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ABSTRACT

A pilot study was conducted to detect suicide risk in adolescents and adults presenting to an Emergency Department (ED) in the Midwest, as well as to test the reliability and validity of the 4-item Risk of Suicide Questionnaire (RSQ) developed by Horowitz, et al. (2001). Participants consisted of a convenience sample of 104 ED patients ranging in age from 12 to 82 regardless of chief complaint or psychiatric history. The RSQ was verbally administered to 39 adolescents (age 12 to 24) and 65 adults (over 25). Demographic data, chief complaint, and discharge diagnosis were also obtained. Psychometric analysis demonstrated an adequate degree of reliability and criterion related validity. Results support a reduced 2-item form of the RSQ to determine imminent risk of suicide.

Suicide is a serious health concern and was the cause of death of 29,350 Americans in 2000, making suicide the 11th leading cause of death for all Americans, and the 3rd leading cause of death for young people from 15-24 years of age (Gould, Greenberg, Velting, & Shaffer, 2003; National Center for Injury Prevention and Control, 2003). Furthermore, individuals who were over 65 years of age accounted for 18% of all suicide deaths in the United States (National Institute of Mental Health [NIMH], 2003). Therefore, populations most at risk for committing suicide include those less than 25 years of age and the elderly. The Emergency Department (ED) may be an ideal setting in which to detect suicide risk, particularly because a large percentage of ED visitors lack primary care providers and use the ED for comprehensive health care needs. Furthermore, the most important intervention in the prevention of suicide in or following the ED visit is screening (Gould, et al., 2003).

Suicide risk often goes undetected or untreated in the majority of populations, including in adolescents (Horowitz, Wang, Gerald, Burr, Smith, Klavon, et al., 2001) and the elderly (NIMH, 2003). Horowitz, et al. (2001) noted the increased numbers of adolescents seeking emergency treatment with mental health problems, particularly self-destructive behavior, and the expanded responsibility the ED has for triaging mental health issues. The Harvard team identified that one reason suicide risk is not determined in the ED is because brief instruments to screen for suicidality are lacking. Health care providers must focus on suicide prevention in all populations and in all health care settings. One of the problems related to suicide prevention is detecting those at risk. In fact, many studies have found that up to 75% of older adults who die by suicide had visited their primary care physician within a month of their suicide (NIMH, 2003).

Therefore, it is imperative that health care providers enhance their ability to detect suicide risk in their clients. The Surgeon General called for the implementation of suicide prevention strategies in a wide variety of health care settings that targets different individuals and groups especially at risk for committing suicide (U.S. Public Health Service, 1999). The American Academy of Pediatrics (AAP) recommends asking all adolescents about suicidal thoughts during the routine medical history (AAP, 1988), and the American Medical Association (AMA), Center for Disease Control (CDC), and the National Alliance for the Mentally Ill (NAMI) also recommend that providers screen to identify those at risk for suicide (AMA, 1994; CDC, 1995; NAMI, 2004). Similarly, suicide prevention among adolescents was one of twenty-one critical objectives identified by the US Department of Health and Human Services in Healthy People 2010. Assessment of suicide risk in the ED is a crucial process, as many suicidal patients are discharged without ever being assessed or receiving follow-up (Hickey, Hawton, Fagg, & Weitzel, 2001). Aschensy, Clark, Zinn, and Richtsmeir (1992) suggest that it is not necessary to be a psychiatrist to assess suicide risk. In fact, often the ED physician is more available than a psychiatrist or pediatrician at the time of crisis. Moreover, it is essential to dispel the myth that talking about suicide with youth leads to increased suicide attempts (Kalafat, 2003; Smith, 1991).

Research suggests that the current screening tools are lengthy, time-consuming, and need to be administered by trained personnel (Horowitz et al., 2001). In order to address the

issues specific to an Emergency Department setting, a 14-item screening tool called the Risk of Suicide Questionnaire (RSQ) has been developed and tested in an adolescent population with a mean age of 13.6. Evaluation of the RSQ included the establishment of criterion validity using the psychometrically sound 30-item Suicide Ideation Questionnaire ([SIQ], Reynolds, 1987). The results of the Horowitz, et al. study showed that four questions on the RSQ (past and present thoughts of suicide, prior self-destructive behavior, and current stressors) identified 98% of the adolescents identified by the SIQ as at risk for suicide. The 4-item RSQ demonstrated high content validity, and includes most of the same risk factors identified in other studies (Horowitz et al., 2001).

The results of this study suggest that health care professionals in Emergency Departments can effectively screen for suicide risk using the four-item RSQ. Nurses using the RSQ preferred it as a method of suicide assessment to their previous use of their own intuition to decide when and how to ask about suicidal ideation. They expressed that this tool was quicker and easier than previous methods. Patients and parents participating in this study had high satisfaction with the use of this questionnaire, noting that it allowed openness and acceptance to talk about suicidal ideation.

One problem with suicide screening tools is that the instrument may not have the same predictability when used in populations that are different than those in which they were developed (Institute of Medicine, 2002). The use of pilot studies to determine the effectiveness of suicide screening tools is definitely needed (U.S. Public Health Service, 1999). There is insufficient evidence to recommend for or against routine screening by clinicians to detect suicide risk in asymptomatic persons. Therefore, one of the purposes of this pilot study is to determine the psychometric properties of the RSQ in all people, greater than age 12, who present to an Emergency Department in a medical center in the Midwest. Permission to use the RSQ has been obtained from Dr. Horowitz at Harvard. The research team acknowledges that subsequent referral and treatment must be provided to clients who answer positively to the questions on the RSQ. Therefore, in addition to determining the usefulness of the RSQ, the team also must ascertain approximately how many people who come to the Emergency Department will require further services. The incidence of positive screens will enable health care professionals to implement resources that will adequately meet the needs of this vulnerable population. The results of this study will help determine the feasibility of screening all people over the age of 12 for suicide risk.

PURPOSE

The purpose of this pilot study was to assess the incidence of reported suicide risk in adolescents and adults who presented to an Emergency Department. In addition, the reliability and validity of a reduced, 4-item version of the 14-item Risk Suicide Questionnaire suicide rating scale was evaluated. The future feasibility and need for the Emergency Department staff to conduct suicide screening of all patients who present to the Emergency Department was assessed.

RESEARCH QUESTIONS

Three research questions were formed.

1. To what extent is the Risk of Suicide Questionnaire (RSQ) reliable when administered to adolescents and adults who present to an Emergency Department?
2. Does the RSQ demonstrate adequate criterion-related validity in a sample of adolescents and adults who present to an Emergency Department?
3. Does the RSQ detect suicide risk in individuals who present to the Emergency Department with and without chief complaints involving suicidality?

METHOD

Subjects

A convenience sample of 104 adolescents and adults presenting to a Midwest Level I Trauma Center was used. The sample was comprised of all patients presenting to the Emergency Department (ED), regardless of chief complaint or psychiatric history. To ensure patient safety and appropriateness for participation, the following inclusion and exclusion criteria were used.

Inclusion Criteria:

- All consecutive patients ages 12 and above
- Patients who have been evaluated as medically stable by the triage nurse
- Minor patients for whom parental or guardian verbal consent can be obtained and who agree to be present during the questionnaire
- Patients for whom privacy conditions support a discussion without risk of being overheard by other visitors in the ED
- Patients (and parent or guardian of minor) who can understand English

Exclusion Criteria:

- Patients who are medically unstable and whose participation could exacerbate chief complaint
- Minors whose parent or guardian declines participation or who refuses to be present during the questionnaire
- Patients for whom privacy conditions do not support a discussion without risk of being overheard by other visitors in the ED
- Patients (and parent or guardian of minor) who can not understand English

Demographic data was obtained from all participants (See Tables 1-4). Subjects ranged from 12 to 82 in age. Thirty-nine participants were between the ages of 12 to 24 (adolescents) and 65 subjects were 25 and older (adults). Some diversity of participants existed; for example, racial distribution of all participants consisted of 76.0% Caucasian, 22.0% African American, 1.0% Hispanic and 1.0% Other (by self report). Subjects were interviewed in three areas of the ED, including triage, treatment rooms, and minor

emergency care. Two people declined to allow the researchers to enter the treatment room, and no subjects withdrew during the study.

Measures

Suicide risk was measured using the four-item Risk Suicide Questionnaire (RSQ), developed by Horowitz, et al. (2001). The following four questions were asked to all participants:

1. Are you here because you tried to hurt yourself?
2. In the past week, have you been having thoughts about killing yourself?
3. Have you ever tried to hurt yourself in the past (*other than this time*)?
4. Has something very stressful happened to you in the past few weeks (*a situation very hard to handle*)?

Several follow-up questions were asked if respondents answered "yes" to determine imminent risk to patient safety, such as how they had been thinking of killing themselves or what stressful event had happened in the past weeks. Regardless of the subsequent responses, answering "yes" or having "no response" to any of the initial four questions constituted a positive screen, requiring notification of the attending physician.

The evaluation of criterion-related validity involved establishing correlations between RSQ responses and discharge diagnoses. The responses of the RSQ were recorded either as yes, no, or no response. Similarly, the discharge diagnoses were determined by treatment providers in the Emergency Department and were subsequently coded dichotomously as either psychiatric or non-psychiatric in nature by the researchers. A suicide-related diagnosis included diagnoses such as suicidal ideation and overdose.

Procedure

Institutional Review Board approval was granted by the researchers' affiliate university, as well as the community and hospital IRBs where the research was conducted. Informed verbal consent was obtained. Verbal assent and parental consent were obtained for subjects under 18. No incentives for participation were offered, and subjects were notified that there were no consequences for refusing to participate.

Data were collected in the ED over four days between the hours of 11:00 am and 11:00 pm. Registered Nurses asked their patients for permission to allow the Principle Investigator and Research Assistant to administer a brief survey as part of a study. Patients were informed that the study was voluntary and would not delay their treatment time. Patients were also informed that participation in the study would not replace the standard of care. After agreeing to participate, the Principle Investigator and Research Assistant entered the patient's private room and obtained informed consent. Demographic data (age, gender, and race), chief complaint, and the subject's medical

record number were recorded. No other personal identifiable information was taken. The RSQ was administered orally and took an average of 90 seconds to complete.

If the patient answered "yes" to any of the four questions, the researchers notified the physician of the positive screen. The physician then followed an existing treatment protocol for responding to an identified behavioral health client, which included determining the need for a master's level mental health clinician on the ED-based Direct Assessment and Referral Team (DART) to provide a thorough psychological assessment of adult patients or Emergency Response Services (ERS) to complete a more thorough assessment of minor patients. Further, a 1:1 Monitor could be ordered in the ED to assure the patient's safety if immediate danger was suspected. Two additional behavioral health resources were provided during the course of the study. In addition to the 24-hour coverage that was already provided by the DART Team, a second on-call DART therapist and a Behavior Health Resource Professional were available 24 hours a day during data collection.

All patients were given a letter about the study, as well as the phone number of a Behavior Health Resource Professional, whom they could contact 24 hours a day during the duration of the study. This reference was provided to account for any potential risks associated with asking sensitive questions about suicide. Once the subject was discharged from the Emergency Department, the medical record number was used to obtain the primary diagnosis, secondary diagnosis and disposition for each participant.

Statistical Analysis

SPSS 10.0 was used for all statistical analysis. Reliability of the RSQ was measured through internal consistency and was reported as a Cronbach's alpha. Because the instrument is in its early stage of development, internal consistency was established if coefficient alphas of .70 or above were obtained (Mishel, 1998; Nunnally & Bernstein, 1994). Inter-item correlations between .30 to .70 would ensure that each question was appropriately related to the other questions, but was not unnecessary or redundant (Frank-Stromborg & Olsen, 1997).

Criterion-related validity was assessed by correlating responses from the RSQ with the post-evaluation diagnosis. For most variables of a psychological nature, correlations in the .10 to .40 range are typical; an r of .70 is considered high (Polit & Hungler, 1995). If positive RSQ responders had a significant correlation with a post-evaluation diagnosis indicating imminent suicide risk, convergent validity was supported. Additionally, criterion-related validity was supported if the scores of those who responded negatively to the RSQ significantly correlated with the absence of a post-evaluation diagnosis indicating suicide risk.

RESULTS

Reliability (Internal Consistency)

Cronbach's alphas were calculated for the 4-item RSQ using all participants (See Table 5), and the subgroups of adults (See Table 6), all adolescents aged 12-24 (See Table 7), and early adolescents aged 12-17 (See Table 8). Reliability with participants over 65 years old could not be established due to an inadequate sample size. Cronbach's alphas ranged from .42 to .63 for the 4-item RSQ. Low to moderate levels of reliability were shown in all participants ($\alpha = .56$), as well as in the subgroups of adults ($\alpha = .49$), all adolescents aged 12-24 ($\alpha = .63$), and early adolescents aged 12-17 ($\alpha = .42$).

Strong inter-item correlations were established between Questions 1 (Here because you tried to hurt self) and Question 2 (Current thoughts of killing self) in all participants and in each of the subgroups; in contrast, inter-item correlations involving Questions 3 (Past suicide attempts) and Question 4 (Current stressors) suggested these questions added little to the reliability of the instrument (See Tables 5-8).

Therefore, Cronbach's alphas were recalculated for a modified 2-item RSQ using all participants (See Table 9), and the subgroups of adults (See Table 10), all adolescents aged 12-24 (See Table 11), and early adolescents aged 12-17 (See Table 12). Adequate reliability was found for all participants using the two question RSQ ($\alpha = .70$) and a high degree of reliability ($\alpha = .80$) was established for adults when considering only Questions 1 and 2 of the RSQ. Further, a moderate degree of reliability was established for participants aged 12-24 ($\alpha = .65$). An inadequate degree of reliability ($\alpha = .46$) was shown for early adolescents aged 12 to 17 year olds using the 2-item RSQ.

A comparison of the degree of reliability supported in the 4-item and 2-item RSQ in all participants and in each subgroup is highlighted in Table 13.

Criterion-related Validity

Criterion-related validity was examined for the 4-item RSQ using all participants, and the subgroups of adults, all adolescents aged 12-24, and early adolescents aged 12-17 by correlating Question 1, Question 2, Question 3, Question 4, and the 4-item RSQ Screen Result with the following variables: Chief Complaint, Primary Diagnosis, Secondary Diagnosis, and Suicide Diagnosis.

Pearson's correlation coefficients (r) were calculated first for all participants (See Table 14). Moderate correlations were found between Question 1 (Here because you tried to hurt self) and the following variables: chief complaint, $r = .56$ ($p < .01$), primary diagnosis, $r = .67$ ($p < .01$), and suicide diagnosis, $r = .66$ ($p < .01$). Additionally, Question 2 (Current thoughts of killing self) correlated positively with chief complaint, $r = .48$ ($p < .01$), primary diagnosis, $r = .59$ ($p < .01$), and suicide diagnosis, $r = .59$

($p < .01$). Further, a positive screen (answering yes to at least one question) was correlated at the $p < .01$ level with chief complaint and primary, secondary, and suicide diagnosis. It is noteworthy that Questions 3 (Past suicide attempts) and 4 (Current stressors) did not correlate with primary or secondary diagnosis; Question 3 did, however, demonstrate a low level of significant correlation with suicide diagnosis.

Additional correlations were found in the adult population (See Table 15). Correlations between Question 1 and chief complaint, $r = .36$ ($p < .01$), primary diagnosis, $r = .49$ ($p < .01$), secondary diagnosis $r = .43$ ($p < .01$), and suicide diagnosis, $r = .70$ ($p < .01$) were established. Additionally, Question 2 correlated positively with primary diagnosis, $r = .33$ ($p < .01$), secondary diagnosis, $r = .28$ ($p < .01$), and suicide diagnosis, $r = .49$ ($p < .01$). A positive screen was correlated with chief complaint and primary, secondary, and suicide diagnosis. Again, it is noteworthy that Questions 3 and 4 failed to demonstrate a significant correlation with chief complaint, primary or secondary diagnosis, or suicide diagnosis.

For all adolescents aged 12-24 (See Table 16), strong correlations ($p < .01$) were noted between Question 1 and chief complaint ($r = .87$), primary diagnosis ($r = .89$), and suicide diagnosis ($r = .75$). Similarly, Question 2 and chief complaint ($r = .86$), primary diagnosis ($r = .86$), and suicide diagnosis ($r = .72$) demonstrated a high level of correlation at the .01 level of significance. Again in this subgroup, a positive screen was correlated with chief complaint and primary, secondary, and suicide diagnoses. Questions 3 and 4 contributed little to the establishment of criterion validity.

Similarly, strong correlations were established in the subgroup of early adolescents aged 12-17 (See Table 17). Question 1 and chief complaint ($r = .83$), primary diagnosis ($r = .83$), and suicide diagnosis ($r = .68$) were correlated at the $p < .01$ level, as were Question 2 and chief complaint ($r = .79$), primary diagnosis ($r = .79$), and suicide diagnosis ($r = .59$). Question 3 was correlated, $r = .54$ ($p < .05$), with secondary diagnosis.

DISCUSSION

Psychometric analysis supports the use of a reduced 2-item RSQ for both adolescent and adult populations. Suggestions for the modification of Horowitz et al. (2001) Risk for Suicide Questionnaire from a 4-item instrument to a 2-item instrument was not an anticipated result of the pilot study. It must be emphasized that the Harvard team developed and tested the RSQ in a pediatric population, and the RSQ has not been used outside a pediatric behavioral health emergency department, nor has it been administered to adults. Further, it may be the case that Questions 1 and 2 determine imminent risk for suicide, and Questions 3 and 4 contribute as important facets of a psychiatric assessment. The results of this pilot must be interpreted with caution.

Adequate internal consistency was determined for all participants (2-item RSQ), and the subgroups of adults (2 -item RSQ), and 12-24 year olds (2 and 4-item RSQ). Overall, the provisional degree of reliability may be due to several factors. There were only four

items on the RSQ to analyze for internal consistency, and fewer items tend to make it very difficult to obtain high alphas (Waltz, Strickland, & Lenz, 1991). In addition, the sample size was relatively small, especially when analyzing subgroups, and could be responsible for decreased internal consistency. Thus, particularly when one takes into account the small sample size and number of items on the RSQ, the reliability for all participants ($\alpha = .70$) and adults
($\alpha = .80$) using the 2-item RSQ is high for a new instrument.

Little difference in reliability between the 2 and 4-item RSQ existed for 12-24 year olds and 12-17 year olds. The need to gather more data for the early adolescent population offers support to use Horowitz et al.'s (2001) 4-item RSQ in its entirety for future studies. It may be the case that there is less time between past events (measured by Questions 3 and 4) and present events (measured by Question 1 and 2) in young people. An adult, on the contrary, may have past self-harming behavior that is less related to the present situation because more time has lapsed.

Criterion-related validity was supported by high Pearson's correlation coefficients in all subgroups and in the overall population. Question 1 and Question 2 were both strongly correlated with a primary psychiatric diagnosis upon discharge from the ED. This was expected because the diagnosis is determined after the risk for suicide is identified; therefore, any participant who came to the ED because he or she tried to hurt himself or herself, or who had been having recent suicidal thoughts, would be given a psychiatric diagnosis. Question 1 and Question 2 were also correlated with chief complaint. Individuals who present to the ED with suicidal or psychiatric complaints may be at a higher risk for suicide. Finally, a positive screen on the RSQ was highly correlated with all items analyzed. These correlations must be interpreted with caution because there are a multitude of factors, other than suicide risk, that could account for a positive screen. The abundance of positive screens also suggests that the four-item tool may have a high degree of sensitivity, with lower specificity.

Another observation is that, although about 30% of participants in all age groups screened positively on the RSQ, 18.8% of 12-17 year olds received a suicide diagnosis upon discharge, while only 3.1% of adults and 4.3% of 18-24 year olds were deemed suicidal, despite yielding a positive screen. This reiterates the need to target children and adolescents for suicide risk in the ED. Also noteworthy, is the fact that of the 10.8% of adults who presented to the ED had a psychiatric discharge diagnosis, only 3.1% were acutely suicidal. However, when considering 12-17 year olds, of the 18.8% with a psychiatric diagnosis, all 18.8% had an imminent risk for suicide. This may be accounted for by the fact that some children and adolescents have not yet been diagnosed with a psychiatric disorder; thus an existing psychiatric condition may be present, but undetected. Alternatively, this may reveal a lack of coping skills and more impulsiveness among adolescents, which would lead a person in this age group to consider suicide more readily when presented with psychological issues.

On a similar note, in the 18-24 group, 100% of subjects with psychiatric discharge diagnoses reported psychiatric chief complaints. However, when considering 12-17 year

olds, only 12.5% of the 18.5% discharged with psychiatric diagnoses presented to the ED with psychiatric chief complaints. This may imply that early adolescents are less likely to self report psychiatric issues, even when they are as life-threatening as suicide. Consequently, a tool that identifies suicide risk in 12-17 year olds may be even more essential than with other groups.

During data collection, themes began to emerge regarding imminent risk for suicide versus the potential for identifying subjects with past psychiatric history or current stressors that could warrant counseling. Analysis confirmed that the 4-item RSQ yields a high rate of positive screens (almost 30%), and tends to identify psychiatric diagnoses in general, rather than exclusively detecting suicidality. This phenomenon is less evident when using only Questions 1 and 2 of the RSQ and contributes to the recommendation that instead of considering a positive screen to be resultant of a "yes" response to any of the four questions, a positive screen should be considered only for affirmative responses to either Questions 1 or 2. Consideration of past suicide behavior is important, but in the absence of current self-harmful behavior or suicidal ideations, a "yes" response to Question 3 may not warrant a positive screen. A positive response to Question 4 may reflect an appraisal of one's current capacity to cope and may warrant further assessment and/or outpatient referral.

The correlation between Question 1 and Question 2 is explained by the fact that both questions ask the participant directly about imminent risk for suicide by focusing on present feelings and actions versus historical events or current stressors that have the potential of being manageable and do not overwhelm an individual's ability to cope. Question 2 and Question 3 may show strong correlation because people who have had recent suicidal thoughts could have a past suicide history as well. Suicidal thoughts and attempts tend to be repetitious in nature, and it is likely that the researchers did not detect the first incidence of this behavior in the ED. The relationship between Question 2 and Question 4 could be due to recent stressful events precipitating suicidal thoughts or causing the person to act on those thoughts.

Question 1 and Question 2 consistently showed strong correlations with outcomes related directly to suicide risk, while Questions 3 and 4 correlated primarily with other questions in the RSQ. This suggests that Question 3 and 4 may be related to Questions 1 and 2, in that they are psychiatric in nature however, they do not appear to be indicative of imminent risk for suicide. Questions 1 and 2 demonstrate both sensitivity and specificity in relation to suicide screening. Due to the nature of the study, an important consideration must be given to false positives resulting from Questions 3 and 4. Although false-positives could be minimized by using more stringent cutoff criteria, the seriousness of missing a suicidal patient precludes the scheme (Gould, Greenberg, Velting, & Shaffer, 2003). A tolerance for false-positives is essential for such endeavors.

Limitations

The sample size for this study was adequate for a pilot, however it proved to be limited when attempting to establish internal consistency for subgroups. While the sample did

include adequate representation of males, females, adolescents, adults, Caucasians, and African Americans, it did not adequately consider Hispanics, other races, and the elderly population. This may affect the generalizability of the results to other geographic areas and older populations.

Clinical Implications

The RSQ is a tool that is appropriate for use in Emergency Departments and can be administered by a variety of health care providers with relative ease. Whether used in its original four-item form or modified to include only Questions 1 and 2, the RSQ is one of the only brief suicide screening tools available. Its established reliability and validity across the lifespan are encouraging. The tool can be administered by Registered Nurses (RN) as part of the initial assessment, and takes approximately ninety seconds to complete. A common hesitation of Emergency Department staff is the perception that asking patients questions about suicide who are not suicidal may make the patient uncomfortable, or even precipitate ideas of self-harm. It is noteworthy that 100% of adolescents who completed the RSQ said that this would be a useful thing to ask everyone presenting to the ED. Many had either experienced suicidal thoughts before, or had known young friends or siblings who had either suicidal ideations or behaviors. No patient required the additional DART therapist or the Behavioral Health Resource Professional as a result of the participating in the study, and were managed successfully with existing resources.

Though the RSQ is not extremely time consuming for the RN or the patient and was not associated with any negative outcomes in this pilot study, several risks related to implementation of suicide screening need to be addressed. For example, answering affirmatively to Question 4 has not suggested imminent risk for suicide; however, in this study the question did lead the researchers to become aware of other psychological concerns of the patient. Several of these issues warranted referrals to outpatient counseling, social work, or case managers. In actuality, the time and resources needed to make this type of referral may not be available in every ED. Thus, asking the patient to reveal information about stressors without assuring adequate follow-up presents ethical concerns. Another ethical dilemma regards labeling that may occur from a positive screen. Maintaining the result of the RSQ screen in the patient's permanent medical records could potentially affect the care provider's perception of the patient, or might impact the patient's future medical insurance coverage or eligibility. If these potential negative outcomes were actualized, the false positives associated with the RSQ would become even more problematic. Despite these issues, it is most likely that patients will not be harmed by taking part in suicide risk screening, and the potential benefit of detecting suicide risk in any patient greatly outweighs the risk.

It appears from this pilot study that it is unnecessary to administer the RSQ to all individuals who present to the Emergency Department. However, suicide risk detection may be extremely important for people presenting with psychiatric complaints. Further testing of the instrument in psychiatric and non-psychiatric populations, as well as with adolescents and adults, is needed before stringent clinical guidelines can be established.

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Table 1

Demographic Data for All Participants (N=104)

Age	
Mean	35.4
Standard Deviation	17.8
Range	12-82
Gender	
Male	36.5%
Female	63.5%
Race/Ethnicity	
Caucasian	76.0%
African American	22.0%
Hispanic	1.0%
Other	1.0%
Chief Complaint	
Psychiatric	9.6%
Non-psychiatric	89.4%
RSQ Screen	
Positive	29.8%
Negative	70.2%
Discharge Diagnosis	
Psychiatric	10.6%
Non-psychiatric	87.5%
Suicide Diagnosis	
Yes	5.8%
No	94.2%

Table 2

Demographic Data for Adults Only (N=65)

Age	
Mean	45.9
Standard Deviation	14.5
Range	25-82
Gender	
Male	41.5%
Female	58.5%
Race/Ethnicity	
Caucasian	80.0%
African American	18.5%
Hispanic	1.5%
Other	0.0%
Chief Complaint	
Psychiatric	10.8%
Non-psychiatric	89.2%
RSQ Screen	
Positive	30.8%
Negative	69.2%
Discharge Diagnosis	
Psychiatric	10.8%
Non-psychiatric	87.7%
Suicide Diagnosis	
Yes	3.1%
No	95.4%

Table 3

Demographic Data for Participants Aged 12-24 (N=39)

Age	
Mean	18.0
Standard Deviation	3.3
Range	12-24
Gender	
Male	28.2%
Female	71.8%
Race/Ethnicity	
Caucasian	69.2%
African American	28.2%
Hispanic	0.0%
Other	2.6%
Chief Complaint	
Psychiatric	7.7%
Non-psychiatric	89.7%
RSQ Screen	
Positive	28.2%
Negative	71.8%
Discharge Diagnosis	
Psychiatric	10.3%
Non-psychiatric	87.2%
Suicide Diagnosis	
Yes	10.3%
No	89.7%

Table 4

Demographic Data for Participants Aged 12-17 (N=16)

Age	
Mean	14.8
Standard Deviation	1.9
Range	12-17
Gender	
Male	25.0%
Female	75.0%
Race/Ethnicity	
Caucasian	62.5%
African American	31.3%
Hispanic	0.0%
Other	6.3%
Chief Complaint	
Psychiatric	12.5%
Non-psychiatric	87.5%
RSQ Screen	
Positive	31.3%
Negative	68.8%
Discharge Diagnosis	
Psychiatric	18.8%
Non-psychiatric	81.3%
Suicide Diagnosis	
Yes	18.8%
No	81.3%

Table 5

Reliability for the 4-item RSQ With All Participants (N=104)

Variable	**Inter-Item Correlation**			
	Q1	Q2	Q3	Q4
Question 1				
Question 2	.54			
Question 3	.05	.31		
Question 4	.05	.30	.35	
Cronbach's Alpha	.56			

Table 6

Reliability for the 4-item RSQ With Adults Only (N=65)

Variable	**Inter-Item Correlation**			
	Q1	Q2	Q3	Q4
Question 1				
Question 2	.70			
Question 3	.28	.39		
Question 4	-.05	.13	.29	
Cronbach's Alpha	.49			

Table 7

Reliability for the 4-item RSQ With Ages 12-24 Only (N=39)

Variable	**Inter-Item Correlation**			
	Q1	Q2	Q3	Q4
Question 1				
Question 2	.47			
Question 3	-.08	.25		
Question 4	.16	.56	.49	
Cronbach's Alpha	.63			

Table 8

Reliability for the 4-item RSQ With Ages 12-17 Only (N=16)

Variable	**Inter-Item Correlation**			
	Q1	Q2	Q3	Q4
Question 1				
Question 2	.30			
Question 3	-.44	.18		
Question 4	-.06	.79	.30	
Cronbach's Alpha	.42			

Table 9

Reliability for the 2-item RSQ With All Participants (N=104)

Variable	**Inter-Item Correlation**	
	Q1	Q2
Question 1		
Question 2	.54	
Cronbach's Alpha	.70	

Table 10

Reliability for the 2-item RSQ With Adults Only (N=65)

Variable	**Inter-Item Correlation**	
	Q1	Q2
Question 1		
Question 2	.70	
Cronbach's Alpha	.80	

Table 11

Reliability for the 2-item RSQ With Ages 12-24 Only (N=39)

Variable	**Inter-Item Correlation**	
	Q1	Q2
Question 1		
Question 2	.48	
Cronbach's Alpha	.65	

Table 12

Reliability for the 2-item RSQ With Ages 12-17 Only (N=16)

Variable	**Inter-Item Correlation**	
	Q1	Q2
Question 1		
Question 2	.30	
Cronbach's Alpha	.46	

Table 13

Comparison of Reliability (Cronbach's Alpha) for 4-item and 2-item RSQ

Group	N	4-Item RSQ	2-Item RSQ
All	104	.56	.70
Adults	65	.49	.80
12-24	39	.63	.65
12-17	16	.42	.46

Table 14

Pearson's Correlation Coefficients for All Participants (N = 103)

	Variable	1	2	3	4	5	6	7	8	9
1.	Question 1	--								
2.	Question 2	.54**	--							
3.	Question 3	.05	.31**	--						
4.	Question 4	.05	.30**	.35**	--					
5.	Chief Complaint	.56**	.48**	.02	.18	--				
6.	Primary Diagnosis	.67**	.59**	.08	.07	.69**	--			
7.	Secondary Diagnosis	.16	.12	.10	-.01	.34**	.26**	--		
8.	Screen	.20**	.38**	.73**	.66**	.37**	.34**	.30**	--	
9.	Suicide Diagnosis	.66**	.59**	.30**	.04	.44**	.55**	.38**		--

* $p < .05$
** $p < .01$

Table 15

Pearson's Correlation Coefficients for Adults Only (N = 65)

	Variable	1	2	3	4	5	6	7	8	9
1.	Question 1	--								
2.	Question 2	.70**	--							
3.	Question 3	.28*	.40**	--						
4.	Question 4	-.05	.13	.29*	--					
5.	Chief Complaint	.36**	.23	-.02	.08	--				
6.	Primary Diagnosis	.49**	.33**	.06	-.11	.53**	--			
7.	Secondary Diagnosis	.43**	.28*	.02	.01	.46**	.41**	--		
8.	Screen	.19	.27*	.68**	.65**	.31*	.25*	.31*	--	
9.	Suicide Diagnosis	.70**	.49**	.16	-.08	.23	.70**	.28*	.07	--

* $p < .05$
** $p < .01$

Table 16

Pearson's Correlation Coefficients for Ages 12-24 Only (N = 39)

	Variable	1	2	3	4	5	6	7	8	9
1.	Question 1	--								
2.	Question 2	.48**	--							
3.	Question 3	-.08	.25	--						
4.	Question 4	.16	.56**	.49**	--					
5.	Chief Complaint	.87**	.86**	.11	.41*	--				
6.	Primary Diagnosis	.87**	.86**	.11	.41*	1.00**	--			
7.	Secondary Diagnosis	-.03	-.06	.35*	-.07	-.05	-.05	--		
8.	Screen	.23	.54**	.81**	.68**	.49**	.49**	.28	--	
9.	Suicide Diagnosis	.75**	.72**	.28	.32*	.85**	.85**	.48**	.57**	--

* $p < .05$
** $p < .01$

Table 17

Pearson's Correlation Coefficients for Ages 12-17 Only (N = 16)

	Variable	1	2	3	4	5	6	7	8	9
1.	Question 1	--								
2.	Question 2	.30	--							
3.	Question 3	-.44	.18	--						
4.	Question 4	-.06	.79**	.30	--					
5.	Chief Complaint	.83**	.79**	-.18	.43	--				
6.	Primary Diagnosis	.83**	.79**	-.18	.43	1.00**	--			
7.	Secondary Diagnosis	-.04	-.12	.54*	-.10	-.10	-.10	--		
8.	Screen	.22	.71**	.71**	.56**	.56*	.56*	.38	--	
9.	Suicide Diagnosis	.68**	.59*	.18	.30	.79**	.79**	.54**	.71**	--

* $p < .05$
** $p < .01$