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Suicide Attempts and Nonsuicidal Self-Injury in the Treatment of Resistant Depression in Adolescents: Findings from the TORDIA Trial

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Abstract

Objective—To evaluate the clinical and prognostic significance of suicide attempts (SAs) and non-suicidal self-injury (NSSI) in adolescents with treatment-resistant depression.

Method—Depressed adolescents who did not improve with an adequate SSRI trial (N=334) were randomized to a medication switch (SSRI or venlafaxine) with or without cognitive-behavior therapy. NSSI and SAs were assessed at baseline and throughout the 24-week treatment period.

Results—47.4% of youths reported a history of self-injurious behavior at baseline: 23.8% NSS-alone, 14% NSSI+SAs, 9.5% SAs-alone. The 24-week incidence rates of SAs and NSSI were 7% and 11%, respectively; these rates were highest among youths with NSSI+SAs at baseline. NSSI history predicted both incident SAs (HR= 5.28, 95% CI: 1.80–15.47, z= 3.04, p=.002) and incident NSSI (HR= 7.31, z= 4.19, 95% CI: 2.88–18.54, p<.001) through week-24, and was a stronger predictor of future attempts than a history of SAs (HR= 1.92, 95% CI: z = 2.29, p=.13). In the most parsimonious model predicting to time to incident SAs, baseline NSSI history and hopelessness were significant predictors, adjusting for treatment effects. Parallel analyses predicting time to incident NSSI through week-24, identified baseline NSSI history and physical and/or sexual abuse history as significant predictors.

Conclusions—NSSI is a common problem among youths with treatment resistant depression and a significant predictor of future SAs and NSSI, underscoring the critical need for strategies that target the prevention of both NSSI and suicidal behavior.

Clinical Trial Registration Information—Treatment of SSRI-Resistant Depression in Adolescents (TORDIA). URL: http://www.clinicaltrials.gov. Unique Identifier: NCT00018902.

Keywords

suicide; nonsuicidal self-injury; depression; adolescents; self-injurious behavior

Introduction

Suicidal behavior and non-suicidal self-injury (NSSI) are major public health problems. Suicide is the third leading cause of death among youths ages 10–24 and national surveillance data indicate an annual suicide attempt (SA) rate of about 6.3% among high school students.[1] NSSI, defined as deliberate self-harm without suicidal intent (cutting, burning, etc.), is at least as common as suicidal behavior although rates vary across studies, underscoring the impact of sampling and methodological factors. [2–3] The significance of NSSI as a treatment target in clinical samples is underscored by surveys of mental health providers indicating that NSSI is a more frequent problem than SAs among their patients.[4]

Despite increasing recognition of NSSI, its prognostic significance with respect to depression response and suicidal behavior is not well understood.[5–7] This article reports secondary analyses examining NSSI and SAs cross-sectionally and longitudinally in the Treatment of Selective Serotonin Reuptake Inhibitors (SSRI)-Resistant Depression in Adolescents Study (TORDIA), a large multi-site study of chronically depressed adolescents. Given the links between depression and suicidal behavior, as well as emerging data indicating that depression is associated with NSSI, this sample of youths suffering from severe and treatment-resistant depression offers a unique opportunity to examine patterns of SAs and NSSI in a high-need clinical sample.

Compared to our knowledge of adolescent suicidal behavior, less is known, about correlates and predictors of NSSI in adolescents, in part because efforts to clearly distinguish between self-injurious behavior with and without suicidal intent have been relatively recent. Extant research indicates that youth with a history of NSSI have elevated rates of depressed/anxious symptoms, conduct problems, substance use, symptoms of borderline personality disorder, dissociative symptoms, stress, and histories of abuse/violence.[2, 8, 9] NSSI also appears to be associated with elevated rates of SAs and to predict future suicide and SAs in adults.[2, 10–13] The question of whether NSSI predicts future suicide/SAs in adolescents requires evaluation.

In a previous report, focusing on acute treatment outcomes at 12-weeks in the TORDIA sample, we found relatively high incidence rates of suicidal adverse events (new-onset or increased suicidal ideation or an attempt, present in 11.3% of youths). However, the rate of new-onset SAs was only 5% and NSSI was present in 9% of the sample during these 12 weeks.[14] While predictors of suicidal events included drug and alcohol use, family conflict, and higher levels of intake suicidal ideation, the strongest predictor of incident NSSI was a previous history of NSSI; NSSI history was not a significant predictor of suicidal events during the 12-week acute treatment period.[14] Other predictors of NSSI through week-12 were self-reported suicidal ideation, history of abuse, and history of suicide attempts. We now extend these results to examine the progression of self-injurious behavior (attempts and NSSI) over an additional 12 weeks of continuation treatment for a total of 24 weeks/6 months. Specific aims of this paper are to: 1) describe NSSI and SA outcomes through the 24-week treatment period, 2) compare rates of incident NSSI and SAs among youths with baseline histories of NSSI, SAs, and both NSSI and SAs, 3) explore other predictors of SAs and NSSI over the 24-week treatment/follow-up period, and 4) present new analyses of correlates of NSSI and SA histories at the initial/baseline evaluation. Based on prior literature indicating that suicide attempts are predicted by prior suicide attempts[15] and emerging literature indicating that prior NSSI predicts future NSSI,[14] we predicted that SAs and NSSI during the 24-week treatment-period would be predicted by baseline histories of self-injurious behavior of the same type. We hypothesized that the strongest predictors of SAs would be depression, hopelessness, and suicidal ideation, whereas NSSI was predicted to be more strongly associated with abuse histories and substance use, problems often associated with personality disorders.[12, 13] Given prior research indicating that NSSI and suicidal behavior are associated forms of self-injurious behavior, we predicted a significant association between baseline histories of NSSI and SAs.[12, 14]

METHOD

Detailed descriptions of participants, assessments, treatments and outcomes are available.[14, 16, 17] Therefore, we focus here on participant characteristics, measures, and procedures relevant to the outcomes of SAs and NSSI. The study was reviewed by each site's local IRB. All subjects gave informed assent/consent (as appropriate) and parents gave informed consent.

Participants

Participants were adolescents aged 12–18, with moderate to severe DSM-IV[18] major depressive disorder (MDD) and clinically significant depression (Child Depression Rating Scale-Revised (CDRS-R)[19] total score ≥ 40 and a Clinical Global Impression-Severity (CGI-S) Subscale ≥ 4 (≥ moderate severity)[20] despite being in active treatment with an SSRI for ≥ 8 weeks (TABLE 1). The sample was 69.7% female, with a mean age of 15.9 years. Exclusion criteria included: bipolar spectrum disorder, psychosis, pervasive developmental disorder or autism, eating disorders, substance abuse or dependence, or hypertension.

Randomization

Subjects were randomly assigned to one of four conditions: change to another SSRI, change to venlafaxine, change to another SSRI plus CBT, or change to venlafaxine plus CBT. Subjects were assigned to treatment using a variation of Efron's biased coin toss,[21] balancing both across and within sites with respect to incoming treatment medication, comorbid anxiety, chronic depression (duration ≥ 24 months), and BDI item 9 (suicidal ideation) ≥ 2.

Interventions

Pharmacotherapy—Medication sessions occurred weekly during weeks 1–4, then biweekly until week-12. Adjunctive sleep, anxiety, and stimulants (for youths on stimulant treatment at study-entry) were allowed. Subjects with a clinically acceptable response (CGI-I ≤2 and ≥ 50% decrease on CDRS) received 12 additional weeks of continuation treatment. Non-responders were offered open treatment.

Cognitive Behavior Therapy (CBT)—The TORDIA CBT was flexible and encouraged selection of modules/skills based on patients' clinical needs. Modules/skills emphasized cognitive restructuring, behavior activation, emotion regulation, social skills, problem-solving, and parent-child sessions to improve support, decrease criticism, and improve family communication and problem-solving.[16] The protocol included ≤ 12 CBT sessions during weeks 1–12, biweekly visits for the next four sessions, then monthly until week-24.

Assessments

Baseline Diagnostic/Clinical Assessment—Diagnostic symptoms, including SAs and NSSI, were assessed using the Schedule for Affective Disorders and Schizophrenia for School-Aged Children-Present and Lifetime Versions (K-SADS-PL)[22] administered by an Independent Evaluator (IE) with a graduate degree in a mental health field. A SA was defined as "self-harm with actual or inferred intent to die." NSSI was defined as "self-injurious behavior resulting in physical damage with no explicit or implicit intent to die." These variables were recorded by the IE at the end of the second (Week-0) baseline evaluation and represent best estimate ratings based on youth and parent responses to the KSADS SA and NSSI questions and all other available information from the initial (−2) and second (Week-0) assessments.[14, 16, 23] Interview-rated overall severity, functional impairment, and depression severity were rated by the Clinical Global Improvement Severity Subscale (CGI-S),[20] Child Global Assessment Scale (C-GAS),[24] and the Child Depression Rating Scale-Revised (CDRS-R),[19] respectively. Self-rated depression, hopelessness, and suicidal ideation were assessed using the Beck Depression Inventory (BDI),[25] Beck Hopelessness Scale (BHS),[26] and Suicide Ideation Questionnaire Jr. (SIQ Jr.),[27] respectively. History of physical or sexual abuse was obtained from the trauma section of the K-SAD-PL. Adolescents rated parent-child conflict using the Conflict

Behavior Questionnaire-Adolescent (CBQ).[28] Alcohol and drug use were rated using the self-report Drug Use Screening Inventory (DUSI).[29]

Primary Outcomes—The two primary outcomes were: 1) a SA, defined as a deliberate self-injurious behavior with some non-zero intent to die; and 2) NSSI, defined as deliberate self-harm without suicidal intent.. We refer to either of these outcomes as "self-injurious behavior (SIB)." These SIB outcomes were assessed during the 24-week trial using adverse events records, discussed on weekly conference calls with the site investigators, and classified by consensus.[14] Clinical raters were blind to medication, but not CBT status. As described elsewhere,[14] for the first 181 participants, suicidal events were based upon spontaneous report. However, following concerns/warnings regarding increased risk of suicidality with antidepressant medications,[30] the last 153 subjects were monitored weekly by clinicians for suicidal ideation and SIB using the Clinician Weekly Rating Scale and Brief Suicide Severity Rating Scale (B-SSRS).[14, 31] Inter-rater reliability was assessed on 49 cases and found to be excellent for SAs and NSSI (100% agreement).

Follow-Up—Of 334 participants randomized, follow-up data were available on 287 (85.9%) at 12-weeks, and 279 (82.3%) by 24-weeks, the end of continuation treatment.

Statistical analyses

Parallel analyses were conducted for SAs and NSSI. We report frequency of SAs and/or NSSI at baseline and examined associations among these variables and baseline clinical, demographic, and background variables using standard univariate statistics. Predictors of time to event (SA, NSSI) were examined using log rank tests for categorical variables and Cox regression for continuous variables. The most parsimonious set of predictors were identified using a backward stepwise Cox proportional hazards method. Each variable that was selected as a predictor of SA or NSSI events was then added to a logistic regression that also included terms for medication and CBT treatment effects and all two way interactions. The rate of SA detection was not significantly different before and after systematic monitoring (X^2 (1) =2.26, p=.13). However, NSSI was rarely detected without systematic monitoring (31/37 (83.8%) youths with NSSI identified under systematic monitoring, X^2 (1)=24.17, P<.001). Restricting analyses to participants with systematic monitoring led to the same conclusions; therefore, we report only primary analyses using the full sample.

RESULTS

Baseline Presentation

Table 1 provides descriptive data on the baseline characteristics of the total sample and for subgroups of youths presenting at baseline with histories of no-SIB, NSSI-only, SAs-only, and NSSI + SAs. Histories of NSSI were somewhat more common than SA histories at baseline: 78 youths (23.9%) reported a history of NSSI-only, 31 (9.5%) reported a history of SAs-only, and a sizeable subgroup (46 youths, 14%) reported histories of NSSI + SAs. The high likelihood of combined NSSI and suicide attempts was reflected in a statistically significant association between NSSI and SAs, χ^2 (1)=9.50, p=.002. The rate of SAs among youths with NSSI was over double the rate seen in youths without NSSI (37.1% vs. 15.3%, risk difference = 21.8%, 95% confidence interval [CI]: 12.1%–31.7%); the rate of NSSI among youths with SA histories was 59.7% vs. 31.2% among youths without SA histories (risk difference= 28.5%, 95% CI: 15.9%–40.3%).

When compared to the no-SIB group, the NSSI + SA group was significantly more likely to: be female; have higher self-reported depression (BDI), hopelessness (BHS), suicidal ideation (SIQ), family conflict (CBQ-A), and alcohol and drug use (DUSI); and were

significantly more likely to have dysthymic disorder and a history of physical and/or sexual abuse (TABLE 1). The NSSI-only and SA-only groups tended to fall between the no-SIB group and the NSSI + SA group. The NSSI-only group scored significantly higher than the no-SIB group on the CDRS, BDI, BHS, and SIQ. There were no significant differences between the SA-only and NSSI-only groups, or between the SA-only and no-SIB group. This may have been due partly to the small size of the SA-only group. The NSSI + SA group reported significantly more family conflict (CBQ-A) than did the NSSI or SA-only groups. Physical abuse histories were significantly more common in the NSSI + SA group relative to the NSSI-only group.

SAs & NSSI through Week-24

Figure 1 shows the distribution of SAs and NSSI through week-24 among youths with baseline histories of no-SIB, NSSI-only, SA-only, and NSSI + SAs. There were 23 youths (6.9%) who made SAs within the 24-week treatment period, four of whom made 2 attempts, resulting in 27 attempts and a median time of event of 6 weeks. SA methods included overdose (14 youths), cutting/stabbing (7 youths), poisoning (2 youths), hanging (2 youths), drowning (1 youth), and asphyxiation (1 youth). None resulted in fatalities. Attempts occurred in 5/172 (3%) youths with no-SIB history, 10/78 (13%) youths with NSSI-only, 1/31 (3%) youths with SAs-only, 6/46 (13%) youths with NSSI + SAs, and 1 youth with missing data. Of the four youths making repeat attempts, one had no previous SIB-history, one had a history of NSSI-only, one had NSSI + SAs, and one had no history data.

NSSI was more common than SAs through week 24, with 37 youths (11%) exhibiting NSSI during the 24-week treatment period and a median time of event of 3 weeks; 12 youths had repeat NSSI events (range NSSI episodes 0–3) for a total of 57 NSSI events. The most common form of NSSI was cutting (50 events, 87.7%), followed by burning (3 events, 5.3%) and pinching (2 events, 3.5%). Other forms were head banging (1 youth, 1 event, 1.7%), and cutting plus burning (1 youth, 1 event, 1.7%). Repeat NSSI events occurred among 3/172 (1.7%) youths with no-SIB history, 4/78 (5%) youths with NSSI-only histories, and 5/46 (11%) youths with NSSI + SA histories.

Prediction of Time to SAs through Week 24

As shown in Figure 2 (Part A), by the end of 24 weeks of study treatment, the likelihood of a suicide attempt was .25 (SE= .10) among youths with baseline histories of NSSI + attempts, .11 (SE= .07) among youths with NSSI only, .08 among youths with attempts only (SE= .07), and .04 (SE= .02) among youths with no-SIB. NSSI was a significant predictor of SAs through week-24 (log-rank test $\chi^2_1 = 15.69$, $p<.001$), however, history of SAs was not (log-rank test $\chi^2_1 = 2.29$, $p=.13$). These results persisted when NSSI and history of SAs were both in the model (NSSI: HR= 5.28, 95% CI: 1.80–15.47, z= 3.04, p=.002; attempt history: HR=1.10, 95% CI 0.13–9.43, z= 0.09, p=.93), and the interaction of NSSI and attempt history was not statistically significant (HR=1.04, 95% CI: 0.10–11.16, z= 0.03, p=.98). To identify the most parsimonious set of predictors of time to attempt, we conducted backward stepwise Cox regression analyses with all baseline variables significant in univariate analyses predicting to time to attempt (see Table 2) and controlling for treatment. The most parsimonious set of predictors in this model included: NSSI (HR= 4.71, 95% CI: 1.80–12.35, z= 3.15, p=.002), hopelessness (HR= 1.12, 95% CI: 1.01–1.23, z= 2.11, p=.034), and a nonsignificant effect for CGAS (HR= 0.96, 95% CI: 0.91–1.02, z= −1.31, p=.19). As shown in Table 2, when examined individually other statistically significant predictors of time to a suicide attempt were female gender, younger age, CDRS, CGI-S, BDI, CBQ, SIQ, and dysthymic disorder.

Prediction of Time to NSSI through Week 24

The probability of NSSI was .40 (SE=.10) among youths with baseline histories of NSSI + SAs, .26 (SE=.06) among NSSI-only youths, .07 (SE=.07) among youths with SAs-only, and .04 (SE=.02) among youths with no-SIB (Figure 2, Part B). When examined together, history of NSSI was a significant predictor of NSSI (HR= 7.31, z= 4.19, 95% CI: 2.88–18.54, p<.001), but SA history and its interaction with NSSI were not (SA history: HR=0.93, 95% CI: 0.11–7.74, z=−0.07, p=.95; interaction: HR=1.48, 95% CI: 0.16–13.87, z= 0.34, p=.73). In the most parsimonious model adjusting for treatment and including all baseline variables significant in univariate analyses (TABLE 2), Cox regression identified baseline NSSI (HR=9.79, 95% CI 4.01–23.92, z=5.01, p<.001) and history of physical or sexual abuse (HR=2.01, 95% CI: 1.01–3.99, z=1.99, p<.05) as significant predictors. Other variables predicting time to NSSI events through week-24 when examined individually were: female gender, CGAS, BDI, CBQ, SIQ, drug and alcohol use impairment, comorbid conduct/oppositional disorder, and SA history (TABLE 2).

DISCUSSION

The present results underscore both the prevalence and significance of NSSI among adolescents with chronic treatment-resistant depression. Consistent with results indicating relatively high rates of NSSI in the general adolescent population,[2, 8] NSSI histories were relatively common in the TORDIA sample (38%) and more common than SA histories (23%). Additionally, NSSI and suicide attempts tended to co-occur, with 14% of the sample presenting with baseline histories of both NSSI and SAs, and these youths frequently presenting with double depression (major depression superimposed on dysthymic disorder). Youths with histories of both NSSI and SAs also reported the highest levels of suicidal ideation, hopelessness, depressive symptoms, family conflict, and were most likely to have histories of physical or sexual abuse. Although a history of SAs or NSSI was also associated with increased problems, on average these youths fell between the no-SIB group and the combined NSSI plus SA group on study variables.

NSSI was also more common than SAs over the course of the treatment trial, which extended from 12 weeks of acute treatment for another 12 weeks of continuation treatment. Rates of NSSI through the 24-week/6-month treatment period were high and particularly high among youths with baseline histories of combined NSSI and SAs and NSSI alone. SAs were also disturbingly common during the 24-week treatment period, underscoring the high-risk status of these youths, particularly since a prior SA and major depression are among the strongest predictors of completed suicide in this age group.[15, 24] History of NSSI at baseline was a significant predictor of SAs through week-24, and a stronger predictor than baseline SA history, again underscoring the need to evaluate, monitor, and effectively treat NSSI in youths with treatment-resistant depression.

Future research is needed to clarify the processes contributing to the higher rate of SAs during the TORDIA trial among youths presenting with NSSI histories at baseline, and our finding that baseline suicide attempt history was not a significant predictor of SAs through week-24 was surprising, given the conventional view that SAs are more pernicious than NSSI.[32] However, our results are consistent with those of a recent report from the Adolescent Depression Antidepressant and Psychotherapy Trial (ADAPT) which similarly reported that NSSI history at baseline (but not SA) was a significant predictor of SAs over 28-weeks.[33] There are several possible explanations for these findings. NSSI and SAs may be on the same spectrum of self-harm behavior and may share similar correlates and risk and protective factors.[32] For instance, the Dialectical Behavior Therapy model posits that youths with NSSI could have emotion regulation deficits which are risk factors for both future NSSI and SAs.[11] It could also be that expressing self-harm impulses in an SA may have a

short-term effect of reducing SA-risk due to resulting interventions (e.g. SA means restriction or increased treatment intensity). Alternatively, NSSI may not yield changes in treatment plans, and when NSSI also fails to produce sufficient relief (intra and/or interpersonal effects), vulnerable youths may turn to SAs.[32] Another possibility is that engaging in NSSI desensitizes youths to self-harming behaviors, thus lowering the barriers to SAs and NSSI.[34] While the temporal relationship of NSSI and SA in this study are consistent with that view, the sequence of self-harm events is equally consistent with the other explanations described above.

It is important to consider the present findings in relation to overall results of the TORDIA trial. Primary outcome analyses revealed that youths receiving combined CBT plus a medication switch were more likely to have a positive treatment response than youths receiving a medication switch alone (55% vs. 40.5%).[16] Further, baseline NSSI-history predicted poor response and limited benefits from the TORDIA CBT.[23] Although eventually around 60% of youths attained remission, remission rates were < 40% at 24-weeks, and nearly 20% of those showing a good response by 12-weeks experienced a relapse upon follow-up.[17, 35] Slow recovery from depression has been associated with a higher risk for suicidal events both in TORDIA and the Treatment of Adolescent Depression Study (TADS).[36] Also, in the ADAPT study, NSSI occurrence was greater in those with a slower recovery from depression. Therefore, interventions that will accelerate treatment response in adolescent depression may reduce the incidence of suicidal events and NSSI. Further, depression treatment may need supplementation with interventions targeting specific risk-factors for SIB, such as problems with emotion regulation and distress tolerance.

Study limitations merit consideration. Although the TORDIA sample included a diverse and understudied group of adolescents with relatively chronic depressions, results may not generalize to less chronically depressed, untreated, or non-referred samples where NSSI is often found without chronic, or even acute depression.. Statistical power limited our ability to detect differential effects within subgroups and potential effect modifiers. A more detailed assessment of NSSI that evaluated the degree to which NSSI was repetitive and the functions and motivations for NSSI, would have provided additional information. We did not assess personality disorders, and SIB-history may have been associated with risk for borderline or other personality disorders. The TORDIA study was a treatment trial, with close clinical monitoring. While the best efforts of the TORDIA team did not eliminate SAs and NSSI, the observed rates may under-estimate incidence rates under routine practice conditions. Although the sample was followed through week-72, weekly adverse event monitoring stopped at 24-weeks when the continuation treatment protocol concluded, limiting our ability to examine NSSI and SA outcomes beyond week-24. Spontaneous reports of SIB were supplemented by systematic monitoring mid-way through the study due to concerns regarding increased suicidality with antidepressant medications. NSSI was rarely detected without systematic monitoring, however, sensitivity analyses restricting the sample to the sub-group of youths with systematic monitoring yielded similar results.

In conclusion, the present results underscore the clinical significance of NSSI and SAs among youths with treatment-resistant depression. NSSI was common in the histories of these youths and predicted both SAs and NSSI over the course of the first 6-months of the trial, as well as a poor response to the TORDIA treatments, particularly CBT.[23] These data indicate that better assessment and intervention strategies for NSSI may be helpful in the management of treatment-resistant depression, as well as the prevention of suicidal behavior.

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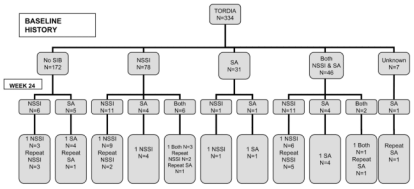

Figure 1.

The Distribution of Suicide Attempts and nonsuicidal self-injury (NSSI) Through Week-24 Among Youths With Baseline Histories of No Self-injurious behavior (No-SIB), NSSI-Only, Attempt-Only, and Both NSSI And Attempts. Note: Both = NSSI + SA; NSSI = Non-suicidal self-injury; SA = Suicide attempt; SIB = Self-injurious behavior; TORDIA = Treatment of Resistant Depression in Adolescents Study.

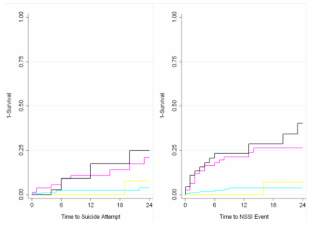

Figure 2.

Time to Suicide Attempts and nonsuicidal self-injury (NSSI) during the 24-Week Treatment Trial. Note: Cyan lines indicate No History of Self-Injurious behavior (SIB) event. Yellow lines indicate History of Suicide Attempt only. Magenta lines represent History of NSSI only. Black lines represent History of Both NSSI and Attempts.

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Table 1

Comparison of youths with baseline histories indicating no prior self-injurious behavior (No-SIB), nonsuicidal self-injurious behavior (NSSI) only, suicide attempts only, and NSSI plus suicide attempts

		HISTORY AT BASELINE				
	Total Sample (N=327)	**No-SIB (N=172)**	**NSSI (N=78)**	**Suicide Attempt (N=31)**	**Both NSSI +Suicide Attempt (N=46)**	**P**
Age, M(SD)	15.9 (1.6)	15.7 (1.7)	16.1 (1.5)	15.8 (1.6)	16.1 (1.3)	.18
Gender, N (%Female)	228 (69.7)	103 (59.9)†	60 (76.9)†,‡	24 (77.4)†,‡	41 (89.1)‡	<.001
Race, N (% Caucasian)	272 (83.2)	140 (81.4)	68 (87.2)	24 (77.4)	40 (87.0)	.48
Parental education, N (% at least college grad)	149 (47.9)	90 (53.9)	31 (44.3)	13 (41.9)	15 (34.9)	.11
Income (in thousands $), Median (range)	62.5 (0–500)	68 (0–500)	50 (8–250)	65 (15–200)	54 (11–130)	.19
CDRS, M(SD)	58.7 (10.4)	56.9 (10.2)†	61.1 (10.3)‡	61.0 (12.0)†,‡	60.1 (8.9)†,‡	.007
CGI-S, M(SD)	4.5 (0.7)	4.4 (0.6)	4.5 (0.7)	4.7 (0.8)	4.5 (0.7)	.12
CGAS, M(SD)	50.5 (7.7)	51.7 (7.8)†	49.2 (6.4)†	48.6 (8.9)†	49.4 (7.7)†	.02
BDI, M(SD)	20.5 (12.1)	17.9 (11.4)†	23.1 (11.7)‡,¥,§	19.4 (12.8)†,¥	26.7 (12.2)‡,§	<.001
Age at onset of MDD sx, M(SD)	12.7 (2.5)	12.5 (2.7)	13.0 (2.4)	13.0 (2.2)	12.8 (2.0)	.64
Age at onset of current MDD, M(SD)	13.9 (2.2)	13.8 (2.3)	14.1 (2.1)	13.9 (2.2)	14.0 (1.8)	.84
Duration of depression, M(SD)	22.2 (20.3)	21.5 (20.7)	23.5 (21.1)	20.9 (18.5)	23.2 (19.0)	.87
Chronic Depression, N (% Yes)	177 (55.3)	84 (50.3)	45 (59.2)	17 (54.8)	31 (67.4)	.18
BHS, M(SD)	10.5 (5.6)	9.3 (5.5)†	12.0 (5.3)‡	10.2 (6.3)†,‡	12.7 (5.0)‡	<.001
SCARED, M(SD)	29.5 (15.7)	28.4 (15.5)	29.6 (15.3)	29.7 (16.7)	33.3 (16.8)	.31
CBQ-A, M(SD)	8.9 (6.2)	8.1 (6.2)†	9.2 (5.9)†	7.4 (5.9)†	12.5 (5.9)‡	<.001
SIQ-Jr, M(SD)	41.5 (22.4)	34.5 (20.3)†	49.0 (22.0)‡	42.6 (19.2)†,‡	54.3 (23.5)‡	<.001
DUSI Use, N (% Yes)	175 (54.2)	75 (44.1)†	47 (61.8)†,‡	18 (58.1)†,‡	35 (76.1)‡	<.001
DUSI Impairment, M(SD)	11.1 (19.0)	7.0 (14.0)	15.3 (22.1)	9.3 (13.7)	20.9 (26.7)	.49
Dysthymia, N (% Yes)	94 (29.0)	37 (21.9)†	25 (32.1)†,‡	11 (35.5)†,‡	21 (45.7)‡	.01
Anxiety (including PTSD), N (%Yes)	115 (35.9)	62 (36.9)	21 (28.0)	10 (32.3)	22 (47.8)	.16
PTSD, N (% Yes)	23 (7.1)	9 (5.2)	5 (6.5)	2 (6.5)	7 (15.2)	.15
ADHD, N (% Yes)	52 (16.0)	31 (18.1)	9 (11.7)	7 (22.6)	5 (11.1)	.34
Oppositional/Conduct, N (%Yes)	33 (10.2)	20 (11.7)	4 (5.2)	4 (13.3)	5 (11.1)	.35

		HISTORY AT BASELINE				
	Total Sample (N=327)	**No-SIB (N=172)**	**NSSI (N=78)**	**Suicide Attempt (N=31)**	**Both NSSI +Suicide Attempt (N=46)**	**P**
Physical Abuse, N (% Yes)	41 (12.8)	14 (8.3)†	9 (12.0)†	3 (9.7)†,‡	15 (32.6)‡	.001
Sexual Abuse, N (% Yes)	54 (17.0)	23 (13.7)	14 (18.9)	5 (16.1)	12 (26.7)	.21
Physical or Sexual Abuse, N (%Yes)	77 (24.2)	33 (19.6)†	18 (24.3)†,‡	6 (19.4)†,‡	20 (44.4)‡	.006

Note: Superscripts represent post-hoc differences. Similar superscripts indicate no significant post-hoc differences at p<.008 for dichotomous outcomes, and p<.005 with Bonferroni correction for continuous outcomes. Seven youths excluded due to missing self-injurious behavior (SIB) history data. ADHD = Attention-Deficit/Hyperactivity Disorder; BDI = Beck Depression Inventory; BHS = Beck Hopelessness Scale; CBQ-A = Conflict Behavior Questionnaire-Adolescent Report; CDRS = Children's Depression Rating Scale; CGAS = Children's Global Adjustment Scale; CGI-S = Clinical Global Impression-Severity; DUSI = Drug Use Screening Inventory; MDD = Major Depression; PTSD = Post-Traumatic Stress Disorder; SCARED = Screen for Child Anxiety Related Emotional Disorders; SIQ = Suicidal Ideation Questionnaire; SIQ-Jr = Suicidal Ideation Questionnaire-Jr..

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Table 2

Baseline predictors of time to suicide attempts and nonsuicidal self-injurious behavior events through week 24

Baseline Variable	Suicide Attempt			Nonsuicidal Self Injurious Behavior		
	Hazard Ratio (SE)	z	P	Hazard Ratio (SE)	z	P
Age	0.78 (0.10)	. −1.94	.05	1.01 (0.11)	0.08	.93
Gender, Female	3.29 (2.04)	4.17	.04	2.39 (1.07)	4.12	.04
Race, Caucasian	1.31 (0.81)	0.44	.66	0.73 (0.29)	−0.80	.42
Parental education, at least college grad	0.98 (0.43)	−0.04	.97	0.92 (0.31)	−0.24	.81
Income	1.00 (0.00)	1.60	.11	1.00 (0.00)	−0.84	.40
CDRS-R	1.04 (0.02)	2.18	.03	1.02 (0.02)	1.00	.32
CGI-S	2.14 (0.62)	2.66	.008	1.05 (0.26)	0.18	.86
CGAS	0.92 (0.02)	−3.03	.002	0.96 (0.02)	−2.11	.04
BDI	1.04 (0.02)	2.43	.02	1.03 (0.01)	2.50	.01
Age at onset of MDD sx	0.99 (0.01)	−1.31	.19	1.01 (0.01)	1.31	.19
Age at onset of current MDD	0.99 (0.01)	−1.38	.17	1.01 (0.01)	1.11	.27
Duration of depression	1.00 (0.01)	−0.21	.83	0.99 (0.01)	−1.03	.31
Chronic depression	1.00 (0.43)	−0.01	.99	1.07 (0.36)	0.22	.83
SCARED	0.99 (0.01)	−0.49	.62	0.99 (0.01)	−0.80	.43
BHS	1.15 (0.05)	3.24	.001	1.04 (0.03)	1.42	.16
CBQ-A	1.11 (0.04)	2.86	.004	1.08 (0.03)	2.75	.006
SIQ-Jr	1.02 (0.01)	2.75	.006	1.02 (0.01)	3.37	.001
DUSI Use	1.11 (0.47)	0.06	.80	1.25 (0.42)	0.46	.50
DUSI Impairment	1.01 (0.01)	0.57	.57	1.02 (0.01)	2.25	.03
Dysthymia	2.29 (0.96)	4.18	.04	1.35 (0.46)	0.75	.39
Anxiety (including PTSD)	0.96 (0.42)	−0.09	.93	1.06 (0.36)	0.18	.86
PTSD	0.58 (0.59)	−0.53	.60	1.54 (0.82)	0.82	.41
ADHD	1.16 (0.64)	0.27	.79	0.90 (0.43)	−0.21	.83
Oppositional/Conduct	1.67 (0.93)	0.89	.34	2.52 (0.97)	6.17	.01
Physical or Sexual Abuse	1.57 (0.72)	0.99	.32	2.43 (0.83)	7.30	.007
NSSI History	5.41 (2.60)	15.69	<.001	8.31 (3.49)	36.64	<.001

Baseline Variable	Suicide Attempt			Nonsuicidal Self Injurious Behavior		
	Hazard Ratio (SE)	z	P	Hazard Ratio (SE)	z	P
Suicide Attempt History	1.92 (0.84)	2.29	.13	2.10 (0.71)	5.08	.02

Note: ADHD = Attention-Deficit/Hyperactivity Disorder; BDI = Beck Depression Inventory; BHS = Beck Hopelessness Scale; CBQ-A = Conflict Behavior Questionnaire-Adolescent Report; CDRS = Children's Depression Rating Scale; CGAS = Children's Global Adjustment Scale; CGI-S = Clinical Global Impression-Severity; DUSI = Drug Use Screening Inventory; MDD = Major Depression; PTSD = Post-Traumatic Stress Disorder; SCARED = Screen for Child Anxiety Related Emotional Disorders; SIQ = Suicidal Ideation Questionnaire; SIQ-Jr = Suicidal Ideation Questionnaire-Jr; SE = Standard Error;