotional *Violence Exposure *Gender	0.07	0.00	0.58 (-0.38-0.50)	0.00	200
	$R^2$	$\Delta R$	$B(CI)$		
Daring-Impulsive	<b>0.09</b>			<b>0.10</b>	294
Daring-Impulsive*Violence Exposure	0.12	0.01	0.09 (-0.05-0.23)	0.01	211
Daring-Impulsive*Gender	0.09	0.00	-0.08 (-0.80-0.95)	0.00	280
Daring-Impulsive *Violence Exposure *Gender	0.12	0.00	0.16 (-0.23-0.55)	0.00	199
	$R^2$	$\Delta R$	$B(CI)$		
Conduct Disorder	<b>0.04</b>			<b>0.04</b>	299
Conduct Disorder*Violence Exposure	0.07	0.01	0.07 (-0.05-0.18)	0.01	216
Conduct Disorder*Gender	0.04	0.01	0.50 (-0.28-1.28)	0.01	285
Conduct Disorder*Violence Exposure *Gender	0.08	0.00	0.03 (-0.34-0.41)	0.00	204

Bold = statistically significant direct effect or interaction (CI does not contain zero). *Note:* For three-way interactions, indices are reported for Step 3 of the model when the three-way interaction term is entered. For two-way interactions, indices are reported for Step 2 of the model when the two-way interaction term is entered.

Table 7 Direct and interactive effects of psychopathic and conduct disorder traits, violence exposure, and gender predicting ACSS with video game violence as a covariate

	$R^2$	$\Delta R^2$	$B(CI)$	$f^2$	$n$
Grandiose-Manipulative*Violence Exposure	0.19	0.01	-0.16 (-0.51-0.19)	0.01	97
Grandiose-Manipulative *Gender	<b>0.15</b>	<b>0.04</b>	<b>-4.41 (-8.45- -0.36)</b>	0.05	102
Grandiose-Manipulative *Violence Exposure*Gender	0.49	0.01	-1.07 (-3.34-1.20)	0.02	96
	$R^2$	$\Delta R$	$B(CI)$		
Callous-Unemotional* Violence Exposure	0.20	0.01	-0.11 (-0.35-0.14)	0.01	94
Callous-Unemotional*Gender	0.12	0.01	-3.01 (-7.74-1.72)	0.02	101
Callous-Unemotional *Violence Exposure *Gender	0.25	0.02	-1.59 (-3.92-0.75)	0.02	93
	$R^2$	$\Delta R$	$B(CI)$		
Daring-Impulsive*Violence Exposure	0.29	0.00	0.01 (-0.26-1.19)	0.00	96
Daring-Impulsive*Gender	0.24	0.00	0.65 (-2.01-3.30)	0.00	101
Daring-Impulsive *Violence Exposure *Gender	0.34	0.00	-0.30 (-2.74-2.15)	0.00	95
	$R^2$	$\Delta R$	$B(CI)$		
Conduct Disorder*Violence Exposure	0.27	0.00	-0.01 (-0.25-0.23)	0.01	98
Conduct Disorder*Gender	<b>0.26</b>	<b>0.04</b>	<b>-2.97 (-5.60- -0.34)</b>	<b>0.05</b>	104
Conduct Disorder*Violence Exposure *Gender	0.33	0.01	-2.29 (-6.04-1.46)	0.02	97

Bold = statistically significant direct effect or interaction (CI does not contain zero). Note: For three-way interactions, indices are reported for Step 3 of the model when the three-way interaction term is entered. For two-way interactions, indices are reported for Step 2 of the model when the two-way interaction term is entered.

Table 8 *Direct and interactive effects of psychopathic and conduct disorder traits, violence exposure, and gender predicting ACSS with video game violence as a covariate*

	$R^2$	$\Delta R^2$	$B(CI)$	$f^2$	$n$
Grandiose-Manipulative*Violence Exposure	0.13	0.02	-0.22 (-0.48-.05)	0.03	103
Grandiose-Manipulative *Gender	0.09	0.01	-1.77 (-4.70-1.15)	0.01	106
Grandiose-Manipulative *Violence Exposure*Gender	0.19	0.00	-0.14 (-1.67-1.39)	0.00	99
	$R^2$	$\Delta R$	$B(CI)$		
Callous-Unemotional* Violence Exposure	0.11	0.01	-0.09 (-0.30-.12)	0.01	101
Callous-Unemotional*Gender	0.07	0.00	0.77 (-2.40-3.94)	0.00	106
Callous-Unemotional *Violence Exposure *Gender	0.16	0.01	-0.70 (-0.06-0.73)	0.01	97
	$R^2$	$\Delta R$	$B(CI)$		
Daring-Impulsive*Violence Exposure	0.22	0.00	0.04 (-0.18-0.27)	0.00	102
Daring-Impulsive*Gender	0.22	0.00	-0.23 (-2.23-1.76)	0.00	105
Daring-Impulsive *Violence Exposure *Gender	0.28	0.01	0.76 (-0.93-2.46)	0.01	98
	$R^2$	$\Delta R$	$B(CI)$		
Conduct Disorder*Violence Exposure	0.16	0.00	0.01(-0.17-0.19)	0.00	104
Conduct Disorder*Gender	0.15	0.00	-0.32 (-2.29-1.64)	0.00	108
Conduct Disorder*Violence Exposure *Gender	0.20	0.01	-0.78 (-2.54-0.98)	0.01	100

Bold = statistically significant direct effect or interaction (CI does not contain zero). *Note:* For three-way interactions, indices are reported for Step 3 of the model when the three-way interaction term is entered. For two-way interactions, indices are reported for Step 2 of the model when the two-way interaction term is entered.

### *Two-Way Interactions: Violence Exposure & Gender as Independent Moderators*

Contrary to hypotheses, of the 16 planned follow-up two-way interactions, only one was statistically significant, which is approximately the number expected by chance ( $16 \cdot .05 = 0.8$ ). Gender exhibited a small moderating effect on the positive association between callous-unemotional traits and ACSS ( $b = 1.83, SE = 0.63, p = .004, f^2 = 0.03$ ). Analysis of simple slopes (see Figure 1) indicated this relationship was statistically significant for both groups, but was stronger in magnitude for females ( $b = 2.95, SE = 0.58, p < .001$ ) relative to males ( $b = 1.11, SE = 0.25, p < .001$ ). The remaining interactions exhibited very small to no effect ( $f^2$ s ranging from 0.00-0.01).

When the two-way interaction analyses were repeated controlling for video game violence, two of the 16 two-way interaction models reached statistical significance, which is greater than twice the number expected by chance. Gender exerted a small potentiating effect on the relationship between grandiose-manipulative traits and ACSS ( $b = -4.41, SE = 2.04, p = .008, f^2 = 0.05$ ) when controlling for video game violence exposure. Simple slopes analysis (see Figure 2) revealed this relationship was significant and positive for males ( $b = 1.34, SE = 0.53, p = .012$ ), but negative and nonsignificant for females ( $b = -3.07, SE = 1.98, p = .124$ ). The relationship between conduct disorder traits and ACSS when controlling for video game violence exposure was also potentiated by gender ( $b = -2.97, SE = 1.32, p = .027, f^2 = 0.05$ ), constituting a small effect (depicted in Figure 3). The relationship was significant and positive for males ( $b = 1.51, SE = 0.33, p < .001$ ), while for females, the association was negative and not significant ( $b = -1.46, SE = 1.29, p = .259$ ). Although no additional two-way interactions controlling for video game violence exposure were statistically significant, the callous-unemotional\*gender

interaction predicting ACSS ( $f^2 = 0.02$ ) and the grandiose-manipulative\*violence exposure ( $f^2 = 0.03$ ) interaction predicting SCS exhibited small effects. The remaining interactions exhibited negligible to no effect ( $f^2$ s ranging from 0.00-0.01).

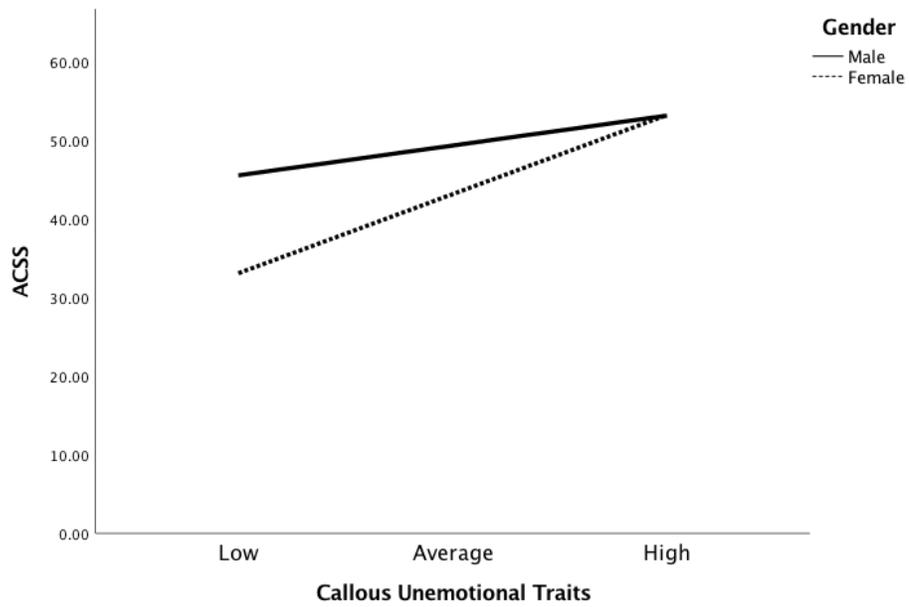


Figure 1. Graphical depiction of the callous-unemotional traits by gender interaction predicting ACSS scores.

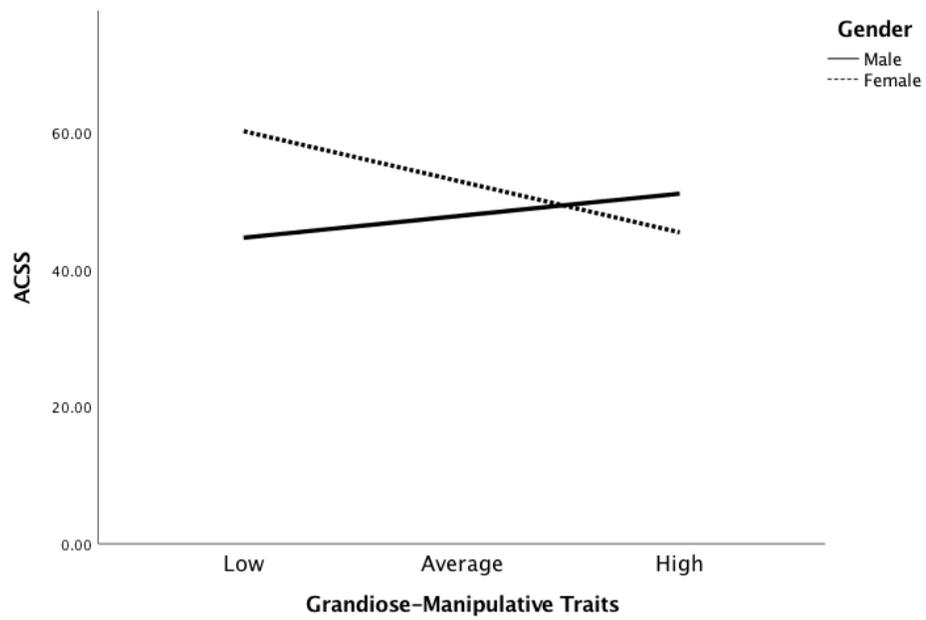


Figure 2. Graphical depiction of the grandiose-manipulative traits by gender interaction predicting ACSS scores

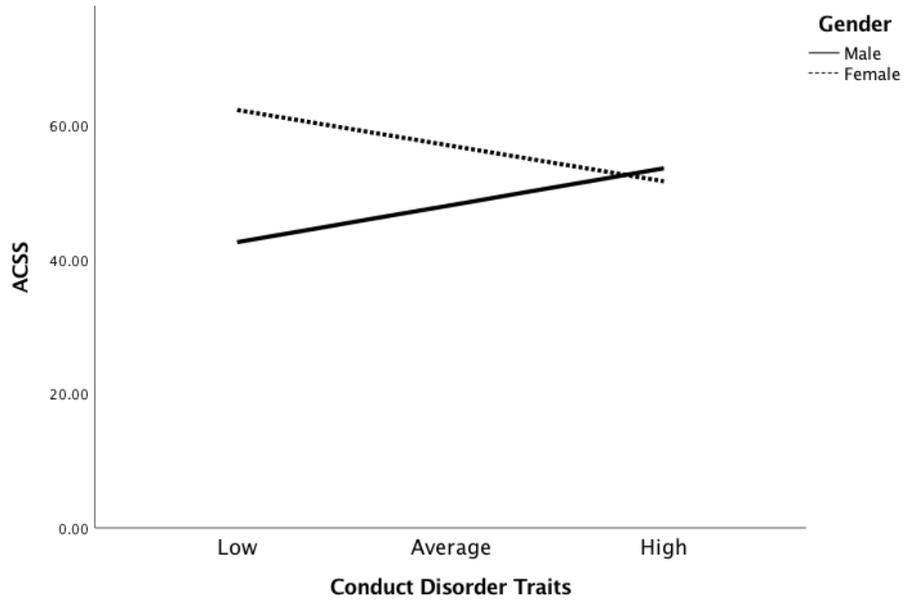


Figure 3. Graphical depiction of the conduct-disorder traits by gender interaction predicting ACSS scores

### *Direct Effects*

Direct effects were explored with grandiose-manipulative, callous-unemotional, daring-impulsive, and conduct disorder traits each entered into separate regression models predicting ACSS or SCS. Examination of the direct effects revealed grandiose-manipulative ( $b = 1.60, SE = 0.26, p < .001, f^2 = 0.11$ ), callous-unemotional ( $b = 1.44, SE = 0.23, p < .001, f^2 = 0.12$ ), daring impulsive ( $b = 1.52, SE = 0.23, p < .001, f^2 = 0.14$ ), and conduct disorder ( $b = 1.39, SE = 0.20, p < .001, f^2 = 0.16$ ) traits were each statistically significant positive predictors of ACSS, representing small to medium effects. Similarly, grandiose-manipulative ( $b = 0.41, SE = 0.20, p = .038, f^2 = 0.01$ ), callous-unemotional ( $b = 0.38, SE = 0.17, p = .022, f^2 = 0.02$ ), daring-impulsive ( $b = 0.90, SE = 0.17, p < .001, f^2 = 0.10$ ), and conduct disorder ( $b = 0.49, SE = 0.14, p = .001, f^2 = 0.04$ ) positively predicted SCS. The effect sizes were negligible to small.

## CHAPTER IV – DISCUSSION

This study explored associations between psychopathic and conduct disorder traits, exposure to violent experiences, gender, and capability for suicide in a sample of at-risk juveniles. Previous research on both externalizing (e.g., psychopathic and conduct disorder) traits and suicide capability suggest associations with violent experiences (Bryan & Cukrowicz, 2011; Bryan et al., 2016; McCabe et al., 2005; Rooney et al., 2019; Schraft, Kosson, & McBride, 2013), and gender has been found to relate differentially to both psychopathic/conduct disorder traits and capability for suicide (M. Anestis, Bender, Selby, Ribeiro, & Joiner, 2011; Cale & Lilienfeld, 2002; Miller, Watts, & Jones, 2011; Donker, Batterham, Van Orden, & Christensen, 2014; Muñoz et al., 2019; Stafford & Cornell, 2003; Witte, Gordon, Smith, & Van Orden, 2012). This study sought to examine gender differences in mean level scores and univariate associations between psychopathic/conduct disorder traits, violence exposure, and suicide capability. This study also sought to replicate recent findings from adult samples by exploring psychopathic and conduct disorder traits as predictors of capability for suicide, while extending understanding of these associations by investigating the potential interactive impact of violence exposure and gender on these relationships in an adolescent sample. This is the first study, to our knowledge, to consider the interactive and unique influence of exposure to violence and gender on the relationship between psychopathic/conduct disorder traits and capability in adolescents.

### Gender Differences in Mean-Level Scores

Across the study variables of interest, small- to medium-sized gender differences were noted for several of the variables, with males evincing higher mean scores than

females. As hypothesized, mean differences on the psychopathic and conduct disorder scales by gender was consistent with prior research in both adolescents and adults, which have consistently reported higher mean scores in males as compared to females on a host of psychopathy and conduct disorder instruments (Berkout et al., 2011; Cale & Lilienfeld, 2002; Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009; Declercq, Markey, Vandist, & Verhaeghe, 2009; Hicks et al., 2012; Loeber et al., 2000; Miller, Watts, & Jones, 2011; Muñoz et al., 2019; Somma, Borroni, Drislane, & Fossati, 2016; Stafford & Cornell, 2003). Regarding exposure to violent experiences, mean scores across gender were negligible in our sample. As previously mentioned, findings of gender differences in exposure to violence in adolescent samples have been mixed, with some studies reporting higher rates of violence exposure in females (Dunn, Gilaman, Willet, Slopen, & Molnar, 2012; Maikovich-Fong, & Jaffee, 2010), some reporting greater violence exposure in males (Buka, Stichick, Birdthistle, & Earls, 2001; Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003; Zona & Milan, 2011), and others reporting no gender differences (Gaylord-Harden, Cunningham, & Zelencik, 2011). The divergent findings in the literature may relate to different operationalizations of violent experiences (e.g., sexual violence, intimate partner violence, physical violence, violence in the community) and the different instruments utilized to measure violence exposure.

In the current study, a composite score of exposure to violence was computed for items assessing for both direct experiences with violence (e.g., “has someone stolen something from you using violence?”) and indirect witnessing of violent experiences (e.g., “have you seen somebody try to hurt another person with a knife or other object?”). Notably, this measure did not include items specifically assessing for sexual or intimate

partner violence. Females reliably report experiences of sexual assault/abuse and intimate partner violence in youth and adulthood with greater frequency than males (Halpern, Spriggs, Martin, & Kupper, 2009; Maikovich-Fong, & Jaffee, 2010; Tanha, Beck, Figueredo, & Raghavan, 2010; Tolin & Foa, 2006; Turner, Finkelhor, Omrod, 2006). The lack of assessment of sexual and intimate partner violence may have resulted in mean-levels score that were equivalent across gender in our sample.

A small-sized gender difference in mean levels of exposure to video game violence was found in the subsample who reported their video game activity, with males reporting higher levels of video game violence exposure than females. These results are consistent with studies finding that males report greater time spent playing video games and greater preference for games that may include violence (e.g., first person shooter games, fighting games) than females (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010; Homer, Hayward, Frye, & Plass, 2012; Ogletree, & Drake, 2007).

For the measures of suicide capability, males evinced higher mean scores than females on the ACSS, with the difference reaching statistical significance and constituting a medium effect. This is similar to findings examining gender differences in ACSS scores in undergraduate students (M. Anestis, Bender, Selby, Ribeiro, & Joiner, 2011) and active duty servicemembers (Kerbrat, Comtois, Stiles, Huh, Chalker, & Luxton, 2015), both of which reported greater levels of capability in males as compared to females. No differences across gender were found for the SCS, and, to our knowledge, no studies have examined possible gender differences in SCS scores. Given the lack of descriptive data on adolescent responding to capability measures and the lack of gender different information on the SCS, we have provided information in Table 9 on mean

scores of ACSS and SCS in the literature. The ACSS mean-level scores in our study were somewhat lower than those across samples of undergraduates and active-duty servicemembers (M. Anestis et al., 2011; Bender, Gordon, Bresin, & Joiner, 2011; Granato, Smith, & Selwyn, 2015; Kerbrat, Comtois, Stiles, Huh, Chalker, & Luxton, 2015; Mitchell, Jahn, Guidry, & Cukrowicz, 2015), while slightly higher than in a sample of male inmates (Smith et al., 2013). Fewer studies have utilized the SCS, but mean scores in our sample were comparable to a sample of adult Mechanical Turk participants (Klonsky & May, 2015), while varying somewhat compared to university student samples (Dhingra et al., 2019; Yang et al. 2019).

Regarding these discrepant findings in gender differences across measures of suicide capability, results may relate to differences between the two instruments in the operationalization of capability. The ACSS was developed to measure acquired capability, assessing for both fearlessness about death and tolerance of pain. In contrast, the SCS measures subdomains of dispositional, practical, and acquired capability. It is possible that when measuring combined genetic factors, habituation to painful and provocative events, and access to and knowledge of lethal means, the capacity to engage in lethal self-harm is similar for males and females. The lack of significant differences may also relate to the item content of the scales. At the item level, the ACSS includes questions such as “the best part of hockey games are fights” and “I like watching the aggressive contact in sports games.” These items, while associated with the construct of acquired capability, may also be associated with more traditional male gender norms. As such, males may be more likely to endorse these items than females, resulting in unintentional gender bias. Conversely, the items on the SCS may be considered more

gender neutral (e.g., “I’ve never really been afraid of death”), resulting in more equivalent endorsement of the items across gender.

In consideration of possible differences in item content across the two measures, it is also worth noting that there may be cultural factors relating to differences in item endorsement. For example, the ACSS item “the best part of hockey games are fights” may be less likely to be endorsed by participants from our study, who reside in a Southern state and may be more likely to have exposure to other types of activities that result in acquired or practical capability (e.g., hunting, which would expose them to firearms and/or other weaponry). This may potentially relate to the marginally lower ACSS mean scores found in our study as compared to study samples of undergraduate students and military servicemembers. The items on the SCS, in contrast, relate to more general concepts (e.g., “I’ve never really been afraid of death” and “I can handle more physical pain than I used to”) and include an item assessing for access to lethal means (e.g., firearms), which may account for the comparable mean level scores in our sample compared with other samples.

It is worth noting that across the groups of males and females, samples sizes were generally unequal (i.e., more males than females), resulting in an unbalanced research design. As such, attention was paid to indicators of violations of the assumption of homogeneity of variance, and results from the appropriate *t*-tests were used if violated (Delacre, Lakens, & Leys, 2017). However, future research would benefit from using an effect size measure that accounts for differences in sample size (e.g., Hedge’s *g*; Hedges, 1981).

Table 9 *Direct and interactive effects of psychopathic and conduct disorder traits, violence exposure, and gender predicting ACSS with video game violence as a covariate*

<i>ACSS</i>		
<i>Study</i>	<i>Sample</i>	<i>Mean (SD)</i>
Current Study	At-risk juveniles	47.99 (14.40), full sample 50.33 (14.15), males 40.77 (13.60), females
Smith et al. (2013)	Male prisoner inmates	44.45 (13.28), males
Bender et al. (2011)	Undergraduate students	63.41 (12.87), full sample
Mitchell et al. (2015)	Undergraduate video gamers	66.83 (11.71), full sample
Anestis et al. (2011)	Undergraduate students	57.62 (11.99), males 46.11 (13.01), females
Granato et al. (2015)	Undergraduate students	62.39 (9.19), males 56.67 (9.40), females
Kerbrat et al. (2015)	Active-duty servicemembers	53.41 (11.90), males 46.31 (13.27), females
<i>SCS</i>		
<i>Study</i>	<i>Sample</i>	<i>Mean (SD)</i>
Current Study	At-risk juveniles	20.25 (9.93), full sample 20.44 (9.65), males 18.92 (9.88), females
Klonsky & May (2015)	Adult Mechanical Turk	20.25 (7.35), full sample
Dhingra et al. (2019)	United Kingdom university students	25.94 (7.46), full sample
Yang et al. (2019)	Chinese undergraduate students	17.26 (6.62), full sample

## Relations between Psychopathic and Conduct Disorder Traits and Suicide Capability

Consistent with expectations, psychopathic and conduct disorder traits were overwhelmingly positively associated with measures of suicide capability at the univariate level. Examination of the magnitude of the intercorrelations across gender revealed that associations between psychopathic and conduct disorder traits and capability for suicide were generally equal for males and females.

As expected, when examining the main effects of psychopathic and conduct disorder traits in the prediction of suicide capability, findings indicate positive associations between all psychopathic and conduct disorder traits and both measures of suicide capability. These results are consistent with research in adult and juvenile samples investigating links between psychopathic and conduct disorder traits and capability (J. Anestis et al., 2016; J. Anestis et al., 2018; Harrop et al., 2017; Javdani et al. 2011; Nock, Hwang, Sampson, & Kessler, 2010) and provide further evidence that adolescent psychopathic and conduct disorder traits serve as possible risk factors in the development of suicide capability, similar to psychopathic traits in adults.

Accordingly, these results may have noteworthy implications for assessment of suicide risk, and implementation of interventions, for at-risk juveniles. Specifically, for youth with elevated psychopathic and conduct disorder traits, assessment of capability may provide important information regarding comprehensive risk profiles, as these individuals may have an increased probability of acting upon the desire for suicide if it arises. For these youth, a thorough assessment of possible risk factors for the development of suicidal desire and motivations for suicide attempts (e.g., depression, hopelessness, social disconnection and isolation) is warranted (Klonsky, May, & Saffer,

2016; May & Klonsky 2013, May et al. 2016). Evidence-based therapeutic interventions for juveniles evincing conduct disorder traits often focus on addressing the problematic behavior associated with the disorder (see Kaminski & Claussen, 2017). The findings of this study suggest that effective interventions for these youth should target multiple risk factors, with special attention paid to treating vulnerabilities for developing the desire/motivation for suicide.

#### Interactive Effects of Violence Exposure and Gender

The results from the interaction models reveal that the relationships between psychopathic and conduct disorder traits and suicide capability were generally the same across exposure to violence and gender. For the proposed three-way and two-way interactions predicting ACSS and SCS, only one statistically significant model emerged. For callous-unemotional traits, the positive relationship to ACSS was significant across gender and was stronger for females than males. This finding is consistent with studies in adult samples indicating a positive association between interpersonal-affective psychopathic traits and suicide capability (J. Anestis et al., 2016; J. Anestis et al., 2018; Harrop et al., 2017). The deficient affectivity comprising callous-unemotional traits has been associated with low fear responsivity in youth samples (Fanti, Panayiotou, Lazarou, Michael, & Georgiou, 2016), which may relate to the fearlessness about death component of acquired capability. These deficits in responses to affective arousal may also result in engagement in activities that increase pain tolerance (e.g., physical fights), another component of acquired capability, and comfort with lethal means (e.g., firearms), resulting in practical capability.

Regarding the regression analyses controlling for video game violence, results of the three-way interactions were similar to those in the planned analyses. No statistically significant findings emerged, and the size of the effects was negligible to small. For the follow-up two-way interactions with video game violence as a covariate, two models reached statistical significance, representing small effects. Both grandiose-manipulative and conduct disorder traits interacted with gender in the prediction of ACSS scores. Interestingly, across both of these models, positive associations between grandiose-manipulative and conduct disorder scores and ACSS were found for males, while these associations were negative for females.

These unexpected results for females may be somewhat explained by gender differences in engagement in, and exposure to, video gaming. As previously discussed, males are more likely than females to spend greater amounts of time playing video games and engage in playing video games which involve violent content (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010; Homer, Hayward, Frye, & Plass, 2012; Ogletree, & Drake, 2007). As such, it may be that females who report engaging in violent video game play represent a unique subsample that meaningfully differs from those engage in playing other categories of video games or those who do not engage in video game play, such that the presence of psychopathic traits does not confer liability for suicide capability, but offers some protection. These results show some consistency with prior research finding that callous-unemotional traits were inversely related to suicide capability (measured via reported suicide attempts) for female adolescents, but not males. While interesting, these results are based on moderation analyses with a disproportionately low number of female participants ( $n = 8$ ), and as such, should be interpreted with caution.

The general absence of significant findings may have been the result of insufficient statistical power to detect the likely small-sized interaction effects. Based on power analyses described previously, the sample size indicated for these models to achieve the recommended power level of .80 was 395 participants; however, due to unanticipated circumstances during data collection, the sample size was lower than expected and the number of participants included in the interaction models not controlling for video game violence ranged from 200 to 315. Additionally, there were unequal sample sizes across the levels of the moderator variable of gender, with males outnumbering females. This may have further resulted in reduced power to detect effects for the interactions in which gender was entered into the model. Given this, effect sizes of the interaction terms across models were also considered, irrespective of statistical significance. Results indicated that, with the exception of the significant two-way interaction between callous-unemotional traits and gender predicting ACSS, violence exposure and gender exerted no moderating effects on the overall models. Future studies would benefit from repeating these analyses with a sample sufficiently powered to detect small-sized moderation effects, with more equivalent distribution of male and female participants included in the interaction analyses, in order to examine whether these results are replicated.

In addition to the study sample being underpowered for interaction analyses, other explanations for the study findings should also be considered. It may be that the expectation that exposure to violent experiences would potentiate the relations between psychopathic and conduct disorder traits and capability for suicide in a sample of adolescents, and that these associations would differ across gender, was largely incorrect.

While associations between psychopathic and conduct disorder traits and capability have been established (J. Anestis et al., 2016; J. Anestis et al., 2018; Glowinski et al., 2001; Goldston et al., 2009; Harrop et al., 2017; Javdani et al. 2011), as well as relationships between violence exposure and capability (Bryan & Cukrowicz, 2011; Bryan, Sinclair, & Heron, 2016), it is possible that the combined effect of exposure to violence and psychopathic/conduct disorder traits adds little practical significance to the prediction of suicide capability, and these relations do not diverge as a function of gender, in a sample of at-risk adolescents. It may be that exposure to violent experiences results in the development of psychopathic and conduct disorder traits, and it is through this pathway that the association to suicide capability emerges. Prior research indicates associations between early experiences of exposure to violence (e.g., experiencing physical and sexual abuse, witnessing interpersonal violence) and psychopathic traits in adulthood (Dargis & Koenigs, 2017; Weiler & Widom, 1996). Given this, it may be beneficial for future research to examine psychopathic and conduct disorder traits as potential moderators of the relationship between violence exposure and suicide capability.

Additionally, this research examined the interaction between each unique psychopathic or conduct disorder facet and violence exposure, and it may be that it is the combination or interaction across all psychopathic traits and violence exposure that confers the greatest risk of suicide capability. In this study, we were interested in examining the unique contributions of psychopathic facets to capability, which aligns closely with prior research, allowing for greater generalizability of results and increased understanding of the specific features of psychopathy (including varying levels of each) that relate to the prediction of suicide capability. However, future research may wish to

examine the possible potentiating effects of violence exposure and gender on the association between psychopathy total scores and capability for suicide.

It is also possible that the lack of significant or meaningful findings relates to the violence exposure measure used in this study. As previously discussed, the measure of violence exposure was constricted in the range of violent experiences assessed, and items were summed to create a composite total score of overall violence exposure, further restricting variability. It may be that a more comprehensive measure of violent experiences (e.g., including sexual abuse or interpersonal violence), such as the Juvenile Victimization Questionnaire (JVQ; Hamby et al., 2004) which assess a broad range of victimization and violent experiences including sexual assault, witnessing and indirect victimization, conventional crime (e.g., assault with a weapon), child maltreatment (e.g., physical abuse), and peer and sibling victimization (e.g., dating violence), would be a more robust moderator of the relationship between psychopathic/conduct disorder traits and capability. Furthermore, participants in this study were asked to retrospectively report their exposure to violent experiences. As such, there is the possibility that the individuals in our sample were exposed to/witnessed additional violent experiences that they failed to recall and report, but that nonetheless could have impacted their capability for suicide. Acquired capability is posited to develop through painful and provocative events (such as exposure to violence), which result in habituation to the pain and fear related to the ability to engage in lethal self-injury (Joiner et al., 2007). Theoretically, it is possible that an individual may experience incidents that increase their ability to tolerate pain or fear of death, without readily remembering these experiences; however, there is

currently a dearth of research to support this, which may be an important consideration for future studies investigating the construct of suicide capability.

### Strength, Limitations, and Future Directions

The current research should be considered in view of several additional limitations. While examination of the potentiating effect of exposure to violence is considered a strength of this study, the variance in the types of violence exposure measured was limited, which may have impacted findings. Future research would benefit from assessing potential associations with different types of violence exposure (e.g., exposure to sexual violence) or inclusion of a more broad measure of exposure to violent experiences (e.g., assessing for exposure to or witnessing community violence, physical violence, intimate partner violence, sexual assault) such as the JVQ.

For the analyses comparing differences across gender, samples sizes were imbalanced, with a larger proportion of males to females. As previously discussed, while strategies were utilized to mitigate the impact of the unequal sample sizes for some analyses, it would be advantageous to replicate these analyses utilizing methods to achieve more balanced sample sizes and. Additionally, the cross-sectional nature of our study did not allow for examination of the possible temporal relationship between violence exposure and psychopathic traits. Future research employing a longitudinal design would allow for causal interpretation of findings and provide further elucidation of the results from this study.

Despite these limitations, this research has meaningful implications regarding suicide risk in adolescents. This is the first study, to our knowledge, to examine violence exposure and gender as possible moderators of the relationship between adolescent

psychopathy traits and capability for suicide, expanding upon the extant literature which has largely focused on adults - leaving questions regarding the translatability of these findings to juveniles. Although violence exposure and gender did not emerge as moderators, this study provides preliminary information regarding the impact of violence exposure on associations between psychopathic/conduct disorder traits and capability in adolescents, as well as gender differences in these constructs. Ultimately, this research enhances the literature on suicide capability, an important component of suicide risk, in adolescents, an age group for which suicide is the second leading cause of death (CDC, 2018). Results from the present study provide preliminary support for the generalizability of findings on the relationship between psychopathic and conduct disorder traits and capability for suicide in adult samples to adolescents. Findings indicate that adolescent psychopathic and conduct disorder traits confer risk for suicide capability and suggest that continued exploration of these associations in juveniles is warranted.

APPENDIX A – Exposure to Violence Measure

Experiencing Violence:

At any time in your life, were you in any place in real life where you could see or hear people being shot, bombs going off, or street riots?

Yes

No

At any time in your life, were you in the middle of a war where you could hear real fighting with guns or bombs?

Yes

No

At any time in your life, has somebody broken in or tried to force their way into your home?

Yes

No

At any time in your life, has somebody stolen something from you using violence (like somebody "mugging" you or stealing something from you after beating you up or threatening to hurt you)?

Yes

No

Witnessing Violence:

At any time in your life, was anyone close to you murdered, like a friend, neighbor or someone in your family?

Yes

No

At any time in your life, have you seen or heard somebody else get threatened?

Yes

No

At any time in your life, have you seen somebody trying to break in or force their way into somebody else's home?

Yes

No

At any time in your life, have you seen somebody else get hit, punched, or slapped?

Yes

No

At any time in your life, have you seen or heard gunshots in real life (not including during hunting, at a shooting range, on TV, or on video games)?

Yes

No

At any time in your life, have you seen somebody try to hurt another person with a knife or other object?

Yes

No

At any time in your life, have you seen or heard somebody trying to use force or threats to get another person to do something they didn't want to do?

Yes

No

## APPENDIX B – IRB Approval Letter

Office of  
Research Integrity



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### NOTICE OF RENEWAL

The University of Southern Mississippi's Office of Research Integrity has received the notice of renewal for your submission:

PROTOCOL NUMBER: IRB R-CH11-24111802

PROJECT TITLE: Predictors of Behavioral Outcomes in a Group of At-Risk Adolescents

SCHOOL/PROGRAM: School of Psychology, Psychology

RESEARCHER(S): Nora Charles, Tiffany Harrop, Paula Floyd, Lydia Sigurdson, Margaret Bullerjahn, Lauren Burns,

IRB COMMITTEE ACTION: Approved

In accordance with Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy your prior reviewed submission has been renewed. From this time of this renewal your study is approved for twelve months.

PERIOD OF APPROVAL: August 9, 2019 - August 8, 2020

Sincerely,

Office of Research Integrity

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