Multimethod Assessment of Suicidality in Adolescent Psychiatric Inpatients: Preliminary Results

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ABSTRACT

Objective: To examine agreement among multiple assessments of adolescent suicidal ideation and suicidal behavior for adolescent psychiatric inpatients, including pencil/paper checklists; structured and unstructured interviews; and adolescent, clinician, and parent reports, and to provide suggestions for the accurate and reliable assessment of suicidality in adolescence. **Method:** Participants included 153 adolescent psychiatric inpatients (54 boys, 99 girls) between the ages of 12 and 17 years. Measurement of suicidal ideation and behavior included common assessment instruments and standard clinical practices, including the Suicidal Ideation Questionnaire, NIMH Diagnostic Interview Schedule for Children, clinician interview, and parent report (Behavior Assessment Scale for Children). **Results:** Results revealed significantly different rates of suicidality across each instrument and poor to moderate agreement between similar measures of adolescent suicidal ideation and suicidal behavior. Agreement between measures was generally best for boys, for older adolescents, and for assessments relying on a single informant. Reporters were most likely to agree on the presence of suicidality for more severely suicidal adolescents; this finding suggests that agreement in itself may be a useful marker for adolescent suicide. **Conclusions:** Results of this preliminary study supported the use of multiple measurement approaches when examining adolescent suicidality, particularly those that rely on clinician judgment and adolescents' own reports. Implications for future research and for clinical practice are also discussed. *J. Am. Acad. Child Adolesc. Psychiatry*, 2001, 40(9):1053–1061. **Key Words:** suicide, multimethod assessment.

Suicide is the third leading cause of death for children aged 10 to 14 years and for adolescents and young adults aged 15 to 24 years (Centers for Disease Control [CDC], 1999). Over the past several decades, the completed suicide rate for adolescents has nearly tripled (CDC, 1999). National surveys of high school students indicate that within a 12-month period, approximately one in five adolescents seriously consider suicide, and 8% report having made a suicide attempt (CDC, 1998). These alarming statistics have prompted the U.S. government to target a reduction in the rate of adolescent suicide attempts as a main Healthy People 2010 objective (US Department of Health and Human Services [USDHHS], 2000). Thus the need for accurate methods of assessing adolescents' suicidality and identifying at-risk teenagers is particularly important (USDHHS, 1999).

Yet there are currently few data available on the agreement among different methods of measuring adolescent suicidality, and little consensus among clinicians and researchers regarding the most accurate, reliable, and cost-effective methods to examine adolescents' potential for suicide (National Institute of Mental Health, 1998). Indeed, the numerous extant methods for assessing suicidality in recent empirical work have yielded findings that are difficult to compare across studies. Thus, from a scientific and practitioner perspective, methodological data on the assessment of suicidality are sorely needed.

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Perhaps some of the inconsistency in past work stems from the ambiguity with which suicidality has been defined in prior studies, as noted by Linehan (1997). Indeed, the term "suicidal" is often used to describe individuals from either clinical or nonclinical samples, without clear definitions to describe the nature of suicidal thoughts and behaviors or the duration of suicidality. Only recently has a useful nomenclature been offered that distinguishes between suicidal persons on the basis of the presence of suicidal thinking, instrumental thinking, intent to die, physical injury, and fatality of outcome (O'Carroll et al., 1996). These distinctions have important implications for the assessment and prediction of future suicidality. Yet few empirical data have been offered to examine concordance between measures of suicidal ideation and behavior in at-risk adolescents with these distinctions in mind.

Recently, empirical data on the measurement of suicidality have been presented, although exclusively for adult samples. Unfortunately, these studies have generally reported conflicting conclusions. Joiner and colleagues (1999) assessed the presence of suicidal ideation and behavior in young adult psychiatric patients and found poor agreement between client- and clinician-rated suicidality. Z. Kaplan and colleagues (1992) also found little association between client- and clinician-rated suicidality in a young adult outpatient sample. In contrast, several studies have reported a high level of agreement between client- and clinician-rated suicidal ideation and behaviors (e.g., M. Kaplan et al., 1994).

Overall, this work has suggested that at least two variables will be important for understanding concordance between measures of suicidality. First, agreement across measurement approaches will likely be greatest when comparing responses on measures of the same suicidality construct (e.g., between two measures of suicidal ideation) than between measures assessing different constructs (e.g., suicidal ideation and suicidal behavior). Second, as has been demonstrated for the measurement of depression and related constructs (Kazdin et al., 1983), agreement will be strongest between instruments using the same assessment modality or the same informant. For instance, within adult populations, poor agreement was found when clinician and self-report assessments of suicidal symptoms were compared (e.g., Joiner et al., 1999). Research has similarly suggested that, within one type of reporter (i.e., clinician), semistructured and unstructured assessment approaches have yielded fairly divergent results in adult psychiatric inpatients (Malone et al., 1995). This issue is particularly salient for adolescent suicidality, as assessment instruments based on external reporters are available, but the validity of this assessment approach has not been adequately examined. Indeed, in nonclinical samples of children and adolescents, poor agreement on suicidal ideation has been revealed between parents' and children's reports (e.g., Walker et al., 1990). However, we are unaware of any studies that have compared multiple methods and informants to measure suicidality or any studies examining agreement in the report of suicidality in adolescent psychiatric populations.

This study, therefore, offers preliminary information to address the measurement of suicidality in at-risk adolescents. By measuring suicidal ideation and suicidal behavior among adolescent psychiatric inpatients, we were able to examine the utility of assessment instruments among adolescents who exhibit severe levels of suicidality and for whom the accurate identification of suicide risk is arguably most critical. Measures were selected to assess several distinct constructs, including suicidal ideation, suicide threats, and suicide attempts. In addition, agreement between multiple reporters was examined, including clinician and parent reports, adolescent report on structured and unstructured clinical interviews, and checklists. All measurement approaches assessed prior suicidality within a standard 1-month period. In addition, established cutoff scores were used across all measures to indicate the subset of the sample that would be identified as high risk on each instrument and to provide information consistent with common clinical practice.

We hypothesized that agreement would be greater between measures assessing the same construct (i.e., two assessments of suicidal ideation) compared with measures assessing different constructs (i.e., suicidal ideation versus suicide attempt). In addition, we hypothesized that agreement would be better between different constructs within the same informant than for the same construct between different informants.

In addition to examining overall concordance between assessment instruments, a second goal of this study was to explore age and gender differences in agreement. Such differences would suggest that some instruments or informants may be somewhat biased in their detection of suicidal adolescents. For instance, because older adolescents and boys exhibit more lethal forms of suicidal behavior (American Academy of Child and Adolescent Psychiatry, 2001), which may be more readily observable and potentially harmful, agreement between adult and

adolescent reports of suicidal behavior may be greater among boys and older adolescents compared with girls and younger adolescents. Exploration of gender and age differences in the agreement between measures of suicidality has not previously been studied.

A third goal of this study was based on the prediction that concordance between measures of suicidality may be low. Rather than regard this disagreement as simply measurement error, we examined whether concordance or discordance reflected meaningful clinical differences between suicidal adolescents (Kazdin and Kagan, 1994). If so, then the level of agreement between measures may itself be a useful indicator of suicidality severity. Thus adolescents for whom reporters agreed and for whom reporters disagreed were compared on demographic variables (e.g., age, gender) and measures of suicidality severity.

METHOD

Participants

Participants included 153 adolescents (54 boys, 99 girls) aged 12 to 17 years (mean = 14.8 years, SD = 1.6) who were admitted to an adolescent psychiatric inpatient unit in New England. The ethnic composition of the sample reflected hospital admission rates: 72.9% white, 10.4% Hispanic, 4.2% African American, and 12.5% mixed ethnicity/other. According to state census tract data, socioeconomic status levels for adolescents in this sample were high (15.6%), moderate (39.2%), low (17.6%), poverty (13.0%), and unknown (14.3%).

Procedure

Data were obtained from a comprehensive standard intake evaluation routinely administered to inpatients and a supplemental clinical evaluation of suicidal ideation and behavior. Participants were consecutive daily admissions, with the exception of adolescents who were excluded for active psychosis or mental retardation as indicated by chart notes (n = 11) and those teenagers with incomplete data on the supplemental evaluation as a result of early discharge from the inpatient unit or scheduling conflicts (n = 59). Readmissions to the inpatient unit (n = 38) were included in this sample only once. Preliminary results revealed no significant differences between adolescents who completed the battery and other eligible adolescents on demographic (i.e., age, gender, ethnicity, socioeconomic status) or psychiatric variables (i.e., reason for inpatient admission, discharge diagnosis, symptom severity). The data for this study were obtained from each patient's medical chart and were approved for research purposes by the institutional review board.

Checklist and semistructured interview data were collected by trained clinical staff. All measures were read aloud to adolescents to control for reading ability. Parent checklists were distributed to patients' primary caregiver or guardian (84% mothers) during intake or the first family case meeting by unit social workers, accompanied by a letter from the attending unit psychiatrist expressing the importance of parents' completion of this assessment. Social workers were also offered incentives (e.g., movie passes) to collect these checklists from parents or to encourage parents to complete these forms shortly after their family case meeting. Despite these efforts, many parents failed to return completed checklists, in part because many families never returned to the unit for a subsequent meeting or for their child's discharge. Only 41% (n = 63) of checklists were returned. Analyses indicated no significant differences in age, gender, ethnicity, or socioeconomic status between adolescents for whom parent data were or were not available. However, adolescents with parent data reported significantly lower levels of suicidal ideation on the Suicidal Ideation Questionnaire (SIQ) ($t_{151} = 2.14$, $p < .05$) and NIMH Diagnostic Interview Schedule for Children (NIMH-DISC) ($\chi^2_1 = 6.33$, $p < .05$), compared with adolescents without parent data.

Measures

NIMH Diagnostic Interview Schedule for Children. The NIMH-DISC (Shaffer et al., 1996) is a structured interview based on *DSM-IV* diagnostic criteria for children and adolescents. Several items on current and past suicidality are included within the Major Depressive Disorder/Dysthymia module. Adolescents can respond yes or no to each of the items used in this study, for example, "In the past four weeks have you thought seriously about killing yourself?" (suicidal ideation) and "In the past four weeks have you tried to kill yourself?" (suicide attempt). This approach is consistent with the common use of structured interview items (e.g., Schedule for Affective Disorders and Schizophrenia for School-Age Children) for the assessment of adolescent suicidality (e.g., Marciano and Kazdin, 1994). The interviewer-administered, computer-assisted version of the NIMH-DISC was used in this study.

Suicidal Ideation Questionnaire. The SIQ (Reynolds, 1985) is a self-report measure of adolescents' thoughts about suicide. Items are scored on a 0- to 6-point scale, with greater scores reflecting greater suicidal ideation severity. Internal consistency for the SIQ has been reported at 0.97. For adolescents younger than the age of 14, the SIQ-Jr (Reynolds, 1985) was administered, which includes 15 of the 30 items from the SIQ. All scores were standardized. To produce an index of severe suicidal ideation severity consistent with standard clinical practice and for analyses of agreement between the SIQ and related instruments, a clinical cutoff score (>70th percentile) based on normative data reported by Reynolds (1985) was used to dichotomize SIQ scores.

Clinician-Rated Suicidality. A system of coding psychiatric/medical chart data consistent with O'Carroll and colleagues' (1996) definitions of suicidality was developed for this study. On the morning after admission to the psychiatric unit, data were coded from each adolescent's intake evaluation summary completed by the psychiatry fellow, medical history chart, clinician progress notes, and nurse/on-line staff notes from the first shift after the intake. Adolescents who were immediately triaged from the emergency department or another psychiatric facility also had similar documents available from their initial evaluation, which were also coded. Thus this chart coding system offered data from the most recent psychiatric evaluation that precipitated adolescents' admission to the inpatient unit and represented the "standard of care" suicidality assessment conducted for most adolescents.

The coding system yielded six categories of adolescent suicidality. Adolescents with an absence of any suicidal ideation or suicidal behavior within the 4 weeks preceding the evaluation were coded as "not suicidal." Adolescents who indicated thoughts of their own death or stated a wish to die but did not perform any self-injurious or suicide-related behaviors were coded as "suicidal ideators." Adolescents who verbally or nonverbally communicated an intent or desire to die but stopped short of actual suicidal behavior (e.g., sitting on a ledge without jumping) were coded as "suicidal threateners." Adolescents who actually engaged in high-lethality behavior were coded as "suicide attempters," and those whose behavior required emergency medical treatment were coded as "suicide attempters requiring medical treat-

ment." Finally, adolescents who engaged in low-lethality, self-injurious behavior (e.g., superficial wrist-cutting, wrapping something loosely around the neck) and stated an intention to appear as if they wanted to die, but did not truly wish to die, were classified as engaging in "instrumental suicide-related behavior."

Charts were coded by a trained bachelor's-level clinical assistant who was blind to the results from other assessments of suicidality at the time of coding. A subset of charts was additionally coded by a clinical psychology postdoctoral fellow, which yielded excellent reliability (100% agreement).

Parent-Reported Suicidality. The Behavioral Assessment System for Children (BASC) (Reynolds and Kamphaus, 1992) parent-report checklist was used in the current study. It includes two items measuring suicidal ideation ("adolescent says 'I want to die'"; "adolescent says 'I want to kill myself'"; $r = 0.79$, $p < .0001$) and one item on suicide-related behavior ("tries to hurt self"). Parents respond using a 4-point scale (i.e., never, sometimes, often, always). As a screener for parent-reported suicidality, a clinically nonsignificant level of suicidal ideation or behavior was indicated when parents endorsed a response of "never" for each of these items, which corresponded to a median split on each item. The BASC is a well-regarded instrument with established validity and reliability (Reynolds and Kamphaus, 1992).

RESULTS

Rate of Suicidal Ideation and Behaviors by Assessment Instrument

Before examining the agreement between measures of suicidality, we examined the rate of suicidal ideation and behavior according to each measure in preliminary analyses. These data offer preliminary information on how conservative each of these measures is when screening for suicidality in adolescent inpatients. Table 1 lists the number and percentage of adolescents who were identified as exhibiting suicidal ideation and behavior according to each instrument for the entire sample, as well as separately by gender and for younger (aged 12–14 years) and older (aged 15–17 years) adolescents.

There were notable differences in the extent to which suicidal ideation was identified on the basis of the informant and assessment method used. For example, the SIQ identified a significantly greater proportion of adolescents with clinically significant suicidal ideation (64.1%, $n = 98$) than did the NIMH-DISC (47.0%, $n = 72$; $\chi^2_1 = 40.62$, $p < .001$). In a similar manner, for suicidal behavior, more adolescents were self-identified as suicide attempters on the NIMH-DISC (34.6%, $n = 53$) than by clinician rating (combining those with or without medical treatment; 24.2%, $n = 37$; $\chi^2_1 = 46.49$, $p < .003$). Thus, instruments that use self-report seem to identify a higher percentage of suicidal adolescents.

The pattern of identification of suicidality for each measure across age and gender was generally consistent with previously reported prevalence data. Girls were approximately twice as likely as boys to report suicidal ideation on most measures, and the prevalence of suicidal behaviors increased with age (American Academy of Child and Adolescent Psychiatry, 2001). The main exception to this pattern was in the report of parents,

TABLE 1
Number (%) of Adolescents With Severe Suicidal Ideation/Behavior According to Each Measure by Gender and Age Group

Measures	Total ($n = 153$)	Gender		Age Group	
		Male ($n = 54$)	Female ($n = 99$)	12–14 ($n = 66$)	15–17 ($n = 87$)
SIQ	98 (64.1)	26 (48.1)	72 (72.7)	40 (60.6)	58 (66.7)
NIMH-DISC					
Suicidal ideation	72 (47.0)	15 (27.8)	57 (57.6)	24 (36.4)	48 (55.2)
Suicide attempt	53 (34.6)	10 (18.5)	43 (43.4)	17 (25.8)	36 (41.4)
Clinician rating					
No suicidality	35 (22.9)	20 (37.0)	15 (15.2)	16 (24.2)	19 (21.8)
Suicidal ideation	49 (32.0)	18 (33.3)	31 (31.3)	28 (42.4)	21 (24.1)
Suicide threat	17 (11.1)	8 (14.8)	9 (9.1)	9 (13.6)	8 (9.2)
ISRB	15 (9.8)	4 (7.4)	11 (11.1)	4 (6.1)	11 (12.6)
Suicide attempt	12 (7.8)	2 (3.7)	10 (10.1)	5 (7.6)	7 (8.0)
Suicide attempt with emergency medical treatment	25 (16.3)	2 (3.7)	23 (23.2)	4 (6.1)	21 (24.1)
BASC[a]					
Suicidal ideation	38 (60.3)	17 (65.4)	21 (56.8)	20 (60.6)	18 (60.0)
Suicide-related behavior	35 (55.6)	15 (57.7)	20 (54.1)	17 (51.5)	18 (60.0)

Note: SIQ = Suicidal Ideation Questionnaire; NIMH-DISC = NIMH Diagnostic Interview Schedule for Children; ISRB = instrumental suicide-related behavior; BASC = Behavioral Assessment System for Children.
[a] $N = 63$ (males, $n = 26$; females, $n = 37$; age 12–14, $n = 33$; age 15–17, $n = 30$).

who reported comparable levels of suicidal ideation and behaviors across both gender and age group.

Overall Agreement Among Measures of Suicidal Ideation and Suicidal Behavior

A primary hypothesis of this study was that agreement between measures would be greatest when we examined concordance between assessments within one construct (e.g., suicidal ideation) and within informant or assessment modality used. The overall agreement among the four measures of suicidal ideation (i.e., self-report SIQ, structured interview NIMH-DISC, unstructured clinician interview and report, and parent-report BASC) and suicidal behavior (NIMH-DISC, clinician report, BASC) are reported in Table 2 as κ values, which measure the proportion of chance-corrected agreement between two measures (Cohen, 1960). The κ values are negative when agreement is less than would be expected by chance alone, positive when agreement is greater than or equal to chance, and 1.0 when there is perfect agreement between reporters.

Overall, agreement between measures of suicidal ideation was low to moderate (κ = 0.21–0.49). Agreement between measures of suicidal behavior was poor to moderate (κ = 0.06–0.53). Within the measures of suicidality, there was a general trend for greater agreement between measures that used the same reporter, such as the SIQ and the NIMH-DISC, both of which rely on data from adolescents themselves (κ = 0.49). There was also a trend for greater agreement within informant and within measurement method, regardless of what outcome was being measured. For example, the highest values for κ were obtained for the agreement between the NIMH-DISC measure of suicidal ideation and suicidal behavior (κ = 0.59), as well as for the parents' reports of suicidal ideation and of suicidal behavior in their adolescent (κ = 0.64).

When results were examined across reporters, however, they generally suggested poor agreement between measures relying on parent report (i.e., BASC), compared with clinician and adolescent report. As a stringent significance test of the difference in magnitude between two κ values, the overlap between κ 95% confidence intervals (CI) was examined (Fleiss, 1981). This significance test confirmed that the agreement between NIMH-DISC and clinician-rated suicidal behavior (κ = 0.53, 95% CI = 0.38 to 0.68) was significantly better than the agreement between NIMH-DISC and BASC (κ = 0.06, 95% CI = –0.15 to 0.27) and clinician rating and BASC (κ = 0.11, 95% CI = –0.06 to 0.28, $p < .05$).

Age and Gender Differences in Agreement

Next we explored gender and age differences in agreement among measures of suicidal ideation and behavior. Separate κ values were computed for agreement between each measure for boys and girls and for the two age groups.

The results generally suggested greater levels of agreement between measures of suicidal ideation for boys compared with girls (Table 3). Specifically, a trend revealed that for boys, agreement between the SIQ and suicidal ideation measured on the NIMH-DISC (κ = 0.51) and the BASC (κ = 0.38) was greater than agreement between the SIQ and these measures of ideation for girls (NIMH-DISC κ = 0.41, BASC κ = 0.11). In addition, a significant

TABLE 2
Agreement Among All Measures: Reported as κ Values

	Suicidal Ideation				Suicidal Behavior		
Measure	SIQ	NIMH-DISC	Clinician	BASC	NIMH-DISC	Clinician	BASC
Suicidal ideation							
SIQ							
NIMH-DISC	0.49						
Clinician rating	0.38	0.32					
BASC	0.21	0.22	0.21				
Suicidal behavior							
NIMH-DISC	0.27	0.59	0.27	0.07			
Clinician rating	0.10	0.31	0.17	0.08	0.53[a]		
BASC	0.30	0.23	0.21	0.64	0.06[b]	0.11[b]	

Note: Values in dashed triangles represent agreement among measures assessing the same suicidality construct (i.e., ideation or behavior). The κ values with different superscript letters are significantly different ($p < .05$). SIQ = Suicidal Ideation Questionnaire; NIMH-DISC = NIMH Diagnostic Interview Schedule for Children; BASC = Behavioral Assessment System for Children.

TABLE 3
Agreement Among Measures of Suicidal Ideation by Gender: Reported as κ Values

Measure of Suicidal Ideation	Suicidal Ideation			
	SIQ	NIMH-DISC	Clinician	BASC
SIQ		0.41	0.17[b]	0.11
NIMH-DISC	0.51		0.26	0.30
Clinician rating	0.56[a]	0.30		0.23
BASC	0.38	0.18	0.23	

Note: Values for males are below the diagonal; values for females are above the diagonal. The κ values with different superscript letters are significantly different ($p < .05$). SIQ = Suicidal Ideation Questionnaire; NIMH-DISC = NIMH Diagnostic Interview Schedule for Children; BASC = Behavioral Assessment System for Children.

difference was revealed for the agreement between SIQ and clinician ratings of suicidal ideation for boys (κ = 0.56, 95% CI = 0.38 to 0.74) compared with girls (κ = 0.17, 95% CI = 0.00 to 0.34, $p < .05$). No significant differences were revealed for measures of suicidal behavior or in agreement between the younger and older age groups.

Discordance Among Informants, Demographic Differences, and Suicidal Ideation/Behavior Severity

Finally, it was hypothesized that disagreement between measures might reflect meaningful differences in the demographic or psychological characteristics of adolescents who are at risk for suicidal thoughts and behaviors. Thus analyses of variance and χ^2 analyses were conducted to explore whether there were differences in age, gender, or suicidal ideation between three groups of adolescents: (1) adolescents for whom self-ratings (as measured by the NIMH-DISC) and clinician ratings agreed on the absence of suicidal ideation ($n = 31$), (2) adolescents for whom self-ratings and clinician ratings agreed on the presence of suicidal ideation ($n = 68$), and (3) adolescents for whom self-ratings and clinician ratings disagreed ($n = 54$). These three groups were compared on demographic variables (i.e., age, gender), suicidal behavior, and an independent report of suicidal ideation based on the SIQ.

Analyses of these three groups revealed no significant age differences; however, an effect for gender revealed greater agreement between clinician and adolescent report of suicidal ideation for boys. Controlling for this gender effect using an analysis of covariance, the three groups also differed significantly in severity of suicidal ideation (Table 4). Reporters were more likely to agree on the presence of suicidal ideation for adolescents who were more severely suicidal. Stated conversely, disagreement between the NIMH-DISC and clinicians seemed to be a possible marker of slightly less severe ideation. In addition, these three groups differed significantly on the presence of a recent suicide attempt (according to both the NIMH-DISC and clinician ratings), indicating that agreement on the presence of severe suicidal ideation was more likely among adolescents who had recently made a suicide attempt.

DISCUSSION

The accurate and efficient assessment of suicidal ideation and suicidal behavior is crucial for both clinical and scientific endeavors, yet there are currently few data available on the concordance between commonly used instru-

TABLE 4
Reporter Agreement on Suicidal Ideation: Differences in Age, Gender, Suicidal Ideation Severity, and Presence of a Recent Suicide Attempt

Measure	Agreement on No Suicidal Ideation[1]	Disagreement[2]	Agreement on Suicidal Ideation[3]	Statistic	*p*
N (row %)	31 (20.2)	54 (35.3)	68 (44.5)		
Mean age (SD)	14.5 (1.8)	14.6 (1.5)	15.1 (1.4)	$F_{2,150} = 2.26$	.107
Gender					
Male	19 (61.3)	21 (38.9)	14 (20.6)		
Female	12 (38.7)	33 (61.1)	54 (79.4)	$\chi^2_2 = 15.92$	.001
Suicidal ideation (SIQ *z* score)	−0.96 (0.66)[a]	−0.47 (0.83)[b]	0.64 (0.86)[c]	$F_{2,149} = 41.30$	.001
Suicide attempt: NIMH-DISC	0 (0)	6 (11.1)	47 (69.1)	$\chi^2_2 = 65.34$	.001
Suicide attempt: clinician rating	0 (0)	8 (19.8)	29 (42.6)	$\chi^2_2 = 25.12$	.001

Note: Means with different superscript letters are significantly different ($p < .05$). SIQ = Suicidal Ideation Questionnaire; NIMH-DISC = NIMH Diagnostic Interview Schedule for Children.

[1] NIMH-DISC and clinician rating agree on absence of severe suicidal ideation.

[2] There is disagreement among measures.

[3] NIMH-DISC and clinician rating agree on presence of severe suicidal ideation.

ments designed to measure adolescent suicidality. This study provides initial empirical data on the agreement between measures of suicidal ideation and suicidal behavior in a sample of adolescent psychiatric inpatients, and it is the first to compare measures that use adolescent, clinician, and parent reports.

Clinical Implications

Clinicians may be guided by several results revealed in the current study. Most notably, analyses suggested that the agreement between measures using different assessment modalities or measuring different types of suicidality was relatively low. Even when we examined concordance between measures that purported to assess the same suicide-related construct (e.g., suicidal ideation), the results suggested moderate agreement at best. This underscores the need to consider both the source of clinical information and the type of assessment instrument that is used when measuring suicidality for either research or clinical purposes. This is particularly relevant for suicide-related constructs, compared with other psychiatric constructs, for several reasons. First, although standard criteria exist for most domains of psychiatric symptoms, thus providing a theoretical base for the creation of assessment instruments, a similar classification system for suicidality has only recently been offered by O'Carroll and colleagues (1996), and it is still not universally used among scientists and clinicians. Second, developmental differences in adolescents' conceptualization and presentation of suicidal ideation and behavior make these constructs particularly challenging to assess with accuracy, perhaps more so than other symptoms. Adolescents engaging in potentially lethal suicidal gestures, for instance, commonly deny a history of suicide attempt because they either are unaware of the potentially lethal consequences of their behavior or because they lack an intent to die at the time they engage in such behavior (American Academy of Child and Adolescent Psychiatry, 2001). Adults may misperceive adolescents' behavior in these circumstances as an actual suicide attempt, however, thus contributing to discordance between reporters. In sum, symptoms of suicidal ideation and behavior are uniquely difficult to assess among adolescents because agreement between reporters relies on a full understanding of both adolescents' behavior and comprehension of adolescents' cognitive antecedents or appraisals of their own behavior.

Agreement between measurements of suicidality was better within reporters, even when different suicide-related constructs were being assessed, thus providing only partial support for the hypotheses initially presented. Indeed, it appeared that agreement may have been based more on method variance than on the consistent observations of clinicians, parents, and adolescents. This has important implications for the identification of suicidal adolescents in both clinical practice and for research on adolescent suicide, and it fuels the need for further research on the assessment of adolescent suicidality. The discrepancies are particularly enigmatic given that each instrument or approach assessed suicide-related constructs using items that were similar in wording and format.

Why would such similar measures lead to such striking discordance? Several speculative hypotheses are offered for investigation in future work. These results suggest that adolescents respond inconsistently when presented with subtle differences in the mode of assessment, perhaps because their understanding of suicide is markedly different from adults' conceptualization of suicidal ideation and behavior. It may be that new, developmentally sensitive assessment measures that more appropriately define and differentiate the suicide-related constructs are needed to best capture adolescents' own understanding of suicide. It may also be that differences in the timing of assessment play an important role. Past research has demonstrated that adolescents' report of ideation severity fluctuates dramatically within the first day after admission (Russ et al., 1999), as a result of either variations in symptom severity or perhaps adolescents' desire to withhold information that would prolong their hospital discharge. This finding has important implications for the timing of suicidality assessments in clinical and research endeavors. Finally, adolescents may also be more likely to disclose suicidal ideation and behavior with the quasi-anonymity of a self-report checklist, as opposed to a face-to-face report to a clinician or parent. For adolescents who are particularly difficult to engage during a psychiatric evaluation, this may be an especially relevant issue.

Overall, the results of this study suggest that the best approach for the assessment of adolescent suicidality involves the use of multiple measures that include several informants (i.e., self-report or clinician report) and several modalities of assessment (i.e., checklist, structured interview, unstructured interview) (American Academy of Child and Adolescent Psychiatry, 2001). Each type of assessment may offer incremental value to clinicians and researchers. This is consistent with the assessment recommendations for related areas of adolescent psychopathol-

ogy such as disruptive behavior disorders, depression, and substance abuse (e.g., Jensen et al., 1996). Reporters were more likely to agree on the presence of suicidality for teenagers who were more severely suicidal. Thus agreement itself may be a useful marker of suicidal severity.

Clinicians may also wish to take note that the results from this study suggested relatively poor agreement between parents' report of adolescent suicidality compared with those of other reporters (American Academy of Child and Adolescent Psychiatry, 2001). This finding is qualified by three important caveats, however. First, the parent-report instrument used in this study included only three items of suicidality that were embedded within a larger checklist of adolescent symptoms. Second, parents reported on suicide-related behavior in this study, but not specifically on suicide attempts. This important difference in the construct measured may have contributed to discordance with parent reports. Third, the subsample of adolescents with available parent data represented only a small and unrepresentative proportion of the full study sample, thereby restricting variability and compromising generality to a full range of inpatient adolescents. Nevertheless, the data suggested high sensitivity but low specificity for parent report. These results are consistent with past research that has revealed fairly low levels of agreement between adolescent and parent reports for internalizing symptoms (Achenbach et al., 1987); they also suggest that although parents may provide data that can be a useful supplement to adolescents' report and clinician evaluations, it may not be appropriate to rely on parents exclusively for data on child suicidality.

Perhaps more striking was the difficulty in successfully convincing parents to complete measures that would assist in the clinical evaluation of their hospitalized children. This was likely influenced by the high level of distress and possibly family dysfunction within an adolescent psychiatric inpatient population and underscores the need for substantial effort when attempting to involve parents in the assessment and treatment of their severely affected children. The incremental value of parent data remains an important issue to explore in future work on adolescent suicidality.

Limitations

Future studies may benefit by addressing some of the limitations of this investigation. For instance, although consistent with prior research and standard clinical practice, most measures of suicidality included only one to three items of suicidal ideation and behavior. More thorough, theoretically derived, yet cost-efficient instruments examining multiple constructs of suicidality (i.e., ideation, threats, suicide-related behavior) are needed and should be compared in future work on concordance between assessments. The use of these measures to predict future suicidality or their associations with psychopathology and psychiatric impairment would also be an important direction for future research, as this research was not prospective in design, nor were external measures of validity available. An exploration of the lethality of adolescent suicidal behavior (see Weisman and Worden, 1972) may also reveal an important moderator of agreement between reporters; more lethal means of attempting suicide would likely be associated with greater agreement among reporters. Agreement may also be greater for adolescents within certain diagnostic categories (e.g., major depressive disorder). Similar studies must also be conducted among normative and outpatient populations to examine possible differences in the utility of these assessments across a range of symptom severity. The results from this study can be applied only to inpatient populations, which may be unique in that adolescents' responses have direct implications on the length of their hospitalization.

Overall, the results from this preliminary study supported the use of multiple measurement approaches in the examination of adolescent suicidality, as well as the need for instruments that are consistent with current definitions of adolescent suicidality and adolescents' own conceptualization of their cognitions and behavior. The development of an accurate and reliable method for assessing adolescent suicidality will prove beneficial for both research investigations and clinical practice.

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Trends in Adolescent Suicide: Misclassification Bias? Beat Mohler, MD, MPH, Felton Earls, MD

Objectives: This study investigated the effect of misclassification of accidental deaths and undetermined deaths on age-, sex-, and race/ethnicity-specific adolescent suicide rates from 1979 through 1994. *Methods:* Official mortality data were used to present suicide mortality trends. Two estimates of misclassified suicides in other death categories were applied to calculate "corrected" trends of adolescent suicide. *Results:* The corrected trends showed a downward adjustment for Black adolescent males and young adolescents. This result does not, however, substantially alter the trend toward a recent increase in suicide in these groups. *Conclusions:* Despite misclassification, the true direction of trends in adolescent suicide is reflected in recent official data. However, suicide rates should continuously be tested for misclassification, mainly in populations with proportionately high accidental and undetermined death rates. **Am J Public Health** 2001;91:150–153. Copyright 2001 by the American Public Health Association.

Sudden Infant Death Syndrome, Bedsharing, Parental Weight, and Age at Death. Cindie Carroll-Pankhurst, PhD, MPA, Edward A. Mortimer, Jr., MD

Objective: To assess the role of parental bedsharing in sudden infant death syndrome (SIDS)-like deaths, this study examines the hypothesis that, compared with other SIDS cases, the age distribution of deaths associated with bedsharing should be lower in younger, less vigorous infants. *Methods:* For 84 SIDS cases in Cleveland, Ohio, 1992 to 1996, age at death, maternal weight, and other risk factors for SIDS were compared for cases grouped according to bedsharing status. *Results:* Mean ages at death were 9.1 weeks for 30 bedsharing and 12.7 for 54 nonbedsharing cases, counting 10 with missing information as nonbedsharing. Mean pregravid weights of bedsharing mothers exceeded those of nonbedsharing mothers (84.1 versus 67.0 kg). Mean ages at death for nonbedsharing infants, bedsharing infants of smaller mothers, and bedsharing infants of larger mothers were 12.7, 10.3, and 7.6 weeks, respectively. Large maternal size did not affect age at death in the absence of bedsharing. *Conclusions:* By demonstrating that among an urban population at high risk for SIDS, bedsharing is strongly associated with a younger age at death, independent of any other factors, this study provides evidence of a relationship between some SIDS-like deaths and parent-infant bedsharing, particularly if the parent is large. **Pediatrics** 2001;107:530–536. Reproduced by permission of *Pediatrics,* copyright 2001.