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Columbia-Suicide Severity Rating Scale:

Predictive Validity With Adolescent Psychiatric Emergency Patients

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Abstract

Objective—Despite the high prevalence of psychiatric emergency (PE) visits for attempted suicide and nonsuicidal self-injury (NSSI) among adolescents, we have limited information about assessment tools that are helpful in predicting subsequent risk for suicide attempts among adolescents in PE settings. This study examined the predictive validity of a highly promising instrument, the Columbia-Suicide Severity Rating Scale (C-SSRS).

Method—Participants were 178 adolescents (44.4% male; ages 13–17 years) seeking PE services. The C-SSRS interview and selected medical chart data were collected for the index visit and subsequent visits during a 1-year follow-up.

Results—A suicide risk concern was the most common chief complaint (50.6%) in this sample, and nearly one third of the adolescents (30.4%) reported a lifetime history of suicide attempt at index visit. Sixty-two adolescents (34.8%) had at least one return PE visit during follow-up. Lifetime history of NSSI predicted both return PE visits and a suicide attempt at return visit. The C-SSRS intensity scale score was a significant predictor of a suicide attempt at return visit for both the full sample of adolescents and the subsample who reported suicidal ideation at their index visit. In this subsample, one specific item on the intensity scale, duration, was also a significant predictor of both a return PE visit and a suicide attempt at return visit.

Conclusions—The C-SSRS intensity scale and NSSI had predictive validity for suicide attempts at return visit. Results also suggest that duration of adolescents' suicidal thoughts may be particularly important to risk for suicidal behavior, warranting further study.

The importance of preventing suicidal deaths and the morbidity associated with suicide attempts among adolescents is undisputed. Suicide is the second leading cause of death among adolescents ages 13 to 17 years,¹ and recent nationally representative data indicate that 7.8% of high school students have attempted suicide one or more times in the preceding year, and 15.8% have seriously considered making such an attempt.² Furthermore,

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approximately 2% of high school students report having obtained medical treatment for one or more suicide attempts in the preceding year. Thus, it is not surprising that emergency departments (EDs) treat large numbers of adolescents at elevated risk for suicide, and that the prevalence rate for emergency visits for attempted suicide and self-inflicted injury is highest for the 15-year to 19-year age group.³

These adolescents present multiple challenges in the psychiatric emergency (PE) setting. First, despite the frequency with which adolescents present with attempted suicide, other self-inflicted injury, or suicidal thoughts, the prevalence of suicide is comparatively low. This results in many false positives when clinicians make judgments that an adolescent is at high risk for suicide. Second, although various suicide risk screening and assessment tools have shown evidence of positive psychometric properties,⁴ including predictive validity,^{5,6} fundamental questions remain unanswered regarding how differences in the nature of adolescents' suicidal thoughts and the pattern of their self-injurious and suicidal behaviors relate to future suicide attempts. As such, although several suicide risk assessment tools are able to predict a higher probability of suicidal behavior for one group of adolescents versus another over a defined period of time,⁵⁻⁸ they do so with only modest levels of sensitivity and specificity. Therefore, the prediction for individual adolescents and for more specific time periods is problematic at best. Finally, decisions concerning the appropriateness of hospitalization and the allocation of resources for treatment and services need to be made relatively rapidly within the PE setting.

The primary risk factors for suicide attempts among adolescents may be categorized within demographic, clinical (e.g., suicide attempt history, psychiatric condition, mental status),⁹ and family/social (e.g., history of physical or sexual abuse, bullying victimization)¹⁰ domains. The American Academy of Child and Adolescent Psychiatry has recommended that clinicians take a multi-informant approach when conducting a suicide risk assessment, carefully evaluating and integrating information concerning the full array of risk factors.¹¹ As part of this assessment, it is recommended that a suicide-specific inquiry be conducted that addresses both the adolescent's history of suicidal ideation and behavior and the adolescent's current suicidal thoughts and impulses.^{11,12}

A number of the self-report questionnaires currently available to assess adolescents' suicidal thoughts and related phenomena, such as hopelessness, have established predictive validity for suicidal behavior. These instruments include the Suicidal Ideation Questionnaire-Junior (SIQ-JR¹³), the Beck Hopelessness Scale (BHS¹⁴), and the Suicide Probability Scale (SPS¹⁵). In a prospective study, Huth-Bocks and colleagues⁵ reviewed the favorable psychometric properties of these instruments when used with adolescents and compared their specificity and sensitivity for the prediction of suicide attempts across a 6-month period in a sample of 289 psychiatrically hospitalized and suicidal adolescents. They found that higher scores on each of these measures significantly increased the probability of a suicide attempt during follow-up, controlling for sex. Nevertheless, at the published clinical cut points for SIQ-JR and SPS scores, their sensitivity for predicting suicide attempts was 77% and 80%, respectively, with specificity of 41% and 57%, respectively. Moreover, the BHS did not improve prediction beyond the SIQ-JR and SPS. This suggests a problem with false

positives and the importance of further research to improve our understanding of suicide risk and its ascertainment.

The Columbia-Suicide Severity Rating Scale (C-SSRS⁶) is a semi-structured clinical interview that assesses suicidal ideation severity, suicidal ideation intensity, and suicidal behavior. Posner and colleagues⁶ have documented the psychometric properties, including convergent, divergent, and predictive validity, of C-SSRS subscales in the sample of adolescents who were enrolled in the Treatment of Adolescent Suicide Attempters study.¹⁶ These adolescents had each reported a recent suicide attempt or an interrupted suicide attempt. Baseline C-SSRS severity scores, based on worst-point lifetime suicidal ideation, were significant predictors of suicide attempts during the 6-month treatment period (odds ratio [OR], 1.45; 95% confidence interval [95% CI], 1.07–1.98). Thus, similar to the self-report instruments reported above, C-SSRS scores have been found to be significant predictors of suicidal behavior across a 6-month period. Posner and colleagues⁶ also documented the convergent validity of the C-SSRS severity scale in a sample of adolescents with major depressive disorder (no history of suicidal behavior) who participated in a double-blind, placebo-controlled medication trial. There is substantial momentum in the field to use the C-SSRS because it includes clearly defined categories of ideation and behavior that are largely consistent with the definitions recommended by the Centers for Disease Control and Prevention,¹⁷ and because the coordinated use of a single measure would enable the comparable measurement of suicidal thoughts and behaviors across sites and studies. There has been a long-standing emphasis on the importance of developing and using a shared set of definitions and a shared classification system for suicidal behavior.^{17–19} The primary aim of the present study is to examine the predictive validity of the C-SSRS (i.e., severity scale, intensity scale, suicidal behaviors) for future PE visits and future suicide attempts at PE visit when used with adolescents seeking PE services. Secondary aims are to examine (1) the characteristics of adolescents' suicidal ideation, as measured by the C-SSRS intensity scale items (frequency, duration, controllability, deterrents, reasons for ideation), as predictors of future PE visits and future suicide attempts at PE visit, and (2) nonsuicidal self-injury (NSSI) as a predictor of future PE visits and future suicide attempts at PE visit. It is hypothesized that (1) past PE visits will be a significant predictor of return PE visits and (2) severity scores, intensity scores, and suicidal behaviors assessed at index visits will be significant predictors of return visits for PE services and, within this group, of suicide attempts at return visits.

METHODS

Participants

Participants were 178 adolescents (44.4% male) between the ages of 13 and 17 years (mean [SD], 15.25 [1.34]), seeking emergency psychiatric services at a midwestern university hospital. To assist in capturing the most complete data possible on subsequent ED visits, only patients who reside in the local county (catchment area for PE setting) were included in this convenience sample.

The racial/ethnic self-identification of participants was distributed as follows (more than one identity could be selected): 131 Caucasian (73.6%), 37 African American (20.8%), six

Hispanic (3.4%), three Asian (1.7%), six “other” or biracial (3.4%), and six missing data (3.4%). Seventy-eight percent of adolescents had a past psychiatric history (defined as receiving any previous mental health services). Approximately one third of the sample (32.6%) used government assisted insurance.

In the PE setting, social workers and physicians (psychiatry residents and attending psychiatrists) interviewed the adolescents and their caregivers. The attending psychiatrists’ diagnostic impressions were coded for this study. The most common diagnoses were mood and/or anxiety disorders ($n = 151$, 84.8%). Others included attention deficit/hyperactivity disorder ($n = 36$, 20.2%), disruptive behavior disorder ($n = 27$, 15.2%), psychosis ($n = 16$, 9.0%), substance use disorder ($n = 13$, 7.3%), autism spectrum disorder ($n = 5$, 2.8%), eating disorder ($n = 5$, 2.8%), and “other” ($n = 13$, 7.3%). Sixty-nine participants (38.8%) were diagnosed with two or more disorders.

Emergency department dispositions included the following: hospitalization (36.5%), return to current outpatient provider (30.3%), identify/recommend outpatient provider (28.1%), partial hospitalization program (3.4%), and other/missing (1.7%).

Measures

The C-SSRS⁶ is a semi-structured interview that measures suicide ideation and behavior. The first scale, the severity scale is a 6-point ordinal scale, ranging from 1 (*wish to be dead*) to 5 (*suicidal intent with plan*). Adolescents who denied ideation received a zero. The second subscale, the intensity scale is comprised of five items (i.e., frequency, duration, controllability, deterrents, reasons for ideation), each rated on an ordinal scale (total scores ranging from 2 to 25). These five items are completed only with adolescents who endorse at least one of the severity items. Those without any suicidal ideation are given a scale score of 0 on intensity. The behavior scale is a 5-point nominal scale that investigates interrupted, aborted, and actual suicide attempts; preparatory behavior for a suicide attempt; and nonsuicidal self-injurious behavior. Administration time is dependent on the adolescent’s suicidal history ranging from 1 to 2 or 5 to 10 minutes; as indicated above, certain scales may not be required for completion.

In the Treatment of Adolescent Suicide Attempters study, internal consistency of the C-SSRS intensity scale (Cronbach α) was 0.94 and 0.95 for “since last visit” and “past week” assessment intervals, respectively. Convergent validity for the C-SSRS severity scale has been reported to be in the moderate range ($r = 0.36$ – 0.52) when compared to the SIQ-JR and the Scale for Suicide Ideation (SSI),²⁰ respectively. Additionally, Posner and colleagues reported that scores on the CSSRS intensity scale correlated mildly with scores on the SIQ-JR ($r = 0.23$ – 0.56) and moderately ($r = 0.56$) with scores on the SSI.⁶ In the present sample, internal consistency for the 5-item C-SSRS intensity scale was very good ($\alpha = 0.81$).

Medical chart data were extracted from the electronic medical records database and recorded. The following variables were coded: race/ethnicity, sex, reason for visit, disposition, psychiatric history, current psychotropic medication, past number of PE visits, and diagnosis assigned in PE setting.

Procedure

Social workers conducted the C-SSRS interviews with adolescents. Their training in C-SSRS administration consisted of viewing the training video created by Posner²¹ and completing an in-person training session with one of this study's authors (C.K.). Completed C-SSRS interview forms were scanned into patients' electronic records. After obtaining institutional review board approval, the C-SSRS interview forms and medical chart records for adolescents who met study inclusion criteria were available for coding. Data for index PE visits were coded for a 7-month period (October 2009 to April 2010); data for subsequent PE visits were coded for a 12-month period after each adolescent's index visit.

Data Analyses

Analyses were conducted using the Statistical Package for Social Sciences, version 20.0.²² Chi-squares, independent samples *t* tests, and one-way analysis of variance were conducted to examine between group differences. The χ^2 , Fisher exact tests, and logistical regression models were conducted to investigate predictors of return PE visits and suicide attempts at return visit. Additionally, logistic regression models were used to explore C-SSRS intensity scale items as predictors of suicide attempts among adolescents who reported suicidal ideation at their index visit. In addition to the predictor variable of lifetime history of suicide attempts, a dichotomous variable, referred to as suicidal behavior, was created to include suicide attempts, aborted suicide attempts, interrupted suicide attempts, and preparatory suicidal actions. The C-SSRS severity scale was also examined categorically for suicidal intent (i.e., severity score of 4 or 5 indicates intent, score of 3 or below indicates no intent), as had been done in the original validity study,⁶ to further investigate its ability to predict future suicide attempts. Past PE visits is a categorical variable that measures the number of past PE visits as 0, 1, or 2 or more.

An adjustment was made to the scoring of the C-SSRS intensity item of deterrents, which asks patients whether there are deterrents (e.g., family, friends, religion) that keep them from taking their own life. Responses range from 1 (deterrents definitely stopped you) to 5 (deterrents definitely did not stop you), with an option of 0 available stating "does not apply; wish to die only." As this "does not apply" response is conceptually similar to deterrents definitely not stopping them and is not reflective of a lower level of risk, the five adolescents who endorsed the "does not apply; wish to die only" were given a score of 5 for this item.

RESULTS

Descriptive Data for PE Visits

Approximately one half of adolescents (50.6%) presented for PE services with a suicide risk concern because of suicidal ideation or a recent suicide attempt. Approximately one fifth (20.2%) were seeking services because of aggression; 36.0% were seeking services for other complaints, such as acute or worsening psychiatric conditions (i.e., depression, anxiety, mania, and psychotic symptoms). Adolescents who presented with multiple complaints were coded in each relevant category. Forty-three percent of adolescents had obtained PE services at this medical center previously. The C-SSRS interview data indicate that within the previous week of the index visit for PE services, nearly half of adolescents reported suicidal

ideation and a third reported suicidal ideation with a method. Table 1 provides more information regarding the prevalence rates of varying levels of suicidal ideation. For the full sample of adolescents during the week of their index visit, the mean (SD) severity scale score was 1.72 (1.90) and the intensity scale mean (SD) score was 6.84 (7.82). Among adolescents reporting at least some suicidal ideation, the intensity scale mean (SD) score was 13.53 (5.27), and mean scores on intensity scale items were as follows: mean (SD) frequency score was 2.99 (1.46), mean (SD) duration score was 2.32 (1.24), mean (SD) controllability score was 2.85 (1.44), mean (SD) deterrent score was 2.14 (1.50), and mean (SD) reasons for ideation score was 3.33 (1.28). Additionally, almost a third of adolescents reported, at index visit, at least one prior suicide attempt in their lifetime, with over 10% having made an attempt in the past week. Table 2 provides information on percentages of adolescents who reported lifetime and past week histories of suicidal and NSSI behaviors.

Baseline variables did not vary by adolescent age. However, a χ^2 analysis revealed a significant difference by sex for lifetime suicidal behavior ($\chi^2 = 8.91$; $df = 1$; $P = 0.003$) with girls reporting more lifetime suicidal behavior. No additional sex differences were found for baseline variables. There were insufficient data to analyze racial/ethnic differences.

Descriptive Data for Return Visits

During the 12-month period after the index visit, 18.5% of adolescents had one return visit, 8.4% two visits, and 7.8% three or more visits. Index reasons for PE visits were not significantly associated with whether adolescents had a subsequent visit. A total of 62 adolescents (34.7%) returned for PE services over the 1-year period. Of those returning, 12 adolescents (6.7% of the baseline sample) reported a suicide attempt within the past week.

Predictors of Return PE Visit

The χ^2 analyses were conducted for index lifetime and past week actual attempts, suicidal behaviors, NSSI, and past PE visits by return PE visit. A lifetime history of NSSI ($\chi^2 = 6.15$, $df = 1$, $P = 0.01$) and past PE visit ($\chi^2 = 9.83$, $df = 2$, $P = 0.007$) were the only significant predictors of a return PE visit. When entered simultaneously in a multivariate model (see Table 3), past PE visits (OR, 1.52; 95% CI, 1.08–2.12) and lifetime history of NSSI (OR, 2.19; 95% CI, 1.09–4.39) remained significant independent predictors of a return PE visit. Logistic regression analyses were conducted to examine which continuous index variables predicted a return PE visit over a 12-month time period. The intensity and severity scale scores were not significant predictors of a return PE visit ($P = 0.13$ and 0.18 , respectively). The categorical examination of the severity scale assessing intent versus no-intent ($\chi^2 = 1.69$, $df = 1$, $P = 0.19$) was also not significant for predicting return visits.

Predictors of Suicide Attempt at Return PE Visit

The χ^2 analyses were conducted for index lifetime and past week actual attempts, suicidal behaviors, NSSI, and past PE visits by suicide attempt at return PE visit. The χ^2 analyses indicated that a lifetime history of NSSI ($\chi^2 = 4.131$, $df = 1$, $P = 0.04$) was a significant predictor of a suicide attempt at return visit, whereas past PE visits was a trend level predictor ($\chi^2 = 5.582$, $df = 2$, $P = 0.06$). Index lifetime and past week suicidal behaviors, and

actual suicide attempts, were not significant predictors of a suicide attempt at return visit. Using logistic regression analyses, the intensity scale score (OR, 1.09; 95% CI, 1.01–1.17; $P = 0.02$) was a significant predictor of a suicide attempt at return PE visit, whereas the severity scale showed evidence of a positive trend (OR, 1.34, 95% CI, 0.99–1.80; $P = 0.06$). The severity scale was also examined categorically by intent; however, this was not a significant predictor of a suicide attempt at return PE visit ($\chi^2 = 0.98$, $df = 1$, $P = 0.32$).

Intensity scale items as predictors the intensity scale items, frequency, duration, controllability, deterrents, and reason for ideation were examined as predictors of return PE visits and suicide attempts at return visit within the subgroup of adolescent who reported suicidal ideation at the index visit. These five variables examined independently resulted in the duration item being the only significant independent predictor of return PE visits (OR, 1.67; 95% CI, 1.16–2.42) or suicide attempts at return visit (OR, 1.80; 95% CI, 1.06–3.04). Furthermore, the full intensity scale was predictive of a return PE visit among these suicidal ideators (OR, 1.09; 95% CI, 1.00–1.19) but not a suicide attempt at return visit. See Table 4 for intensity scale and item predictors by return visit and suicide attempt at return visit for this subsample.

DISCUSSION

This study examined the predictive validity of C-SSRS scales when used with adolescents who were seeking PE services. In keeping with the primary study aims, the C-SSRS intensity scores, which reflect the intensity of suicidal ideation summed across the domains of frequency, duration, controllability, deterrents, and reasons for ideation, were significant predictors of suicide attempts at return PE visit across the 1-year study period. Within the subsample of adolescents who reported suicidal ideation at the index visit, the intensity scores also predicted return PE visits, but not suicide attempts at return PE visits. The C-SSRS severity scores, which reflect the overall level of suicidal ideation and behavior, showed trend level significance of predicting suicide attempts. As hypothesized, a previous PE visit predicted return PE visits. Additionally, a lifetime history of NSSI was a significant predictor of return PE visits and a suicide attempt at return PE visit.

To the current authors' knowledge, previous studies have not examined these specific aspects of suicidal ideation, suicidal behavior, and NSSI among adolescents seeking PE services. Much of the suicide assessment research conducted with adolescents in ED settings in either general or psychiatric EDs has focused on screening for suicide risk status rather than conducting a more comprehensive evaluation to inform future risk of suicidal behavior. For example, in their examination of the concurrent validity and potential use of a brief suicide risk screen, King and colleagues⁴ assessed for several suicide risk factors, including suicidal ideation, suicide attempts, and cooccurring depression and heavy alcohol use. Their findings indicated that adolescents with nonpsychiatric chief complaints at elevated risk for suicide could be identified with this brief screen. Additionally, the Risk of Suicide Questionnaire,²³ a brief screening tool designed to assess acute suicide risk among adolescents in ED settings has been examined in general ED samples irrespective of chief complaint (i.e., psychiatric/nonpsychiatric).^{24,25} It is important to note, however, that the predictive validity of these screening approaches has not yet been examined. Determining

which youth are at significantly elevated risk for suicidal outcomes is a critical step in an ED setting. Moreover, characteristics that may be predictive of future risk demonstrated in the present study, particularly for youth seeking PE services, is also essential to aid mental health providers with disposition and intervention planning.

It is particularly notable that NSSI was a significant predictor of a return PE visit and a suicide attempt at return PE visit, whereas suicidal behaviors were not predictive of these outcomes. This finding adds to the growing body of empirical evidence that suggests NSSI is a stronger predictor of future suicide attempts than previous suicidal behaviors, which has been found in cross-sectional and longitudinal studies among clinical^{26–28} and community^{29,30} adolescent samples. For example, two longitudinal psychotherapy and medication trials of clinically depressed adolescents^{26,27} found that a baseline history of NSSI significantly predicted suicide attempts at 24-week and 28-week follow-ups, controlling for baseline suicide attempts. These findings suggest that youths' reports of NSSI should be taken seriously by clinicians. In the absence of intervention to prevent the progression of NSSI to suicide attempts, presenting to the ED with a history of NSSI may be indicative of which youths will return to the ED and with more severe clinical presentations. Further, a review of the literature³¹ indicates that adolescents with both clinical histories of NSSI and suicidal behaviors are at elevated risk for psycho-pathology and significant psychosocial impairment compared to their counterparts with histories of either NSSI or suicidal behaviors alone.

Because the C-SSRS allows for ED providers to ascertain both types of self-injurious acts, such knowledge may also inform ED providers' formulation of which types of interventions (e.g., coping, problem solving strategies for intrapersonal and/or interpersonal problems) and in what settings (e.g., admission, day treatment, and outpatient).

Additionally, it could be useful to assist providers with classifying youth within particular risk categories/predicted outcomes although additional research is warranted. Moreover, these findings support the recent edition of the Diagnostic and Statistical Manual, 5th edition³² inclusion of NSSI as a condition that warrants further research while also allowing for clinicians to denote this symptom cluster with a diagnostic label as part of their clinical formulations, highlighting a need for a specialized clinical intervention.

Exploratory analyses of the individual items that comprise the intensity scale indicated that the duration item may be particularly important to our understanding of adolescent suicide attempts. This item poses the question, "When you have the thoughts, how long do they last?" The five response options range from "fleeting—few seconds or minutes" to "more than 8 hours/persistent or continuous." Among adolescents in our study who reported suicidal ideation at their index PE visit, duration was the only intensity scale item that significantly predicted a return visit and suicide attempt at return visit. Intensity scale items of frequency, controllability, deterrents, and reasons for ideation were not significant predictors. Future investigations are warranted to determine the sensitivity of these items in predicting suicidal behaviors, particularly among adolescents at elevated risk because of past histories of suicidal behaviors.

Although this finding pertaining to the duration item is exploratory and requires replication, preferably making use of a scale with known psychometric properties to measure “duration,” we speculate that this item may be assessing a ruminative process. Smith et al³³ found that rumination mediated the relation between negative cognitions and suicidal ideation in a sample of 127 undergraduate students followed for two and a half years. In this investigators’ attention-mediated hopelessness theory, such rumination, defined as a “repetitive contemplation of one’s negative affect,” is associated with suicidal ideation directly and via increased hopelessness.³⁴ Similarly, in their cognitive model of suicidal behavior, Wenzel and colleagues³⁵ argue that when individuals are stressed, maladaptive cognitive processes are activated (to varying degrees depending upon individual vulnerability factors), which, before engagement in suicidal behavior, involve selective attention to suicide-related cues and “attentional fixation” or “preoccupation with suicide as a solution.” This proposed preoccupation seems to reflect a ruminative process akin to that proposed by Smith and colleagues³³ and supported by our preliminary finding regarding the C-SSRS duration item. One distinction between the present study’s and Posner and colleagues⁶ findings is their assessment was based on lifetime worst-point suicidal ideation, which significantly predicted suicidal behaviors (i.e., actual, aborted, and interrupted attempts). We did not find suicidal behaviors to be predictive of a return PE visit or a suicide attempt at return visit, suggesting the importance of broad consideration of clinical characteristics among adolescents because findings have been mixed about what matters and for whom within this population.³⁶ For example, there is solid evidence to support risk factors such as past suicide attempts, suicidal ideation, and psychiatric diagnoses³⁷; however, understanding the role of psychosocial (e.g., chronic stressors, trauma/maltreatment, family/peer conflict) and cultural factors³⁸ with elevated adolescent suicide risk has been more difficult to determine. Further, we did not find the severity scale, which assesses suicidal ideation and the various forms it may take (e.g., method, plan, intent) to be predictive of a return visit or suicide attempts at return visit. Rather, the total intensity scale predicted a suicide attempt at return visit among the full sample and a return PE visit among those with suicidal ideation. One explanation for the differences in findings is the current study assessed for lifetime and past week suicidal and NSSI behaviors rather than the most severe episode in the youth’s lifetime. Another explanation may be the sample of youth examined because the youth in Posner et al⁶ were involved in treatment studies, and the adolescent (<18 years of age) samples were not ED patients. Because the youth in the present study presented to an ED for PEs, it is a much more restricted sample. Thus, these results extend the C-SSRS developers’ findings, indicating that this instrument has predictive validity for future suicide attempts in outpatient clinic samples.⁶ In this study, all adolescents were experiencing PEs, making this a somewhat more homogeneous sample with a high proportion of suicidal adolescents (approximately 50% at index visit). Suicide risk assessment and formulation are critical tasks of clinical providers working in emergency settings and these findings suggest that the C-SSRS can be useful in the assessment process. Previous research has indicated the predictive validity of well-established self-report assessment tools, namely, the Reynolds Adolescent Depression Scale,³⁹ BHS,¹⁴ SIQ-JR,¹³ and SPS,¹⁵ with future suicide risk among adolescents at elevated risk because of histories of psychiatric diagnoses and/or hospitalizations.⁵ Additional data concerning the validity and utility of instruments, such as the semistructured C-SSRS, are important because they

may serve as a tool in a multimethod assessment approach for use with adolescents in these settings. The information obtained via clinical interview may assist clinicians with disposition plans by allowing them to capture much more of the nuanced details of adolescents past suicidal behavior and NSSI histories. Moreover, the relatively brief administration time supports its feasibility for implementation in a busy ED setting, particularly for psychiatric chief complaints for which a comprehensive review of suicidal ideation and behavior is indicated.

Study Limitations

One study limitation pertains to the sample, which was drawn from one university PE department, thus limiting the generalizability of findings. Nevertheless, the sample was entirely representative of this ED because IRB approval was obtained to code the records of all consecutive patients during the study period. A second limitation pertains to the measurement strategy. Although we carefully trained the clinical providers in C-SSRS administration before the index visits coded for this study, it was not possible to obtain inter-interviewer reliability data. It is also a limitation that the C-SSRS is the only formal measure used in the study; other variables were limited (demographic, previous PE visits) and coded from the medical chart. A third limitation is lifetime suicidal ideation was not assessed only lifetime suicidal behavior precluding us from replicating previous finding⁶ of the C-SSRS severity scale. Finally, because of the relatively low base rate of the primary outcome of suicide attempt, a preponderance of zero scores limited our statistical power and may have limited our ability to identify important predictors.

Clinical Implications

Psychiatric emergency service providers may use the C-SSRS in conjunction with other suicide risk assessment tools to aid with clinical decision-making. For instance, the data gathered from the C-SSRS may assist providers by identifying who may be more likely to return for PE care and who is most likely to return after a suicide attempt. Understanding and tailoring recommendations based on the information obtained at the index visit may help to prevent return PE visits. While we understand the difficulty of predicting at the individual level which adolescents will return for psychiatric care because of the diversity of factors that protect them from suicidal outcomes and place them at risk, the C-SSRS information may allow for more individual tailoring of treatment recommendations and practices, which in turn could have broader implications for healthcare use policy. Additionally, these efforts on the front end by PE providers could enhance the continuity of care allowing for richer clinical impressions shared with community-based providers who provide ongoing management of suicidal/NSSI behaviors and related mental health care for adolescents.⁴⁰

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TABLE 1

C-SSRS Severity Scale at Index Visit

C-SSRS Severity Scale Items (Scale Score)	Past Week	
	N	%
No SI endorsed (0)	85	47.8
Wish to be dead (1)	7	3.9
SI (2)	22	12.4
SI with method, without plan or intent (3)	25	14.0
SI with intent, without plan (4)	14	7.9
SI with intent, with plan (5)	25	14.0

SI indicates suicidal ideation.

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TABLE 2

C-SSRS Suicidal and Self-Injurious Behaviors at Index Visit

Variable	Lifetime (N = 178)		Past Week (N = 178)	
	N	%	N	%
Actual attempt	54	30.4	23	12.9
Aborted attempt	22	12.4	11	6.2
Interrupted attempt	23	12.9	13	7.3
Preparatory acts	14	7.9	7	3.9
NSSI	61	34.3	35	19.7

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TABLE 3

Multivariate Model Predictors for Return Visit

Variable	B	SE	Wald	OR (95% CI)
Predicting return visit				
Model 4				
Constant	-1.22	0.27	21.25	0.30***
Past PE services visit	0.42	0.17	5.91	1.52 (1.08–2.12)*
Lifetime NSSI	0.78	0.36	4.86	2.19 (1.09–4.39)*

* $P < 0.05$;*** $P < 0.001$.

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TABLE 4

Baseline Suicidal Ideators: Predictors of Return Visits and Suicide Attempts

Predictors of Return PE Visit	B	SE β	Wald	OR (95% CI)
C-SSRS intensity scale	0.09	0.04	3.90	1.09 (1.00–1.19)*
C-SSRS intensity items				
Frequency (n = 91)	0.17	0.15	1.21	1.18 (0.88–1.59)
Duration (n = 91)	0.51	0.19	7.45	1.67 (1.16–2.42)**
Controllability (n = 86)	0.12	0.16	0.56	1.12 (0.83–1.53)
Deterrants (n = 88)	0.12	0.15	0.69	1.13 (0.85–1.50)
Reason for ideations (n = 85)	0.29	0.19	2.37	1.34 (0.92–1.95)
Predictors of Suicide Attempt	B	SE β	Wald	OR (95% CI)
C-SSRS intensity scale	0.10	0.07	2.03	1.10 (0.97–1.28)
C-SSRS intensity items				
Frequency (n = 91)	0.13	0.25	0.26	1.13 (0.70–1.84)
Duration (n = 91)	0.59	0.27	4.80	1.80 (1.06–3.04)*
Controllability (n = 86)	0.01	0.26	0.00	1.01 (0.61–1.68)
Deterrants (n = 88)	0.24	0.22	1.22	1.27 (0.83–1.93)
Reason for ideations (n = 85)	0.59	0.36	2.61	1.80 (0.88–3.65)

Suicidal ideators is defined as adolescents who reported a wish to die or suicidal thoughts within the past week of the index visit;

* $P < 0.05$,

** $P < 0.01$.