The Modified Scale for Suicidal Ideation: Reliability and Validity

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A modified version of the Scale for Suicidal Ideation was developed for use by paraprofessionals. The modifications included (a) addition of standardized prompt questions, (b) a standardized sequence of administration, (c) modification of the rating points to increase their specificity and range, (d) development of initial screening scores, and (e) selection of items for inclusion in the scale based on internal consistency and relationships with clinical ratings. The MSSI (a) demonstrated excellent internal consistency and interrater reliability, (b) correlated highly with experienced clinician's ratings of suicidal ideation and risk, and (c) discriminated between suicide attempters and nonattempters prior to hospitalization.

In order to provide a valid measure of suicidal ideation, Beck, Kovacs, and Weissman (1979) developed the Scale for Suicidal Ideation (SSI), a 19-item scale designed to be rated by a clinician after a clinical interview. To increase the utility of the SSI, we modified the original scale in several ways, including (a) addition of several items assessing other aspects of suicidal thinking not assessed by the SSI; (b) modification of the ratings points to increase their specificity and range; (c) addition of standardized prompt questions for each item and a standardized sequence for the items, so that the scale could be administered by paraprofessional research assistants; (d) development of initial screening items and scores that allow the scale to be administered in a time-effective manner; and (e) selection of items for final inclusion in the scale based on internal consistency and relationships with criterion ratings. This report describes the reliability and validity of the resulting Modified Scale for Suicidal Ideation (MSSI).

Method

The initial 25 items for the MSSI were composed of (a) 18 of the 19 items from the original SSI; (b) two additional items that resulted from dividing an original SSI item (capability) into two items (courage, competence); and (c) three additional items (intensity of suicidal thoughts, talk of death, writing of death).

In order to make the scale more efficient for screening purposes, the first four items of the scale were designated as screening items. Patients reporting a moderate or strong wish to die (Item 1) or no or weak desire to live (Item 2) or any desire to make an active (Item 3) or passive (Item 4) suicide attempt were considered to have sufficient ideation to merit administration of the entire scale. Patients who did not meet this criterion were considered to have no significant suicidal ideation and were not administered the remainder of the scale. A total score based on the sum of all items is calculated to estimate the severity of suicidal ideation for those patients who have significant ideation.

Data from two studies were collected to investigate the reliability and validity of the MSSI. For clarity, the methods of both studies are presented first, followed by an integrated presentation of the results.

Study 1

The subjects in Study 1 consisted of 113 inpatients with a diagnosis of major depression. One of three research assistants administered the MSSI, the Beck Depression Inventory (BDI) and the Modified Hamilton Rating Scale for Depression (MHDRS; Miller, Bishop, Norman, & Maddover, 1985) to each subject. Additionally, to establish interrater reliability, the MSSI interviews of a subset (n = 24) of these patients were audiotaped and rerated by another research assistant who was blind to the MSSI score.

Study 2

Subjects for the second study consisted of 50 consecutive inpatient admissions. Subjects were administered the MSSI, the BDI, and the Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) by a research assistant. During the same time period, the patient's attending psychiatrist (one of three board-certified psychiatrists with a mean of 17 years clinical experience) completed a 4-item rating form composed of the following items: (1) Has suicide been an issue at all for this patient during the 48 hours preceding admission? (yes, no); (2) Rate this patient's suicidal thinking in the 48 hours preceding admission (0 = none to 7 = very high); (3) If this patient had not received treatment, how likely is it that he/she would commit a self-injurious act in the next two weeks? (0 = not likely to 7 = very likely); and (4) How likely is it that this act would be life threatening? (0 = not likely to 7 = very likely). Psychiatrists were blind to the data collected for this study.

In order to establish the reliability of these ratings, an identical set of ratings was conducted for a subset of these patients (n = 28) by a PhD-level clinical psychologist with 10 years of clinical experience. For each of the four
questions, the correlations between clinicians were .63, .89, .90, and .76, respectively. For those patients for whom suicide was an issue (Question 1 rated yes by at least one rater; n = 30), the correlations for the remaining questions were Question 2, r = .86; Question 3, r = .85; Question 4, r = .88.

Results and Discussion

The items included in the final scale were chosen according to the following criteria: (a) adequate item variance (SD > .50), (b) item–total correlation greater than .40, and (c) positive correlation with clinician’s ratings. Eighteen of the initial 23 items met these criteria. Thus, the final version of the scale is composed of 18 items, 13 items from the original SSI, and 5 new items.

Because the screening criteria have a different purpose from the total scale score, reliability and validity are discussed separately for the screening criteria and the total score.

Screening Criteria

The results from Study 1 indicate that the four screening items have a high level of internal consistency (coefficient alpha = .86). Item–total correlations range from .57 to .79. These four items also have high interrater reliability (n = 24) based on the audiotape ratings of a subset of patients, with intraclass correlations ranging from .86 to 1.0. The interrater agreement regarding the screening criteria (i.e., to continue or stop the interview) was 100%.

The validity of the screening score was assessed by comparing the screening score to the clinician’s ratings. The 30 subjects who met the screening criteria in Study 2 (i.e., ideators) received significantly higher ratings from the expert clinicians on each of the four ratings. More importantly, there was 73% agreement between the MSSI screening decision and the expert clinician’s response to Question 1. The false positive rate was 21%, whereas the false negative rate was 6%. This level of agreement is comparable to the percentage of agreement (82%) obtained between expert clinicians in our study. The false positive rate is somewhat high, but this type of error is acceptable, since a positive decision on the screening criteria has no negative implications beyond the administration of the remaining items of the MSSI.

Total Score

Data from the 54 subjects in Study 1 who met the screening criteria and were administered the entire MSSI indicated that the items on the MSSI showed a high level of internal consistency (coefficient alpha = .94). Item–total correlations ranged from .41 to .83. The items from the MSSI also had very high levels of interrater reliability between original interviewer and audiotape rater with intraclass correlation coefficients ranging from .50 to 1.0 and a correlation between total scores of .99.

Validity of the MSSI Total Score was assessed in three ways. First, the concurrent validity of the MSSI was assessed by examining the relationship between the MSSI Total Score and other measures of the severity of suicidal ideation. Correlation coefficients were calculated between the MSSI Total Score and the expert clinician’s ratings for the entire Study 2 sample (n = 50; Question 1, r = .70; Question 2, r = .76; Question 3, r = .72; Question 4, r = .68) and for those patients (n = 30) with suicidal ideation on the MSSI (Question 1, r = .71; Question 2, r = .69; Question 3, r = .72; and Question 4, r = .65). All of these correlations were significant at the p < .01 level. Comparisons between these correlations and the correlations obtained between expert clinicians yielded no significant differences in the magnitude of the correlations. The MSSI Total Score also correlated significantly with suicide items from the BDI (r = .60) and the MHRSD (r = .34).

Second, the construct validity of the MSSI was examined by correlating the MSSI with the BDI (r = .34) and HS (r = .42). These correlations are similar to those reported by Beck et al. (1979) for the original SSI scale (r = .39, r = .47, respectively).

Third, discriminant validity for the MSSI was provided by three additional comparisons. First, patients from Study 2 whose attending psychiatrist had identified suicide as a problem in the medical record (n = 13) had higher MSSI scores than those patients without suicide identified as a problem (n = 36), t(47) = 4.2, p < .001. Second, patients from Study 2 with suicidal thinking or behavior identified by the admitting psychiatrist at admission to the hospital (n = 24) had significantly higher MSSI scores than those patients who did not have suicidal thinking or behavior identified on admission (n = 25), t(47) = 4.1, p < .001. Third, patients from Study 1 who had made a suicide attempt prior to admission (n = 45) had higher MSSI scores than those patients who had made no attempt (n = 57), t(100) = 1.98, p < .05, but did not differ on the BDI or MHRSD.

The results of these studies indicate that the MSSI can be a reliable and valid instrument for the assessment of suicide ideation. Paraprofessional research assistants using the MSSI are able to make highly reliable judgments concerning (a) the presence or absence of significant suicidal ideation and (b) the severity of suicidal ideation. The MSSI scores agree with expert clinician’s judgments concerning suicidal ideation as well as expert clinician’s do among themselves. Other validity data suggests that the MSSI discriminates between attempters and nonattempters and shows similar patterns of correlations with measures of depression and hopelessness as the original SSI scale.

References


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