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Childhood Predictors and Moderators of Lifetime Risk of Self-Harm in Girls with and without
Attention Deficit Hyperactivity Disorder

by

Jocelyn I. Meza

A dissertation submitted in partial satisfaction of the

requirements for the degree of

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in

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University of California, Berkeley

Committee in Charge:

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Abstract

Childhood Predictors and Moderators of Lifetime Risk of Self-Harm in Girls with and without Attention Deficit Hyperactivity Disorder

by

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Doctor of Philosophy in Psychology

University of California, Berkeley

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Objective: Attention-deficit/hyperactivity disorder (ADHD)—especially the underlying symptom dimension of hyperactivity/impulsivity—is associated with self-harm, including both non-suicidal self-injury and suicidal behavior, during adolescence and young adulthood. This link is especially strong for females. Yet little is known about the developmental trajectories, or childhood predictors and moderators, of self-harm in women with and without childhood histories of ADHD.

Method: Utilizing data from the Berkeley Girls with ADHD Longitudinal Study (BGALS; $N = 228$), I first characterized lifetime risk of self-harm, including non-suicidal self-injury (NSSI), suicidal ideation (SI), and suicide attempts (SA), in adolescent and young adult women, comparing those with ($n = 140$) and without ($n = 88$) childhood histories of ADHD. At Wave 3 ($M_{age} = 19.6$, range 17-24), self-harm was assessed via two self-reported measures; at Wave 4 ($M_{age} = 25.56$, range 21-29), it was assessed via a clinician-administered structured interview. I then examined childhood predictors and moderators of lifetime risk by utilizing measures ascertained at baseline assessment in childhood (Wave 1; $M_{age} = 9.6$, range 6-12). The focus was on six predictor domains of interest: early psychopathology, adverse experiences (retrospectively recalled), peer rejection, measure of overall executive functioning, negative parenting practices (especially related to fathers), and child self-esteem, each of which has been found to be (a) impaired in samples with ADHD and (b) a risk factor for self-harm.

Results: First, regarding developmental trajectories, most participants with positive histories of lifetime NSSI engaged in such behaviors in adolescence (W3) yet desisted in adulthood (W4). Furthermore, nearly 60% of the girls endorsing a positive history of NSSI or SI by late adolescence were in the ADHD-C group. Interestingly, the vast majority of SA occurred during adolescence, with few new attempts during young adulthood; Attempters into the period of

young adulthood (i.e., “persisters”) all emanated from the ADHD-C subgroup, revealing the importance of impulsivity for repeated SA. Second, using binary logistic regressions, I found that early externalizing symptoms, overall executive functioning, and father’s negative parenting (reported by the participant) predicted lifetime risk of NSSI, over and above sociodemographic covariates. Adverse childhood experiences and low self-esteem predicted lifetime SI; early externalizing behaviors, adverse childhood experiences, and low self-esteem predicted lifetime SA. Finally, to determine interactions between individual risk factors, I conducted receiver operator characteristics (ROC) analyses. Results revealed that parent rated externalizing symptoms predicted NSSI, qualified by internalizing symptoms and executive functioning measures, such that girls with high childhood externalizing and internalizing symptoms, plus poor executive functioning, had a lifetime NSSI history of 80%. For SI, self-esteem was a predictor, moderated by poor executive functioning, such that girls with low self-esteem and poor executive functioning had an 83% lifetime history of SI. Finally, moderate externalizing symptoms predicted lifetime history of SA and this was moderated by low childhood self-esteem.

Conclusions: Findings indicate that pathways to self-harm are multifaceted for females with ADHD. Understanding early childhood predictors and moderators of self-harm can inform both intervention strategies and help clinicians understand which domains to consider during risk assessment. Crucially, utilizing a multidimensional approach to understanding risk should be prioritized in suicide prevention efforts globally.

Introduction

Self-harm

Adolescence and young adulthood, defined by the Office of Disease Prevention and Health Promotion (2010) as the developmental period from ages 10 to 24, are marked by high levels of risk-taking and sensation-seeking behaviors (Steinberg, 2008), with major increases in recent years regarding self-injury. Indeed, self-harm is a public-health concern affecting adolescents disproportionately. Defined as self-injurious thoughts and behaviors “performed intentionally and with the knowledge that they can or will result in some degree of physical or psychological injury to oneself” (Nock, 2010), self-harm includes both non-suicidal self-injury (NSSI, involving deliberate bodily harm without the intent to end one’s life) and suicidal behavior, including suicidal ideation (SI) and actual suicide attempts (SA). Although in the broadest sense self-harm can include both indirect (i.e., unhealthy behaviors like smoking) and direct (i.e., NSSI, SI and SA) forms, the latter confer more immediate and direct consequences and are the focus of this dissertation.

Overall, self-harm peaks in adolescence and early adulthood (Nock et al., 2009). Whereas earlier estimates of prevalence ranged from 13-45% of adolescents, depending on the severity level of the constituent behaviors (Lloyd-Richardson et al, 2007), more recent data indicate that emergency room visits for self-harming behavior in female youth have nearly doubled from 2001 to 2016 (Center for Disease Control, 2018). Tragically, recent data from the World Health Organization reveal that suicide is the leading cause of death for girls between the ages of 15 and 19 worldwide — outranking accidents, illnesses and complications from pregnancy (World Health Organization, 2018). Most recently, state-level data suggest that suicide rates have increased across the U.S. by >30% across all age groups, with the greatest percent increase noted in females aged 10-14 (Hedegaard, Curtin, & Warner, 2018).

Yet most research on self-harm is cross-sectional, meaning that the developmental course of self-harm is relatively understudied (Prinstein, 2008). Thus, it is uncertain whether self-harming behaviors initiated during early adolescence persist through late adulthood—or whether those who engage in self-harm at different ages represent distinct groups. Also, predictors of such behaviors have yielded inconsistent findings. Longitudinal studies would allow for fuller understanding of developmental trajectories and predictive models (e.g., Plener et al., 2015).

Despite their theoretical distinctions, NSSI, SI, and SA often co-occur within individuals (see Victor & Klonsky, 2014 for review). Nock and colleagues (2006) reported that 70% of adolescents who reported engaging in NSSI made a later suicide attempt and 55% reported multiple attempts. A meta-analysis found that the strongest predictor of SA was SI, followed by NSSI frequency (Victor & Klonsky, 2014). Crucially, identification of at-risk youth is essential, because it is rare for adolescents who self-injure to seek psychological services (Whitlock et al., 2006). Understanding pathways to self-harm includes understanding *who* is at risk and *what* the key risks entail. Uncovering theory-driven and evidence-based risk factors will inform mental health professionals about preventive strategies, targeting populations at high risk.

Risk Factors

Current research has begun to elucidate the risk factors associated with self-harm. It has been consistently supported that girls and women have a higher risk for self-harm than boys or men—with the exception of completed suicide, which is higher in males, because of greater access to lethal means of killing oneself, such as firearms (Callanan & Davis, 2012). The current sample affords the opportunity to examine risk factors, longitudinally, in a sample of girls/young

women, enriched for risk because of their overrepresentation with ADHD and psychiatric comorbidities (i.e., conduct disorder, anxiety, and depression).

Early Psychopathology. Previous research indicates that symptoms of ADHD, and related comorbidities in both externalizing and internalizing domains, play a significant role in increasing risk for self-harm (Biederman et al., 2008; James, Lai & Dahl, 2004). For example, Hinshaw et al. (2012) found that girls with a childhood history of clinically significant inattention and hyperactivity/impulsivity (as denoted by diagnosis of the Combined presentation of ADHD) had markedly elevated risk for both NSSI and SA by the end of adolescence, compared to girls with a history of clinically significant inattention alone (i.e., girls with the Inattentive presentation of ADHD) or to typically developing girls. Also, Swanson, Owens, and Hinshaw (2014) found that those sample members with persistent ADHD (i.e., present in both childhood and young adulthood) were at highest risk for SA and moderate-to-severe levels of NSSI by the earliest years of adulthood (see Owens, Zalecki, Hinshaw, & Gillette, 2017, for extension of such findings through the end of emerging adulthood). In addition, both comorbid internalizing (Swanson et al., 2014) and externalizing behaviors (Barkley et al., 2008) are significant mediators of the link between ADHD and later self-harm and suicide.

Adverse Childhood Experiences/Maltreatment. Importantly, when ADHD is accompanied by childhood maltreatment, the risk for self-harm and suicide increases. That is, girls with ADHD who also experienced physical or sexual abuse and/or neglect during childhood showed a SA rate of over one-third by early adulthood (Guendelman et al., 2016). Thus, heritable factors (such as early impulsivity) and environmental factors (such as maltreatment) operate in tandem to elevate risk. Independent of ADHD, there is strong evidence that adverse childhood experiences, including maltreatment, are associated with suicidal behavior (Dube et al., 2001; Molnar et al., 2001; Enns et al., 2006; Yates et al., 2008; Brodsky & Stanley, 2008). In particular, a case-control study found that exposure to childhood adversity uniquely predicted SA in adolescence (Beautrais, Joyce, Mulder, 1996). Despite the heterogeneity of methods for assessing adversity and self-harm, exposure to negative life events (i.e., neglect) is associated with self-harm (Fergusson & Lynskey, 1995; Johnson, Cohen, Gould, Kasen, Brown & Brook, 2002; Madge, Hawton, McMahon, et al, 2011; O'Connor, Rasmussen, Miles, & Hawton, 2009; O'Connor, Rasmussen, Hawton, 2010). Finally, studies examining the diathesis-stress model suggest that predisposing personality and cognitive vulnerabilities interact with early and recent adversity to increase the risk of self-harm across the lifespan (Evans, Hawton & Rodham, 2004).

Peer Rejection. Adolescents frequently cite peer difficulties, including peer rejection, as a precipitant to self-harm (Hawton, Fagg, & Simkin, 1996). In fact, longitudinal studies that have examined the association between peer preference and self-injurious thoughts have shown that low peer preference is associated with increases in suicidal ideation over time (Heilbron & Prinstein, 2010). In our own longitudinal sample, Meza, Owens, and Hinshaw (2016) found that teacher ratings of peer social preference in adolescence (that is, teacher estimates of classmates' acceptance/rejection of the participant) emerged as a significant mediator of the predictive associations between childhood response inhibition and both SI and SA at the start of adulthood, whereas adolescent self-reports of peer victimization served as a significant partial mediator of the response inhibition-NSSI link. Clearly, adolescents at high risk for self-harm have significant interpersonal difficulties with their peers (Meza et al., 2016). The link between peer-related processes and self-harm may be particularly salient in females, who—compared to males—exhibit greater concern for peer evaluation (Rose & Rudolph, 2006).

Executive functioning (EF). Broadly defined, EF is a set of self-regulatory cognitive processes—including planning, inhibition, organization, set shifting, working memory, and problem solving—that help individuals achieve a goal (Pennington & Ozonoff, 1996). EF deficits have been linked to ADHD (Barkley, 1997; for a review, see Brown, 2013), NSSI (Fikke, Melinder, & Landrø, 2011), SI (Marzuk, Hartwell, Leon, & Portera, 2005) and SA (see Richard-Devantoy, Berlim, & Jollant, 2014 for review). In the current sample for this dissertation, childhood response inhibition, a measure of EF and a key feature of impulsivity (measured via a laboratory task), significantly predicted young adulthood NSSI severity, SI, and SA (Meza et al., 2016). Although there is no specific neuropsychological profile of either ADHD or individuals who engage in self-harm, executive functioning deficits contribute to self-harm risk (for contrasting evidence, see Bredemeier & Miller, 2015). Thus, more research is required to better understand the longitudinal links between EF deficits and self-harm.

Negative Parenting Practices. Another risk factor for self-harm, which has generated considerable research, is the quality of early relationships with parents. In particular, the unique impact of paternal negative parenting on later NSSI has been explored. One study found that paternal insecure attachment was associated with NSSI in a co-ed university sample (Gratz et al., 2002). Similar results emerged in an all-female undergraduate sample (Gratz, 2006). However, many studies examining the link between parenting behaviors and later self-harm have (a) focused on mother's parenting instead of father's parenting and (b) utilized a parent's perception of the relationship rather than the child's. Previous work on adolescent-parent relationships has found differential effects for relationships with each parent (e.g., Gould, Shaffer, Fisher, & Garfinkel, 1998; Shek, 1998). For example, Gould et al. (1998) found that poor communication with fathers predicted SA among adolescents whereas poor communication with mothers did not.

Self-Esteem. Global self-esteem is defined as the beliefs and evaluations people hold about their personal attributes and qualities (Mann, Hosman, Schaalma, & De Vries, 2004). Several studies have examined the role of childhood self-esteem and later self-harm, revealing that low self-esteem in early childhood predicted SI in early adulthood (McGee, Williams, & Nada-Raja, 2001). Despite the high co-occurrence between low self-esteem and depression, findings suggest that low self-esteem predicts suicidality over and above depression (Grøholt, Ekeberg, Wichstrøm, & Haldorsen, 2000). For adolescent girls, one study found that after controlling for depressive symptoms, low self-esteem predicted later suicidal ideation (Kelly et al., 2001). Yet other studies have found that low self-esteem moderates the link between internalizing symptoms and suicidality (Yoder et al., 1999), such that the link between internalizing symptoms and suicidality was stronger when low self-esteem was also present.

In sum, adolescence is a period marked by elevated risk for self-harm, more so in girls than boys and particularly in psychiatric populations. Many studies on self-harm have suggested that self-harm desists after adolescence (Moran et al., 2012; for review see Plener et al., 2015), but some longitudinal follow-up studies suggest that risk of suicide following self-harm is considerable and persists in the long term (Hawton et al., 2012). Overall, longitudinal research is needed to examine both (a) developmental trajectories and (b) risk factors—especially how risk processes may work together. In particular, early childhood psychopathology, adverse childhood experiences, peer rejection, executive functioning, negative parenting practices (particularly related to father-daughter interchange), and low self-esteem have been linked with elevated risk for self-harm in later years, yet little is known about their potentially interacting risk mechanisms. If validated, effecting reductions in such risks should be a core element in global prevention programs and initiatives.

Hypotheses

Regarding developmental patterns across adolescence and young adulthood in this all-female sample, I hypothesize that (a) probands with ADHD will have higher rates of self-harm (including NSSI, SI, and SA) across early adulthood and their mid-20s than non-ADHD comparison females; (b) girls with childhood histories of ADHD-C (vs. ADHD-I) will show elevated risk; and (c) four groups of lifetime risk of self-harm will emerge: adolescents who have never engaged in any type of self-harm (controls), adolescent-limited (desisters), adult onset, and persistent (both late adolescent and mid-20s). As for my second key aim of testing childhood predictors of lifetime self-harm, I hypothesize that early externalizing behaviors, adverse child experiences, peer rejection, low global EF, negative father-daughter interactions, and low self-esteem will independently predict lifetime risk of self-harm (i.e., NSSI, SI and SA), over and above sociodemographic variables. I also hypothesize that those with multiple risks operating simultaneously (i.e., low self-esteem *and* childhood adversity) will have elevated risk for lifetime self-harm.

Method

Overview of Procedures

From the San Francisco Bay Area, our research team recruited girls from schools, mental health centers, pediatric practices, and through direct advertisements, to participate in research summer programs in 1997, 1998, and 1999. These programs were designed as enrichment rather than therapeutic endeavors, with emphasis on ecologically valid classroom and playground settings and multiple sources and informants for key measures. After extensive diagnostic assessments, 140 girls with ADHD and 88 age- and ethnicity-matched comparison girls were selected for Wave 1 (W1, $M_{age}=9.6$, range 6-12; Hinshaw, 2002). Five years later, we invited all participants for prospective follow-up at Wave 2 (W2, $M_{age}=14.2$, range 11-18; Hinshaw et al., 2006); the retention rate was 92%. Subsequently, we invited all participants and parents for a 10-year follow-up at Wave 3 (W3, $M_{age}=19.6$, range 17-24), involving two half-day, clinic-based assessment sessions; the retention rate was 95%. Finally, we invited all young adult women for a 16-year follow-up at Wave 4 (W4; $M_{age}=25.6$, range 21-29). Aided by use of social media in some cases, we located, consented, and obtained at least some data from 211 of the 228 original participants (93% retention). When necessary, we performed telephone interviews or home visits. We prioritized multi-domain, multi-source, and multi-informant data collection.

Participants

Participants included 228 ethnically-diverse girls (53% White, 27% African-American, 11% Latina, 9% Asian-American) with ($n=140$) and without ($n=88$) childhood ADHD, ascertained via a rigorous, multi-gated screening and assessment process that, at the final stage, relied on the parent-administered Diagnostic Interview Schedule for Children, 4th ed. (DISC-IV; Shaffer et al., 2000) and SNAP rating scale (Swanson, 1992) in order to establish the ADHD diagnosis. Comparison girls, screened to match the ADHD sample on age and ethnicity, could not meet diagnostic criteria for ADHD via either parent ratings or structured interview criteria. Some of the latter (3.4%) met criteria for internalizing disorders (anxiety/depression) or for disruptive behavior disorders (6.8%); but the goal was not to match comparison participants to those with ADHD on comorbid conditions, which would have yielded a non-representative comparison group. Exclusion criteria for both groups were intellectual disability, pervasive developmental disorders, psychosis or overt neurological disorder, lack of English spoken in the home, and medical problems prohibiting summer camp participation.

Measures

Predictor variables. Predictor variables were measured during baseline assessment at Wave 1.

Psychopathology: Child Behavior Checklist (CBCL; Achenbach, 1991). To assess early psychopathology, I used *T* scores from the broadband Internalizing and Externalizing scales, as rated by mothers. The average *T*-score is 50, with a standard deviation of 10, such that scores above 60 are considered elevated/at-risk and above 70 are considered clinically significant. The standardized scores and clinical cutoffs of the CBCL yield remarkable utility, especially given its excellent validity, test-retest reliability, and internal consistency (Nakamura, Ebesutani, Bernstein, & Chorpita, 2009).

Psychopathology: Swanson, Nolan and Pelham Rating Scale, Fourth Edition (SNAP-IV; Swanson, 1992). To assess symptom severity for childhood inattention and hyperactivity/impulsivity, I utilized a parent rating scale, which includes a dimensionalized checklist of the nine DSM items for ADHD–Inattentive Presentation (ADHD-I), and the nine items for ADHD–Hyperactive/ Impulsive Presentation (ADHD-H/I), with each scored on a metric that ranges from 0 (not at all) to 3 (very much) metric. Scores for Inattention and Hyperactivity/Impulsivity symptom severity ranged from 0-27, with higher scores indicating more symptom severity. The SNAP has been used extensively in ADHD assessment and treatment research given its good internal consistency and adequate test-retest reliability (Bussing et al., 2008).

Childhood Adverse Experiences/Maltreatment: Adverse Childhood Experiences (ACE). The ACE questionnaire, used during Wave 4 but requesting retrospective information, contains detailed questions about childhood abuse, neglect, and household dysfunction. All ACE questions pertained to the first 18 years of life, and participants were instructed to endorse only those items that occurred before the age of 18. For this measure, questions from the Conflict Tactics Scale (Straus & Gelles, 1900) were used to define emotional and physical abuse and domestic violence. Questions on emotional and physical neglect were adapted from the Childhood Trauma Questionnaire (Straus & Gelles, 1900). Childhood sexual abuse was assessed by using four questions adapted from Wyatt (1985), and it was determined by a “yes” response to one or more of the questions. The total ACE score (range 0-10), comprised of the number of categories of ACEs endorsed, was used to assess the cumulative effect of multiple ACEs. Previous studies that have used the total ACE score have found that the ACE score had a strong, graded relationship to attempted suicide during childhood/adolescence and adulthood (Dube et al., 2001). An epidemiological study assessing the test-retest reliability of retrospective reports of the ACE found good to moderate agreement for the total ACE score (Dube et al., 2004).

Peer Rejection. As described in Hinshaw and Melnick (1995) regarding earlier programs for boys with ADHD, confidential peer sociometric nominations from each participant’s baseline summer program were ascertained at the end of Week 1, Week 3, and Week 5. Using a picture board composed of head-and-shoulders photographs of all classmates, each girl nominated three girls (a) whom she most liked and (b) whom she most disliked. The proportions of classmates who liked (positive nominations) and disliked (negative nominations) each participant were used herein. The stability of these peer nominations was strong (e.g., Week 1–Week 5 correlation for positive nominations: $r[226] = .51, p .01$; for negative nominations: $r[226] = .85, p < .001$). The positive and negative nominations given by the clinical versus comparison samples were similar overall: girls with ADHD were universally rejected, but girls with ADHD were somewhat more likely to show leniency towards other girls with ADHD, rating them slightly more positively and less negatively than did comparison girls (Blachman & Hinshaw, 2002). For peer rejection I

analyzed a composite of Week 1, Week 3, and Week 5 negative nomination proportion scores, given their strong stability across weeks of assessment.

Executive Function: Rey Osterrieth Complex Figure (ROCF; Osterrieth 1944.) The ROCF is a complex cognitive task that requires an individual to copy and later recall a complex figure composed of 16 segments. I analyzed the Copy condition of this task (participants draw the figure with no delay), which taps multiple domains of executive functioning (EF), such as planning, working memory, inhibitory control, attention to detail, and organization. Only the Copy condition differentiated the girls with ADHD from our comparison sample at baseline (Sami et al., 2003). Previously, the ROCF has been successfully used to distinguish children with ADHD from those without (Carte et al., 1996; Nigg et al., 1998; Sami et al., 2003). Scores from various methods of scoring the ROCF are significantly correlated with other measures of EF (Troyer & Wishart 1997; Somerville et al., 2000; Watanabe et al. 2005), indicating that the ROCF is indeed assessing one or more aspects of EF. I used a well-validated method of scoring the ROCF: the Error Proportion Score (EPS) developed by Sami et al. (2003). The EPS is a ratio (number of errors/total number of segments drawn) and is a measure of efficiency (Sami et al. 2003). The intraclass correlation between pairs of the three primary scorers for the EPS ranged from 0.91 to 0.94. Among all of the EF measures in our battery, the EPS from the ROCF showed the largest effect size ($d = 0.90$) in differentiating the girls from ADHD from the comparison sample during childhood (Hinshaw et al., 2002; Sami et al., 2003).

Negative Parenting Practices: Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996). At Wave 1, parents and girls reported on 42 items related to child-rearing practices, each rated on a 5-point scale [1 (“Never”) to 5 (“Always”)]. Previous factor analyses supported several distinct factors, including positive (i.e., involvement [10 items]; positive reinforcement [6 items]) and negative dimensions (i.e., inconsistent discipline [6 items], poor monitoring [10 items] and corporal punishment [3 items]) (Shelton, Frick, & Wootton, 1996). I calculated and standardized separate positive and negative parenting composite scores, which have been utilized in previous studies of disruptive behavior disorders (Frick & Dantagnan, 2005). Negative and positive parenting dimensions demonstrated adequate internal consistency in this sample ($\alpha = .67$ and $.80$, respectively), comparable to figures from previous studies (Dadds, Maujean, & Fraser, 2003). As the primary measure within this domain, I used the composite score of the girl’s report of her father’s negative parenting practices (i.e., inconsistent discipline, poor monitoring and corporal punishment). To yield comparative tests, I also included the girl’s report of her mother’s parallel parenting practices.

Self-Esteem. To assess global self-worth (or self-esteem), girls self-reported on the Harter questionnaire (Harter, 1982). It was ascertained during Wave 1, in two versions, one for older children (8 years and up) and one for those aged 6-7. To get an overall competence measure I averaged all of the subscales within the questionnaire. For the younger girls, the overall competence measure was based on four scales from the younger version of the measure (physical competence, cognitive competence, peer acceptance, maternal acceptance). For participants aged 8-12, it was based on five scales (school, social, physical appearance, behavior, athletic) from the older version of the measure. All questions are rated on a 4-point scale [1 (“Strongly Agree”) to 4 (“Strongly Disagree”)]; items were reverse scored and averaged so that higher mean scores could indicate higher self-esteem. As reported by Harter (1982), internal consistencies of these scales range from $.75$ to $.84$, with test–retest reliabilities ranging from $.69$ to $.80$.

Criterion variables. Measures of self-harm were administered at Waves 3 and 4.

Barkley Suicide Questionnaire (Barkley, 2000). This is a three-item self-report scale ascertained at Wave 3: “have you ever considered suicide?”; “have you ever attempted suicide?”; “have you ever been hospitalized for an attempt?” A positive endorsement to any question is followed up with a lifetime frequency question (“how many times?”). I dummy coded yes and no answers, such that endorsed items were given a score of 1 and all other answers a 0. To calculate lifetime prevalence, I analyzed the dichotomous SI and SA items.

Self-Injury Questionnaire (SIQ). All young women responded to the SIQ during Wave 3, an interviewer-administered measure based on a modification of Claes, Vandereycken, and Vertommen’s (2001) SIQ. Vanderlinden and Vandereycken (1997) provide data supporting the validity and reliability of that measure within eating-disordered samples. I assessed variety and frequency of non-suicidal self-injury (NSSI). Participants were asked whether, in the past year, they had deliberately injured themselves (e.g., scratched or cut their skin with objects, burned themselves, hit themselves hard, pulled hair out) and how often (1 = only once; 6 = a couple of times a day). For this study, I created a NSSI dichotomous variable and dummy coded all positive endorsements of NSSI as 1 (including low [‘constantly pick at scabs until they scar’ and/or ‘pull or play with your hair so much that it comes out’] to high severity [‘burn yourself on purpose’] behaviors), with no endorsed NSSI codes as 0 (see Swanson et al., 2014).

Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007). This is a clinician administered structured interview used at Wave 4 to assess the presence, frequency, and characteristics of a wide range of self-injurious thoughts and behaviors, including suicidal ideation, suicide plans, suicide gestures, suicide attempts, and NSSI. The SITBI has strong psychometric properties including strong interrater reliability (average .99, r 1.0) and test–retest reliability (average .70, intraclass correlation coefficient .44) over a 6-month period. Moreover, concurrent validity was demonstrated via strong correspondence between the SITBI and other measures of suicidal ideation (average .54), suicide attempt (.65), and NSSI (average .87). In order to ensure that we assessed self-harm *since* W3, we asked participants “How many times since _____ (W3 assessment date) have you made an actual attempt to kill yourself in which you had at least some intent to die?” Similar questions were asked regarding suicidal ideation and NSSI. Because all Wave 4 measures had frequencies of self-harm behaviors, we used these data to create a dichotomous variable (yes/no), where frequency of 0 = no, and frequency of 1 or more = yes.

Self-Harm Lifetime Prevalence. I created dummy variables to reflect the lifetime prevalence of self-harm from measures ascertained during Wave 3 and Wave 4. Wave 3 self-harm (including NSSI, SI and SA) was established via the self-reported measures described above. Wave 4 self-harm was assessed via the SITBI. All three criterion measures were dichotomous, where 1 = endorsement of such behavior. Then, to assess desistance and persistence of self-harm, I coded those young women who did not engage in self-harm either Wave 3 or Wave 4 as 0 (controls); those who endorsed self-harm at Wave 3 only (adolescent limited/desisters) as 1; those who endorsed self-harm during Wave 4 only as 2 (adult onset); and those who endorsed self-harm at Wave 3 *and* Wave 4 as 3 (persistent self-harm).

Covariates. To ascertain whether the domains of impairment are related specifically to self-harm status rather than to confounding factors, I statistically adjusted for baseline measures that have been empirically associated with the predictors of interest and criterion measures of self-harm, including (a) mother’s education, (b) household income, and (c) participant age.

Data Analytic Plan

Statistical analyses were performed with SPSS for Mac, Version 24 (IBM Corp., 2016). First, I conducted a series of Chi-Square tests to assess group differences in terms of Wave 1 ADHD diagnostic status (ADHD vs. Comparison) with respect to Lifetime History (Wave 3 and 4) of self-harm criterion variables. Effect sizes were calculated using Odds Ratios (ORs). The criterion variables include three direct forms of self-harm and their lifetime history: NSSI, SI, and SA. In order to provide a more comprehensive picture, I also conducted descriptive analyses on the previously mentioned self-harm measures and their developmental trajectories (i.e., adolescent limited, adult onset, and persistent).

Second, for the predictor hypotheses, I initially conducted a series of binary logistic regressions to test whether early psychopathology, childhood adverse experiences, peer rejection, global EF, negative paternal parenting practices, and self-esteem independently predicted lifetime risk of self-harm (Wave 3 and Wave 4) over and above sociodemographic variables (Step 1: covariates; Step 2: the six predictors of interest, entered individually). Additionally, ad-hoc receiver operating characteristics (ROC) analyses, using a freely available software (Kraemer, 1992), were used to find optimal predictors and moderators that best correlate with lifetime NSSI, SI, and SA. First, I entered *all* predictors and ROC rank ordered them predictors via κ , which can be weighted to favor sensitivity ($SE = \text{True Positives} / \text{True Positives} + \text{False Negatives}$) or specificity ($SP = \text{True Negatives} / \text{True Negatives} + \text{False Positives}$). The cut-off point that optimized sensitivity and specificity was used (Altman & Bland, 1994). After an optimal predictor was found (i.e., the variable with the largest κ), the data were divided based on this value, and the next best predictor was searched. ROC continued this process until there were no more significant predictors (per a priori-defined p-values), or the sample size was deemed too small (e.g., $n < 10$). This ROC approach has been successfully used in clinical research studies that have dichotomous outcomes (i.e., Owens et al., 2003; Owens, Hinshaw, McBurnett, & Pffiffer, 2018), as ROC can identify predictors and characteristics of participants at differential risk for a specific outcome of interest (e.g., optimal response to treatment; self-harm). When assessing multiple domains of interests, as herein, ROC accommodates the high likelihood of collinearity among predictors by assessing their conjoint effects (Kraemer et al., 1999).

Results

Descriptive characteristics

Primary analyses (Table 1d) revealed that 36.7% ($n=80$) of the women in the entire sample had engaged in NSSI during their lifetimes, with significant group differences between the ADHD (46.5%, $n=61$; ADHD-C $n=47$, ADHD-I $n=14$) and comparison group (21.8%, $n=19$; $\chi^2(3, N = 200) = 13.52, p < .001$, OR: 3.13, CI: 1.74, 6.15). In terms of developmental trajectories, I found that among the participants with a presence of lifetime self-harm, most had engaged in NSSI by Wave 3 (62%; $n=49$), whereas a small proportion began engagement in NSSI between Waves 3 and Wave 4 (8.8%, $n=7$). Of note, one-third of the girls reporting a positive history of NSSI by Wave 3 persisted to engage in such behaviors by Wave 4 ($n=24$). I refer to these participants as “NSSI Persisters.” 79% of this group (19 of the 24) had a childhood diagnosis of ADHD ($n=16$ ADHD-C; $n=3$ ADHD-I).

Second, results indicated that nearly half of our sample reported having SI during their lifetimes (43.7%, $n=93$). Perhaps given such a high base rate of suicide ideation, I did not find any significant differences between the ADHD (47.2%, $n=60$; ADHD-C $n=48$, ADHD-I $n=12$)

and the comparison group (38.3%, n=33) with respect to this criterion measure ($\chi^2(3, N = 200) = 5.78, p > .05, OR: 1.44, CI: .82, 2.51$). Still, most participants endorsing suicidal ideation by Wave 3 were in the ADHD-C group (n=17 vs. ADHD-I=4), with a similar pattern for the “persistent” participants in terms of suicide ideation by Wave 4 (ADHD-C=19 vs. ADHD-I=4).

For actual suicide attempts (SA), the lifetime prevalence in the entire sample was, as expected, lower (13.95%, n=30). Significant group differences emerged between the ADHD 83.3%, n=25; ADHD-C=22, ADHD-I=3) and comparison group (16.7%, n=5; $\chi^2(3, N = 200) = 9.12, p < .05, OR: 3.89, CI: 1.43, 10.62$). In terms of developmental trajectories, the majority of girls attempting suicide had made attempts by Wave 3 (n=23 of the 30 overall attempters). Of these, most belonged to the ADHD-C group (n=15), three belonged to the ADHD-I subgroup, and 5 were comparisons. Only three girls attempted suicide between Wave 3 and 4 assessments. Four girls persisted to attempt suicide (i.e., at both Wave 3 and Wave 4); all seven belonged to the ADHD-C group.

Binary logistic regressions

For predictor analyses, binary logistic regressions assessed which domains independently predicted each of the three outcomes (lifetime histories of NSSI, SI, and SA). For NSSI 11 cases with missing data on some variables were excluded from the analyses. After covarying baseline household income, mother’s education, race/ethnicity, and participant age, CBCL Externalizing scores ($p < .01; OR: 1.03$), SNAP Inattention symptom severity ($p < .001; OR: 1.14$), SNAP Hyperactivity/Impulsivity symptom severity ($p < .001; OR: 1.17$), executive functioning ($p < .05; OR: 8.50$), and paternal negative parenting ($p < .05; OR: 1.39$) predicted positive lifetime history of NSSI (see Table 1a). Note that maternal negative parenting was not a significant predictor for any of our criterion variables of interest ($ps > .05$).

For lifetime SI, 15 cases were excluded due to missing data from some of the variables. Adverse childhood experiences ($p < .05; OR: 1.20$) and self-esteem ($p < .01; OR: .36$)¹ were significant independent predictors, with adjustment for covariates (see Table 1b).

For lifetime SA, I excluded 13 cases that had missing data. After inclusion of covariates, CBCL Externalizing scores ($p < .05; OR: 1.03$), SNAP Inattention symptom severity ($p < .05; OR: 1.18$), SNAP Hyperactivity/Impulsivity symptom severity ($p < .001; OR: 1.23$), adverse childhood experiences ($p < .001; OR: 1.45$), and self-esteem ($p < .01; OR: .30$) were significant predictors (see Table 1c).

ROC Analysis

Finally, ROC analyses were used to ascertain interactive effects of predictors, conducting separate models for each criterion variable, and including all significant predictors of interest from the initial binary logistic regression analyses. For NSSI, parent-rated Externalizing symptoms were a significant predictor, qualified by Internalizing symptoms and executive functioning measures, such that girls with CBCL Externalizing scores greater than 71 and CBCL Internalizing scores higher than 67 *and* poor executive functioning (i.e., RCFT error proportion score higher than .47), had a lifetime history of NSSI of 80% (see Figure 4). For SI, self-esteem was a predictor, moderated by poor EF, such that girls with low self-esteem and RCFT error

¹ The OR for self-esteem is smaller than 1 because it was the only variable that was reverse scored, meaning that a higher indicated a better outcome, in this case better self-esteem. As such, an OR smaller than 1 should be interpreted as a risk factor.

proportion scores greater than .39 had an 83.3% lifetime history of SI (see Figure 5). Finally, for SA, two different groups emerged, such that those participants with CBCL Externalizing scores higher than 72 had the highest positive history of SA (34.2%). The second group with moderate positive histories of SA (19.6%) were the girls who had parents that reported CBCL Externalizing scores lower or equal to 72 and who themselves self-reported low (i.e., overall score below 2.77) self-esteem (see Figure 6).

Discussion

This dissertation project of a well-characterized longitudinal sample of girls with and without ADHD encompassed two major goals: characterizing developmental patterns of self-harm and ascertaining childhood predictors. All analyses were performed separately for NSSI, SI, and SA. First, lifetime histories of NSSI and SA (but not the more frequent variable of SI) were higher in participants with childhood ADHD than for comparison participants. As for patterns from adolescence into early adulthood, most of the girls with positive histories of lifetime NSSI and lifetime SA engaged in such behaviors in adolescence yet desisted by early adulthood, a finding consistent with previous longitudinal findings that NSSI and SA peak in adolescence but decline in young adulthood (Plener et al., 2015). Furthermore, nearly 60% of the girls endorsing a positive history of NSSI by late adolescence (i.e., Wave 3) emanated from the ADHD-C group, and all suicide attempters who persisted from adolescence into young adulthood emanated from the ADHD-C subgroup as well. Overall, adolescence is a period marked by high risk for self-harm in girls, and those with high rates of childhood impulsivity (reflected in an ADHD-C diagnosis) are at particularly increased risk for persistent self-harm (Swanson et al., 2014; You & Leung, 2012).

Second, regarding predictors: (i) lifetime NSSI was predicted by childhood externalizing behaviors, inattention symptoms, hyperactivity/impulsivity symptoms, low overall EF, and child perceptions of father's negative parenting. ROC analyses revealed that parent rated externalizing symptoms predicted NSSI, qualified by internalizing and EF measures, such that girls with CBCL Externalizing and Internalizing scores in the clinical range *and* poor EF (i.e., RCFT error proportion score higher than .47), had a lifetime history of NSSI of 80%. (ii) Lifetime SI was predicted by adverse childhood experiences and by low self-esteem, with ROC analyses revealing that the optimal predictor of SI was low self-esteem, moderated by poor EF, such that girls with low self-esteem and RCFT error proportion scores greater than .39 had an 83% lifetime history of SI. (iii) For lifetime SA, childhood externalizing behaviors as well as inattention and hyperactivity/impulsivity symptoms, childhood adverse experiences, and low self-esteem emerged as significant predictors of lifetime SA. ROC analyses identified externalizing symptoms (greater than 72) as the optimal predictor that was not further qualified by other variables. However, a second group emerged such that moderate levels of externalizing symptoms (equal to or below a score of 71, which is considered clinically elevated) was further moderated by low self-esteem.

Overall, findings regarding early childhood predictors and moderators of lifetime self-harm are consistent with previous investigations (e.g., Gratz et al., 2006; DiPierro et al., 2012; McGee et al., 2001; Shin et al., 2009). For example, according to dominant theories of self-harm (Crowell, Beauchaine, & Linehan, 2009; Nock, 2009), both adolescent (intrapersonal) and parenting (interpersonal) factors predict and maintain NSSI, with supportive evidence herein. That is, intrapersonal factors (i.e., early externalizing behaviors and ADHD symptoms) plus

interpersonal factors (paternal negative parenting) were associated with lifetime NSSI. Because participant ratings of mothers' negative parenting did not significantly predict lifetime NSSI, the suggestion is that father-daughter relationships are crucial. In fact, "unpleasant" or invalidating environments in childhood (characterized by inadequate or negative parenting strategies; Muehlenkamp et al., 2010)—and poor-quality father-child relationships (DiPierro et al., 2012)—are established in the literature as conferring risk for NSSI (see Muehlenkamp et al., 2010).

Our findings linking adverse childhood adversity and low self-esteem with later SI were also in line with previous findings. Past research highlights that early childhood trauma (i.e., sexual, verbal or physical abuse) predict later self-harm (Yates, Carlson, & Egeland, 2008), in female samples (Gratz, 2006) and samples of girls with ADHD (Guendelman et al., 2016). Still, previous findings for poor self-esteem and its relationship with later self-harm have been mixed (see, for example, Claes et al., 2010; Grøholt et al., 2000; Kingsbury et al., 1999). However, a 21-year longitudinal study examining vulnerabilities associated with increased risk of SI found that both childhood sexual abuse *and* poor self-esteem contributed to vulnerability of suicidal responses (Fergusson, Beautrais, & Horwood, 2003). These findings support that multiple factors, primarily in early years of life, work in tandem to elevate risk for later self-harm.

Each symptom dimension of ADHD (i.e., inattention and hyperactivity/impulsivity) predicted lifetime SA, in combination with overall parent reports of externalizing symptoms, and child reported childhood adversity and self-esteem, -- consistent with past findings (Gratz et al., 2006; DiPierro et al., 2012; McGee et al., 2001; Shin et al., 2009). I expected for symptoms of ADHD to predict all criterion variables (i.e., NSSI, SI, and SA), but interestingly, ADHD symptom severity (i.e., inattention and hyperactivity/impulsivity) only predicted lifetime SA. This suggests that symptoms of ADHD are a risk for more severe and direct forms of self-harm, and this link is more pronounced in women (Cho et al., 2008; Hinshaw et al., 2012). One possible explanation for this unique link is that girls with both symptoms of inattention and hyperactivity/impulsivity (ADHD-Combined presentation) are more likely to internalize the negative feedback that they received in childhood, resulting in low self-esteem, and are also at increased risk of experiencing more adversity in childhood (see Briscoe-Smith & Hinshaw, 2006; Guendelman et al., 2016).

Clinical Implications

Research with longitudinal and multi-informant methods aimed at elucidating early risk factors for later self-harm provide important information that could be implemented in suicide prevention campaigns. For example, ADHD symptoms in childhood (particularly those involving impulsivity) pose a high risk for self-harm in adolescence. Thus, self-harm should be an assessment target, but ADHD symptom rating scales do not include inquiries about self-harm, meaning that brief self-harm screeners should be included in evidence-based evaluations. Similarly, several studies point to family dysfunction, in particular negative paternal parenting behaviors, as a significant predictor of self-harm. One possible intervention strategy would be make a concerted effort of getting paternal input into the assessment of ADHD, when possible. Effective treatment interventions should include fathers in ongoing treatment, for example, in parent training or multi-family group therapy (i.e., Dialectical Behavioral Therapy). Historically, fathers are often neglected or excluded from ongoing assessment and treatment of their child's psychological problems (Phares, Lopez, Fields, Kamboukos, & Duhig, 2005). A meta-analysis of father involvement in parent training found that interventions including both fathers and mothers yielded significantly more positive changes in their child's behavioral problems (Lundahl,

Tollefson, Risser, & Lovejoy, 2008). In addition to studying risk factors, more studies need to focus on examination of protective factors, which should translate more readily into prevention strategies. For example, supportive parents, fair teachers, safe schools, and the presence of a close friend, were associated with low rates of suicide attempts among adolescents (Fleming et al. 2007).

Limitations and Future Directions

These findings should be interpreted in light of several limitations. First, this was an all-female sample, as such, no conclusions can be drawn in regard to predictors of self-harm in male samples. However, it should be noted that when assessing risk for self-harm, other studies have not found gender differences (Klonsky et al., 2003; Stanley et al., 2001). Still, additional studies of male samples are needed to replicate and support these points. Second, I assessed adverse childhood experiences retrospectively, which could have biased results. More specifically, I assessed childhood trauma at Wave 4, and previous studies have suggested that when retrospectively assessing childhood trauma, women are likely to underestimate their ratings. Third, given the very small subsample of girls indicating self-harm at both Wave 3 and Wave 4, I was unable to assess predictors of the persistence of self-harm—an area in need of investigation.

Overall, it is important to target adolescents at high risk for self-harm because at-risk teens typically do not seek professional help. Oftentimes, their first encounter with a mental health professional is after an initial suicide attempt. As such, prevention strategies should be implemented outside of hospitals, with school settings a likely venue. Second, a priority is understanding relevant mechanisms for the maintenance of self-harm, to inform prevention and treatment efforts.

References

- Achenbach, T.M. (1991). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: University Associates in Psychiatry.
- Achenbach, T. M., & Rescorla, L. A. (2003). *Manual for the ASEBA Adult Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.
- Altman, D. G., & Bland, J. M. (1994). Diagnostic tests: Sensitivity and specificity. *BMJ: British Medical Journal*, 308(6943), 1552.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, 121(1), 65.
- Barkley R. A. (2006). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment (3rd ed.)*. New York: Guilford.
- Barkley, R.A., Murphy, K.R., & Fischer, M. (2008). *ADHD in adults: What the science says*. New York, NY: Guilford Press.
- Beautrais, A.L., Joyce, P.R., Mulder, R.T. (1996). Risk factors for serious suicide attempts among youths aged 13 through 24 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 1174–1182.
- Beautrais, A. L., Gibb, S. J., Faulkner, A., Fergusson, D. M., & Mulder, R. T. (2010). Postcard intervention for repeat self-harm: Randomized controlled trial. *British Journal of Psychiatry*, 197(1), 55-60.
- Bennewith, O., Stocks, N., Gunnell, D., Peters, T. J., Evans, M. O., & Sharp, D. J. (2002). General practice based intervention to prevent repeat episodes of deliberate self-harm: Cluster randomized controlled trial. *British Medical Journal*, 324(7348), 1254.
- Biederman, J., Ball, S.W., Monuteaux, M.C., Mick, E., Spencer, T.J., McCreary, M.,...Faraone, S.V. (2008). New insights into the comorbidity between ADHD and major depression in adolescent and young adult females. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(4), 426-434. doi: 10.1097/CHI.0b013e31816429d3.
- Blachman, D. R., Hinshaw, S. P. (2002). Patterns of friendship among girls with and without attention-deficit/hyperactivity disorder. *Journal of Abnormal Child Psychology*, 30(6), 625-640.
- Bredemeier, K., & Miller, I. W. (2015). Executive function and suicidality: A systematic qualitative review. *Clinical Psychology Review*, 40, 170-183.
- Briscoe-Smith, A. M., & Hinshaw, S. P. (2006). Linkages between child abuse and attention-deficit/hyperactivity disorder in girls: Behavioral and social correlates. *Child Abuse & Neglect*, 30(11), 1239-1255.
- Brodsky, B. S., & Stanley, B. (2008). Adverse childhood experiences and suicidal behavior. *Psychiatric Clinics of North America*, 31(2), 223-235.
- Brown, T. E. (2013). *A new understanding of ADHD in children and adults: Executive function deficits*. New York: Routledge.
- Bussing, R., Fernandez, M., Harwood, M., Hou, W., Garvan, C. W., Eyberg, S. M., & Swanson, J. M. (2008). Parent and teacher SNAP-IV ratings of attention deficit hyperactivity disorder symptoms: Psychometric properties and normative ratings from a school district sample. *Assessment*, 15(3), 317-328.
- Callanan, V. J., & Davis, M. S. (2012). Gender differences in suicide methods. *Social Psychiatry and Psychiatric Epidemiology*, 47(6), 857-869.

- Carte, E. T., Nigg, J. T., & Hinshaw, S. P. (1996). Neuropsychological functioning, motor speed, and language processing in boys with and without ADHD. *Journal of Abnormal Child Psychology*, *24*, 481–498.
- Center for Disease Control (2018). Web-based Injury Statistics Query and Reporting System (WISQARS). Atlanta, GA: US Department of Health and Human Services, CDC, National Center for Injury Prevention and Control.
- Chen, J., Yu, J., Wu, Y., & Zhang, J. (2015). The influence of pubertal timing and stressful life events on depression and delinquency among Chinese adolescents. *PsyCh Journal*, *4*(2), 88-97.
- Claes, L., Vandereycken, W., & Vertommen, H. (2001). Self-injurious behavior in eating-disordered patients. *Eating Behaviors*, *2*, 263-272.
- Claes, L., Houben, A., Vandereycken, W., Bijttebier, P., & Muehlenkamp, J. (2010). Brief report: The association between NSSI, self-concept and acquaintance with self-injurious peers in a sample of adolescents. *Journal of Adolescence*, *33*(5), 775-778.
- Crawford, M. J., Thomas, O., Khan, N., & Kulinskaya, E. (2007). Psychosocial interventions following self-harm. *The British Journal of Psychiatry*, *190*(1), 11-17.
- Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, *135*, 495-510. doi: 10.1037/70015616.
- Dube, S.R., Anda, R.F., Felitti, V.J., Chapman, D.P., Williamson, D.F., & Giles, W.H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span findings from the adverse childhood experiences study. *Journal of the American Medical Association*, *286*(24), 3089–3096.
- Dube, S. R., Williamson, D. F., Thompson, T., Felitti, V. J., & Anda, R. F. (2004). Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. *Child Abuse & Neglect*.
- Enns, M., Cox, B., Afifi, T., De Graaf, R., Ten Have, M., & Sareen, J. (2006). Childhood adversities and risk for suicidal ideation and attempts: A longitudinal population-based study. *Psychological Medicine*, *36*(12)1–10.
- Evans, E., Hawton, K., Rodham, K. (2004). Factors associated with suicidal phenomena in adolescents: A systematic review of population-based studies. *Clinical Psychology Review*, *24*, 957–979.
- Fergusson, D.M., Lynskey, M.T. (1995). Childhood circumstances, adolescent adjustment, and suicide attempts in a New Zealand birth cohort. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 612–622.
- Fergusson, D. M., Beautrais, A. L., & Horwood, L. J. (2003). Vulnerability and resiliency to suicidal behaviors in young people. *Psychological Medicine*, *33*(1), 61-73.
- Fikke, L. T., Melinder, A., & Landrø, N. I. (2011). Executive functions are impaired in adolescents engaging in non-suicidal self-injury. *Psychological Medicine*, *41*(3), 601-610.
- Fleming, T. M., Merry, S. N., Robinson, E. M., Denny, S. J., & Watson, P. D. (2007). Self-reported suicide attempts and associated risk and protective factors among secondary school students in New Zealand. *Australian & New Zealand Journal of Psychiatry*, *41*(3), 213-221.
- Fliege, H., Lee, J. R., Grimm, A., & Klapp, B. F. (2009). Risk factors and correlates of deliberate self-harm behavior: A systematic review. *Psychosomatic Research*, *66*(6), 477-493.

- Gratz, K. L., Conrad, S. D., & Roemer, L. (2002). Risk factors for deliberate self-harm among college students. *American Journal of Orthopsychiatry*, 72, 128–140.
- Gratz, K. L. (2006). Risk factors for deliberate self-harm among female college students: The role and interaction of childhood maltreatment, emotional inexpressivity, and affect intensity/reactivity. *American Journal of Orthopsychiatry*, 76(2), 238.
- Grøholt, B., Ekeberg, Ø., Wichstrøm, L., & Haldorsen, T. (2000). Young suicide attempters: A comparison between a clinical and an epidemiological sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 868–875.
- Guendelman, M., Owens, E. B., Galan, C., Gard, A., & Hinshaw, S. P. (2016). Early adult correlates of maltreatment in girls with ADHD: Increased risk for internalizing problems and suicidality. *Development and Psychopathology*, 28, 1-14.
- Harter, S. (1982). The perceived competence scale for children. *Child Development*, 53, 87–97.
- Hawton, K., Fagg, J., & Simkin, S. (1996). Deliberate self-poisoning and self-injury in children and adolescents under 16 years of age in Oxford, 1976–1993. *The British Journal of Psychiatry*, 169(2), 202-208.
- Hawton, K., Saunders, K. E., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *The Lancet*, 379(9834), 2373-2382.
- Hawton, K., Zahl, D., & Weatherall, R. (2003). Suicide following deliberate self-harm: Long-term follow-up of patients who presented to a general hospital. *The British Journal of Psychiatry*, 182(6), 537-542.
- Hawton, K., Bergen, H., Kapur, N., Cooper, J., Steeg, S., Ness, J., & Waters, K. (2012). Repetition of self-harm and suicide following self-harm in children and adolescents: Findings from the Multicentre Study of Self-Harm in England. *Journal of Child Psychology and Psychiatry*, 53(12), 1212-1219.
- Hay, C. & Meldrum, R. (2010). Bullying, victimization, and adolescent self-harm: Testing hypotheses from general strain theory. *Journal of Youth & Adolescence*, 39(5), 446-459.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hedegaard, H., Curtin, S.C., Warner, M. (2018). Suicide rates in the United States continue to increase. NCHS Data Brief, no 309. Hyattsville, MD: National Center for Health Statistics.
- Heilbron, N., & Prinstein, M. J. (2010). Adolescent peer victimization, peer status, suicidal ideation, and nonsuicidal self-injury: Examining concurrent and longitudinal associations. *Merrill-Palmer quarterly (Wayne State University Press)*, 56(3), 388.
- Hinshaw, S. P., & Melnick, S. M. (1995). Peer relationships in boys with attention-deficit hyperactivity disorder with and without comorbid aggression. *Development and Psychopathology*, 7(04), 627-647.
- Hinshaw, S. P. (2002). Preadolescent girls with attention-deficit/hyperactivity disorder: I. Background characteristics, comorbidity, cognitive and social functioning, and parenting practices. *Journal of Consulting and Clinical Psychology*, 70(5), 1086-1098.
- Hinshaw, S. P., Carte, E. T., Sami, N., Treuting, J. J., & Zupan, B. A. (2002). Preadolescent girls with attention-deficit/hyperactivity disorder: Neuropsychological performance in relation to subtypes and individual classification. *Journal of Consulting and Clinical Psychology*, 70, 1099–1111.

- Hinshaw, S. P., Owens, E. B., Sami, N., & Fargeon, S. (2006). Prospective follow-up of girls with attention-deficit/hyperactivity disorder into adolescence: Evidence for continuing cross-domain impairment. *Journal of Consulting and Clinical Psychology, 74*, 489-499.
- Hinshaw, S. P., Owens, E. B., Zalecki, C., Huggins, S. P., Montenegro-Nevado, A. J., Schrodek, E., & Swanson, E. N. (2012). Prospective follow-up of girls with attention-deficit/hyperactivity disorder into early adulthood: Continuing impairment includes elevated risk for suicide attempts and self-injury. *Journal of Consulting and Clinical Psychology, 80*(6), 1041-1051.
- IBM Corp. (2016). *IBM SPSS Statistics for Mac OS, Microsoft Windows* (Version 24.0). Armonk, NY: IBM Corp.
- James, A., Lai, F.H., & Dahl, C. (2004). Attention deficit hyperactivity disorder and suicide: A review of possible associations. *Acta Psychiatrica Scandinavica, 110*(6), 408-415.
- Johnson, J.G., Cohen, P., Gould, M.S., Kasen, S., Brown, J., & Brook, J.S. (2002). Childhood adversities, interpersonal difficulties, and risk for suicide attempts during late adolescence and early adulthood. *Archives of General Psychiatry, 59*, 741-749.
- Kaufman, A. S. (1994). *Intelligent testing with the WISC-III*. New York: John Wiley.
- Kelly, T. M., Lynch, K. G., Donovan, J. E., & Clark, D. B. (2001). Alcohol use disorders and risk factor interactions for adolescent suicidal ideation and attempts. *Suicide and Life-Threatening Behavior, 31*(2), 181-193.
- Kingsbury, S., Hawton, K., Steinhardt, K., & James, A. (1999). Do adolescents who take overdoses have specific psychological characteristics? A comparative study with psychiatric and community controls. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 1125-1131.
- Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate self-harm in a nonclinical population: Prevalence and psychological correlates. *American journal of Psychiatry, 160*(8), 1501-1508.
- Kraemer, H. C. (1992). *Evaluating medical tests: Objective and quantitative guidelines* (Vol. 26). Newbury Park, CA: Sage publications.
- Kraemer, H. C., Kazdin, A. E., Offord, D. R., Kessler, R. D., Jensen, P. S., & Kupfer, D. J. (1999). Measuring the potency of risk factors for clinical or policy significance. *Psychological Methods, 4*(3), 257-271.
- Larsson, B., & Sund, A. M. (2008). Prevalence, course, incidence, and 1-year prediction of deliberate self-harm and suicide attempts in early Norwegian school adolescents. *Suicide and Life-Threatening Behavior, 38*(2), 152-165.
- Lezak, M. (1995). *Neuropsychological assessment* (3rd ed.). New York: Oxford University Press.
- Lloyd-Richardson, E. E., Perrine, N., Dierker, L., & Kelley, M.L. (2007). Characteristics and functions of nonsuicidal self-injury in a community sample of adolescents. *Psychological Medicine, 37*, 1183-1192.
- Lundahl, B. W., Tollefson, D., Risser, H., & Lovejoy, M. C. (2008). A meta-analysis of father involvement in parent training. *Research on Social Work Practice, 18*(2), 97-106.
- Madge, N., Hawton, K., McMahon, E.M., et al. (2011). Psychological characteristics, stressful life events and deliberate self-harm: Findings from the Child & Adolescent Self-harm in Europe (CASE) Study. *European Child and Adolescent Psychiatry, 20*, 499-508.

- Mann, M. M., Hosman, C. M., Schaalma, H. P., & De Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research, 19*(4), 357-372.
- Marzuk, P. M., Hartwell, N., Leon, A. C., & Portera, L. (2005). Executive functioning in depressed patients with suicidal ideation. *Acta Psychiatrica Scandinavica, 112*(4), 294-301.
- McGee, R., Williams, S., & Nada-Raja, S. (2001). Low self-esteem and hopelessness in childhood and suicidal ideation in early adulthood. *Journal of Abnormal Child Psychology, 29*(4), 281-291.
- Meza, J. I., Owens, E. B., & Hinshaw, S. P. (2016). Response inhibition, peer preference, and victimization, and self-harm: Longitudinal associations in young adult women with and without ADHD. *Journal of Abnormal Child Psychology, 44*, 323-334.
- Molnar, B. E., Berkman, L. F., & Buka, S. L. (2001). Psychopathology, childhood sexual abuse and other childhood adversities: Relative links to subsequent suicidal behavior in the US. *Psychological Medicine, 31*(6), 965-77.
- Moran, P., Coffey, C., Romaniuk, H., Olsson, C., Borschmann, R., Carlin, J. B., & Patton, G. C. (2012). The natural history of self-harm from adolescence to young adulthood: A population-based cohort study. *The Lancet, 379*(9812), 236-243.
- Muehlenkamp, J. J., Walsh, B. W., & McDade, M. (2010). Preventing NSSI in adolescents: The signs of self-injury program. *Journal of Youth and Adolescence, 39*(3), 306-314.
- Nakamura, B. J., Ebesutani, C., Bernstein, A., & Chorpita, B. F. (2009). A psychometric analysis of the child behavior checklist DSM-oriented scales. *Journal of Psychopathology and Behavioral Assessment, 31*(3), 178-189.
- Nigg, J. T., Hinshaw, S. P., Carte, E. T., & Treuting, J. J. (1998). Neuropsychological correlates of childhood attention-deficit/hyperactivity disorder: Explainable by comorbid disruptive behavior or reading problems? *Journal of Abnormal Psychology, 107*(3), 468-480.
- Nock, M.K., Joiner, T.E., Gordon, K.H., Lloyd-Richardson, E., & Prinstein, M.J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research, 144*, 65-72.
- Nock, M. K., Holmberg, E. B., Photos, V. I., & Michel, B. D. (2007). Self-Injurious Thoughts and Behaviors Interview: Development, reliability, and validity of a new measure. *Psychological Assessment, 19*, 309-317.
- Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science, 18*, 78-83. doi:10.1111/j.1467- 8721.2009.01613.x.
- Nock, M. K., Prinstein, M. J., & Sterba, S. K. (2009). Revealing the form and function of self-injurious thoughts and behaviors: A real-time ecological assessment study among adolescents and young adults. *Journal of Abnormal Psychology, 118*(4), 816.
- Nock, M.K. (2010). Self-injury. *Annual Review of Clinical Psychology, 6*, 339-363.
- O'Connor R.C., Rasmussen, S., Miles, J., Hawton, K. (2009). Self-harm in adolescents: Self-report survey in schools in Scotland. *British Journal of Psychiatry, 194*, 68-72.
- O'Connor R.C., Rasmussen S., Hawton, K. (2010). Predicting depression, anxiety and self-harm in adolescents: the role of perfectionism and acute life stress. *Behavior Research and Therapy, 48*, 2-59.
- Office of Disease Prevention and Health Promotion. (2010). Adolescent health. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/Adolescent-Health>

- Osterrieth, P. A. (1944). The test of copying a complex figure: A contribution to the study of perception and memory. *Archives de Psychologie*, 30, 286-356.
- Owens, E. B., Hinshaw, S. P., Kraemer, H. C., Arnold, L. E., Abikoff, H. B., Cantwell, D. P.,... Wigal, T. (2003). Which treatment for whom for ADHD? Moderators of treatment response in the MTA. *Journal of Consulting and Clinical Psychology*, 71, 540-552.
- Owens, E. B., Zalecki, C., Gillette, P., & Hinshaw, S. P. (2017). Girls with childhood ADHD as adults: Cross-domain outcomes by diagnostic status. *Journal of Consulting and Clinical Psychology*, 85, 723-736.
- Owens, E. B., Hinshaw, S. P., McBurnett, K., & Pfiffner, L. (2018). Predictors of response to behavioral treatments among children with ADHD-Inattentive Type. *Journal of Clinical Child & Adolescent Psychology*, 47(sup1), S219-S232.
- Pennington, B. F., & Ozonoff, S. (1996). Executive functions and developmental psychopathology. *Journal of Child Psychology and Psychiatry*, 37(1), 51-87.
- Phares, V., Lopez, E., Fields, S., Kamboukos, D., & Duhig, A. M. (2005). Are fathers involved in pediatric psychology research and treatment? *Journal of Pediatric Psychology*, 30(8), 631-643.
- Plener, P. L., Schumacher, T. S., Munz, L. M., & Groschwitz, R. C. (2015). The longitudinal course of non-suicidal self-injury and deliberate self-harm: A systematic review of the literature. *Borderline Personality Disorder and Emotion Dysregulation*, 2(1), 2.
- Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879-891.
- Richard-Devantoy, S., Berlim, M. T., & Jollant, F. (2014). A meta-analysis of neuropsychological markers of vulnerability to suicidal behavior in mood disorders. *Psychological Medicine*, 44(8), 1663-1673.
- Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*, 132(1), 98.
- Ruedinger, E., Schlafer, R., Wall, M., Hsueh, T. F., & Neumark-Sztainer, D. (2014). The impact of body mass index on the associations between pubertal timing and self-harm, depression, and self-esteem in adolescent girls. *Journal of Adolescent Health*, 54(2), S84.
- Sami, N., Carte, E. T., Hinshaw, S. P., & Zupan, B. A. (2003). Performance of girls with attention-deficit/hyperactivity disorder on the Rey-Osterrieth Complex Figure: Evidence for executive function deficits. *Child Neuropsychology*, 9, 237-254.
- Shaffer, D., Fisher, P., Lucas, C. P., Dulcan, M. K., & Schwab-Stone, M. E. (2000). NIMH Diagnostic Interview Schedule for Children, Version IV (NIMH DISC-IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 28-38.
- Shin, Y. M., Chung, Y. K., Lim, K. Y., Lee, Y. M., Oh, E. Y., & Cho, S. M. (2009). Childhood predictors of deliberate self-harm behavior and suicide ideation in Korean adolescents: A prospective population-based follow-up study. *Journal of Korean Medical Science*, 24(2), 215-222.
- Shrout, P.E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422-445.

- Somerville, J., Tremont, G., & Stern, R. A. (2000). The Boston qualitative scoring system as a measure of executive functioning in Rey-Osterrieth Complex Figure performance. *Journal of Clinical and Experimental Neuropsychology*, *5*, 613–621.
- Stanley, B., Gameroff, M. J., Michalsen, V., & Mann, J. J. (2001). Are suicide attempters who self-mutilate a unique population? *American Journal of Psychiatry*, *158*(3), 427-432.
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk taking. *Developmental Review*, *28*(1), 78-106.
- Straus, M., & Gelles, R. J. (1990). *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families*. New Brunswick, NJ: Transaction Press.
- Swanson, J.M. (1992). *Assessment and treatment of ADD students*. Irvine, CA: K.C. Press.
- Swanson, E. N., Owens, E.B., & Hinshaw, S.P. (2014). Pathways to self-harmful behaviors in young women with and without ADHD: A longitudinal examination of mediating factors. *Journal of Child Psychology and Psychiatry*, *44*, 505-515.
- Troyer, A. K., & Wishart, H. A. (1997). A comparison of qualitative scoring systems for the Rey Osterrieth complex figure test. *The Clinical Neuropsychologist*, *4*, 381–390.
- Vanderlinden, J., & Vandereycken, W. (1997). *Trauma, dissociation, and impulse decontrol in eating disorders*. Brunner/Mazel: Philadelphia, PA.
- Victor, S. E., & Klonsky, E. D. (2014). Correlates of suicide attempts among self-injurers: A meta-analysis. *Clinical Psychology Review*, *34*(4), 282-297.
- Waber, D. P., & Holmes, J. M. (1985). Assessing children's copy productions of the Rey-Osterrieth Complex Figure. *Journal of Clinical and Experimental Neuropsychology*, *7*, 264–280.
- Watanabe, K., Ogino, T., Nakano, K., Hattori, J., Kado, Y., Sanada, S., et al. (2005). The Rey-Osterrieth Complex Figure as a measure of executive function in childhood. *Brain and Development*, *27*, 564–569.
- Wechsler, D. (1991). *Wechsler Intelligence Scales for Children* (3rd ed.). New York: Psychological Corporation.
- World Health Organization. (2018). National suicide prevention strategies: Progress, examples and indicators. Retrieved from <https://apps.who.int/iris/bitstream/handle/10665/279765/9789241515016-eng.pdf>
- Wyatt, G. E. (1985). The sexual abuse of Afro-American and White-American women in childhood. *Child Abuse & Neglect*, *9*, 507–519.
- Yates, T.M., Carlson, E.A., & Egeland, B. (2008). A prospective study of child maltreatment and self-injurious behavior in a community sample. *Development and Psychopathology*, *20*, 651–671.
- Yoder, K. A. (1999). Comparing suicide attemptors, suicide ideators, and nonsuicidal homeless and runaway adolescents. *Suicide and Life Threatening Behavior*, *29*, 25–36.
- You, J., & Leung, F. (2012). The role of depressive symptoms, family invalidation and behavioral impulsivity in the occurrence and repetition of non-suicidal self-injury in Chinese adolescents: A 2-year follow-up study. *Journal of Adolescence*, *35*, 389-395.

Table 1a: Predictors of lifetime risk of NSSI

W1 Predictors	Never had NSSI N = 137 M (SD)	History of NSSI N = 80 M (SD)	<i>p</i>^a	<i>p</i> with <i>covariates</i>^b	<i>ORs</i>
<i>Early Psychopathology</i>					
CBCL Internalizing	54.08 (12.86)	57.54 (11.77)	<i>p</i> < .05	<i>p</i> = .120	1.02
CBCL Externalizing	55.23 (12.79)	61.96 (13.58)	<i>p</i> < .001	<i>p</i> = .004	1.03
SNAP- Inattention Severity	12.62 (9.86)	17.33 (8.06)	<i>p</i> < .001	<i>p</i> = .001	1.14
SNAP- Hyperactivity/Impulsivity Severity	8.61 (8.23)	13.91 (8.45)	<i>p</i> < .001	<i>p</i> = .000	1.17
<i>Childhood Trauma</i>					
Total ACE Score	1.77(1.98)	2.16 (1.82)	<i>p</i> = .157	<i>p</i> = .267	1.10
<i>Peer Sociometrics</i>					
Negative Nominations	.30 (.46)	.42 (.52)	<i>p</i> = .074	<i>p</i> = .165	1.49
<i>Executive Functioning</i>					
Rey Error Proportion Scores	.28 (.18)	.34(.20)	<i>p</i> =.013	<i>p</i> = .017	8.50
<i>Parenting</i>					
Child Interview: Dad's Negative Parenting	-.13 (.95)	.21 (1.07)	<i>p</i> = .031	<i>p</i> =.045	1.39
<i>Self-Esteem</i>					
Overall Competence	3.06 (.47)	2.94 (.50)	<i>p</i> = .076	<i>p</i> = .064	.56

Notes. NSSI = Non-suicidal self-injury; CBCL = Child Behavior Checklist. SNAP= Swanson, Nolan and Pelham Questionnaire; ACE = Adverse Childhood Experience.

^a Binary logistic regression.

^b Covariates always included: W1 household income, mother's education, race/ethnicity and age at baseline.

*11 missing cases excluded from analyses.

Table 1b: Predictors of lifetime risk of Suicide Ideation

W1 Predictors	Never had Suicide Ideation N = 120 M (SD)	History of Suicide Ideation N = 93 M (SD)	<i>p</i>^a	<i>p with covariates</i>^b	<i>ORs</i> [95% CI]
<i>Early Psychopathology</i>					
CBCL Internalizing	54.45 (12.07)	56.14 (9.8)	<i>p</i> = .325	<i>p</i> = .699	1.01
CBCL Externalizing	56.43 (12.45)	59.17 (14.72)	<i>p</i> = .126	<i>p</i> = .490	1.01
SNAP- Inattention Severity	13.71 (9.80)	14.82 (8.84)	<i>p</i> = .456	<i>p</i> = .534	1.01
SNAP- Hyperactivity/Impulsivity Severity	9.37 (8.20)	12.11 (9.08)	<i>p</i> = .031	<i>p</i> = .078	1.03
<i>Childhood Trauma</i>					
Total ACE Score	1.57 (1.78)	2.35 (2.06)	<i>p</i> = .007	<i>p</i> = .039	1.20
<i>Peer Sociometrics</i>					
Negative Nominations	.27 (.39)	.43 (.58)	<i>p</i> = .023	<i>p</i> = .077	1.74
<i>Executive Functioning</i>					
Rey Error Proportion Scores	.27 (.17)	.34 (.20)	<i>p</i> = .008	<i>p</i> = .057	5.42
<i>Parenting</i>					
Child Interview: Dad's Negative Parenting	-.07 (.96)	.10 (1.08)	<i>p</i> = .261	<i>p</i> = .290	1.20
<i>Self-Esteem</i>					
Overall Competence	3.10 (.47)	2.92 (.49)	<i>p</i> = .008	<i>p</i> = .002	.36

Notes. NSSI = Non-suicidal self-injury; CBCL = Child Behavior Checklist. SNAP= Swanson, Nolan and Pelham Questionnaire; ACE=Adverse Childhood Experience.

^a Binary Logistic Regressions.

^b Covariates always included: W1 household income, mother's education, and age at baseline.

*15 missing cases excluded from analyses.

Table 1c: Predictors of lifetime risk of Suicide Attempt

W1 Predictors	Never had Suicide Attempt N = 185 M (SD)	History of Suicide Attempt N = 30 M (SD)	<i>p</i>^a	<i>p with covariates</i>^b	<i>ORs</i>
<i>Early Psychopathology</i>					
CBCL Internalizing	54.67 (12.67)	57.97 (10.98)	<i>p</i> = .196	<i>p</i> = .317	1.02
CBCL Externalizing	56.70 (13.06)	63.43 (14.54)	<i>p</i> = .011	<i>p</i> = .040	1.03
SNAP- Inattention Severity	13.59 (9.56)	18.40 (7.92)	<i>p</i> = .013	<i>p</i> = .011	1.18
SNAP- Hyperactivity/Impulsivity Severity	9.68 (8.40)	15.99 (8.65)	<i>p</i> = .000	<i>p</i> = .001	1.23
<i>Childhood Trauma</i>					
Total ACE Score	1.73 (1.85)	3.12 (2.21)	<i>p</i> = .001	<i>p</i> = .001	1.45
<i>Peer Sociometrics</i>					
Negative Nominations	.32 (.47)	.45 (.58)	<i>p</i> = .212	<i>p</i> = .570	1.23
<i>Executive Functioning</i>					
Rey Error Proportion Scores	.29 (.18)	.38 (.21)	<i>p</i> = .018	<i>p</i> = .078	7.86
<i>Parenting</i>					
Child Interview: Dad's Negative Parenting	-.03(.98)	.18(1.20)	<i>p</i> = .336	<i>p</i> = .310	1.24
<i>Self-Esteem</i>					
Overall Competence	3.04 (.49)	2.82 (.42)	<i>p</i> = .025	<i>p</i> = .007	.30

Notes. NSSI = Non-suicidal self-injury; CBCL = Child Behavior Checklist. SNAP= Swanson, Nolan and Pelham Questionnaire; ACE=Adverse Childhood Experience.

^a Binary Logistic Regressions.

^b Covariates always included: W1 household income, mother's education, race/ethnicity, and age at baseline.

*13 missing cases excluded from analyses.

Table 1d. Criterion Variable Characteristics of Overall Sample, with Contrasts between ADHD and Comparison Groups

Variable	Overall Sample N =215	ADHD Group n = 129	Comparison n = 86	<i>p</i> ^a	<i>OR</i> [95% <i>CI</i>]
NSSI Lifetime Risk	36.7% (n=80)	46.5% (n=61)	21.8% (n=19)	.000	3.12 [1.74, 6.15]
SI Lifetime Risk	43.7% (n=93)	47.2% (n=60)	38.3% (n=33)	<i>ns</i>	1.44 [.82, 2.51]
SA Lifetime Risk	13.95% (n=30)	19.4% (n=25)	5.8% (n=5)	.005	3.89 [1.43, 10.62]

Note. NSSI= Non-suicidal self-injury; *ns* = not significant.

^aADHD Group vs. Comparison Group. Significance: Chi-square statistic.

^bADHD-I vs. ADHD-C comparison. Significance: Chi-Square.

Table 1e. Contrasts between ADHD Subgroups

Variable	ADHD-I n = 47	ADHD-C n = 93	<i>p</i> ^a
NSSI Lifetime Risk	29.8% (n=14)	51% (n=47)	.043
Suicidal Ideation Lifetime Risk	25.5% (n=12)	51.6% (n=48)	.013
Suicide Attempt Lifetime Risk	6.3% (n=3)	23.7% (n=22)	<i>ns</i>

Note: No significant group differences emerged across all criterion variables of interest between the ADHD-I and control group.

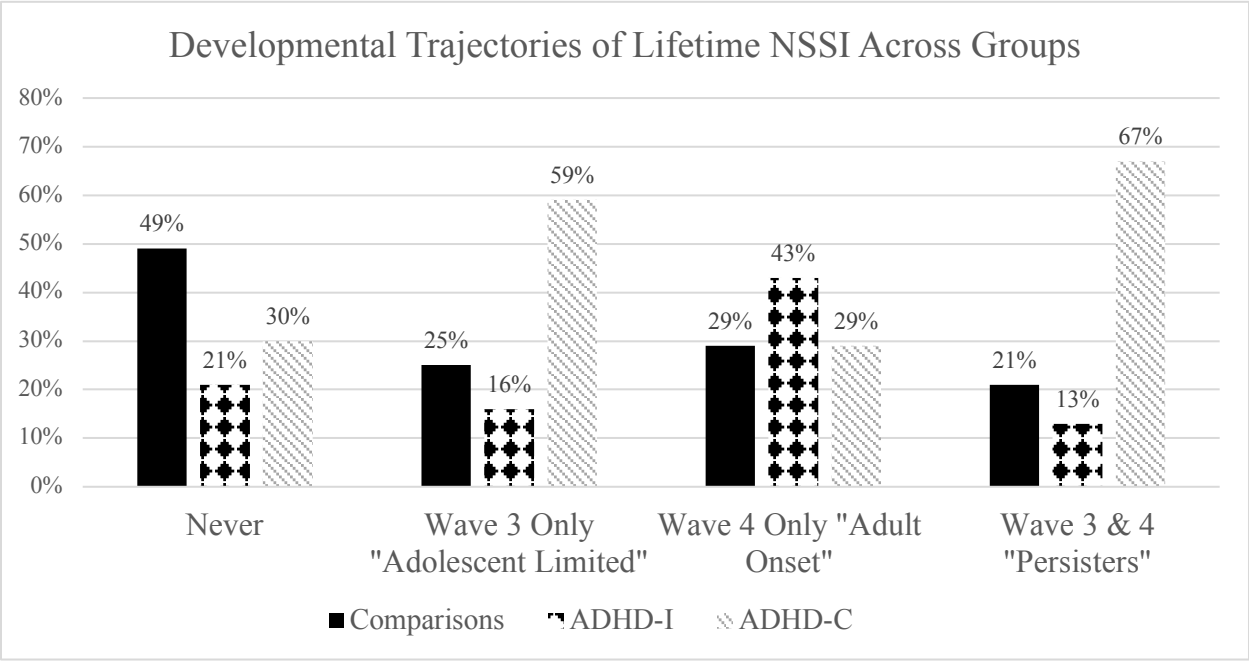


Figure 1. Proportions of lifetime positive history and developmental trajectories of NSSI between control and diagnostic groups (ADHD-I and ADHD-C). These proportions are based on data available for n= 217 participants; n=86 from the control group, n=43 from the ADH-I group and n=88 from the ADHD-C group.

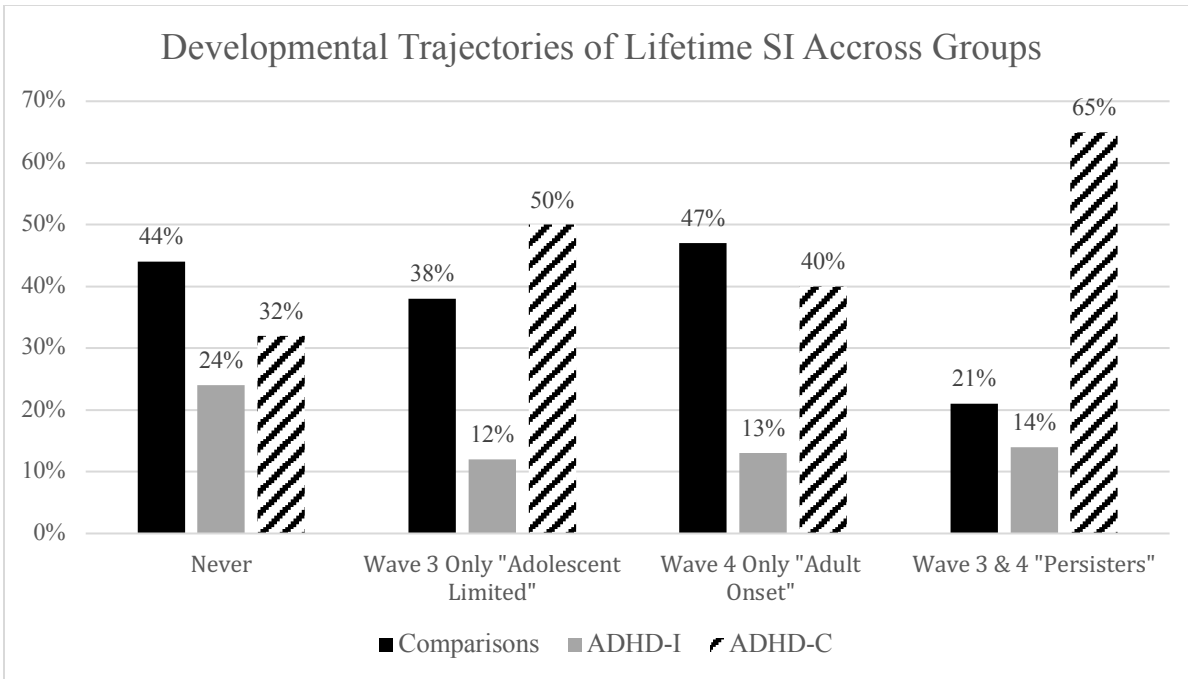


Figure 2. Lifetime positive history and developmental trajectories of suicide ideation between control and diagnostic groups (ADHD-I and ADHD-C). These proportions are based on data available for n= 212 participants; n=85 from the control group, n=41 from the ADH-I group and n=86 from the ADHD-C group.

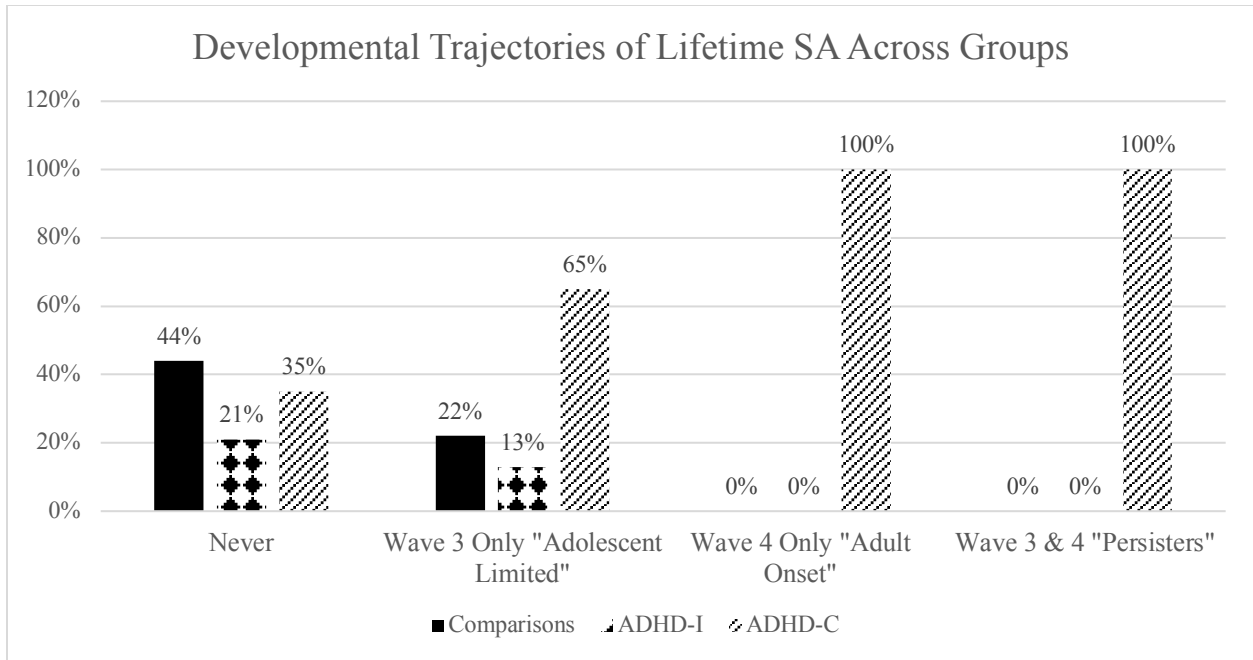


Figure 3. Lifetime history and developmental trajectories of suicide attempts between control and diagnostic groups (ADHD-I and ADHD-C). These proportions are based on data available for n= 209 participants; n=84 from the control group, n=40 from the ADH-I group and n=85 from the ADHD-C group.

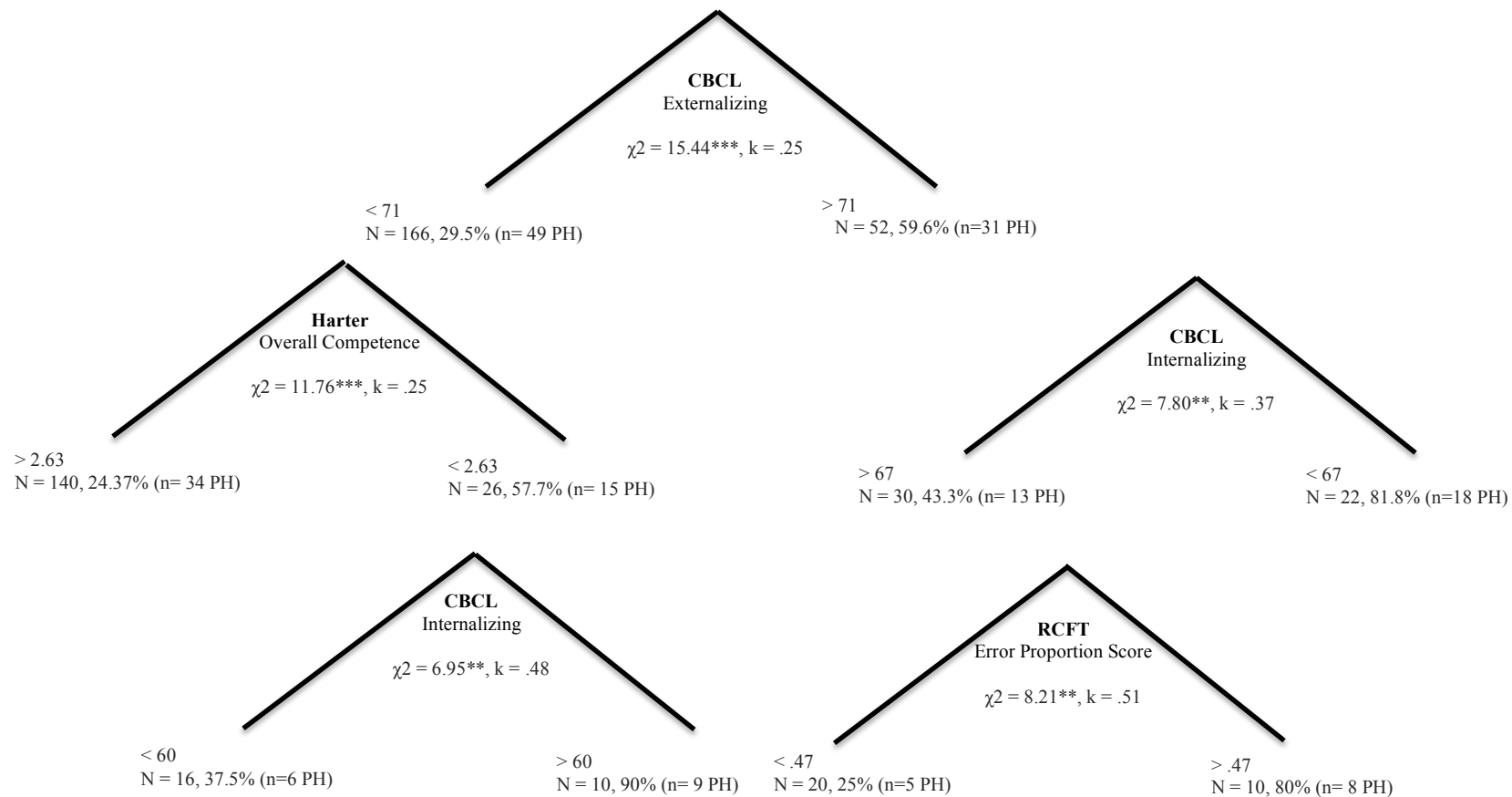


FIGURE 4. Predictors of NSSI Lifetime Risk. Note: NSSI: non-suicidal self-injury; CBCL: Child Behavior Checklist; RCFT: Rey Complex Figure Task; PH = positive history. *** $p < .001$, ** $p < .01$.

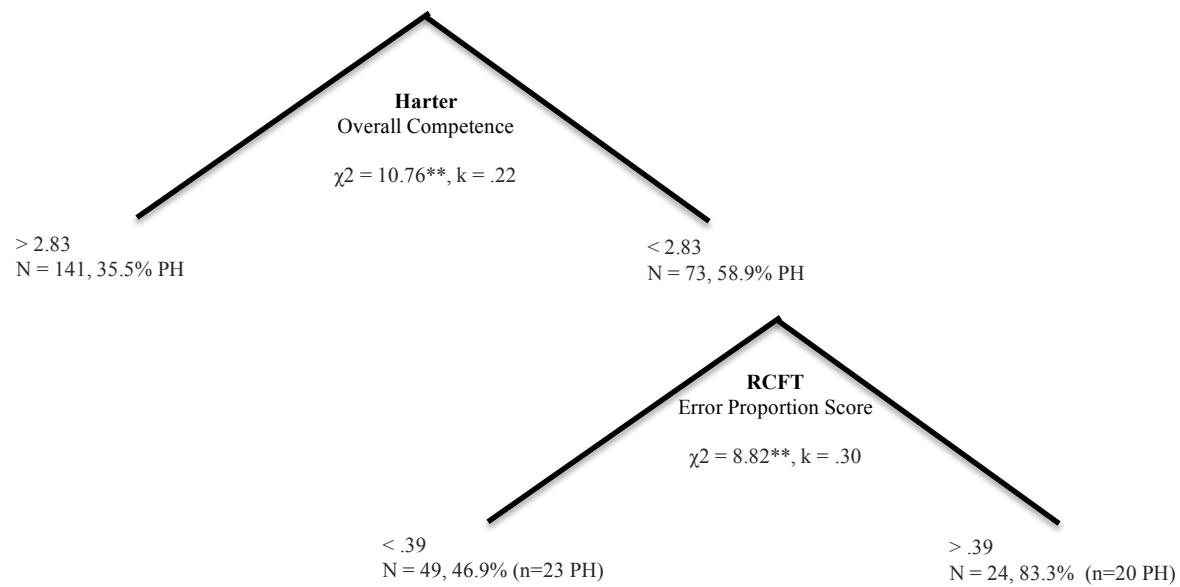


FIGURE 5. Predictors of Suicide Ideation Lifetime Risk. Note: RCFT: Rey Complex Figure Task; PH = positive history.
 *** $p < .001$, ** $p < .01$.

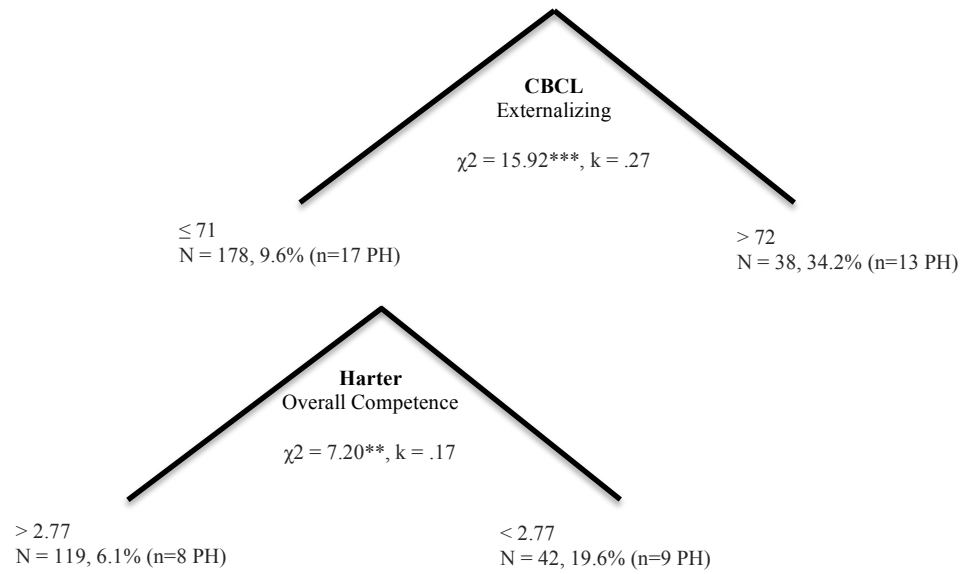


FIGURE 6. Predictors of Suicide Attempt Lifetime Risk. Note: CBCL: Child Behavior Checklist; PH = positive history.
 $^{***} < .001$, $^{**} p < .01$.