Suicidality Risk Assessment in Adolescents and Young Adults

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Abstract
The Research to Practice column is intended to improve the research critique skills of the advanced practice registered nurse (APRN) and the emergency nurse (RN) and to assist with the translation of research into practice. This column focuses on assessing risks of suicide in adolescents and young adults, using as a basis for the discussion a recently published suicidality screening tool (L. M. Horowitz et al., 2012). Key words: adolescent suicide, clinical decision rules, evidence-based practice, suicide risk assessment, teen suicide

The Research to Practice column is intended to improve the research critique skills of the advanced practice registered nurses (APRNs) and emergency nurses (RNs) and to assist with the translation of research into practice. For each column, a topic and a research study are selected. The stage is set with a case presentation. The research article is then reviewed and critiqued, and the findings are discussed in relation to the case presented. This column focuses on adolescents’ and young adults’ risk for suicide, using as a basis for the discussion a recently published suicidality screening tool (Horowitz et al., 2012).

The Case
Mike was a 20-year-old African American man who arrived in the emergency department (ED) at 03:20 on a Sunday morning. He was accompanied by two friends who stated that the patient had been complaining of severe abdominal pain after a night out at a local sports bar. The ED was relatively quiet, so Mike was brought directly to an examination room, and his friends stated they were going home to bed and they will “see [Mike] around.”

As the APRN provider in the department, you entered Mike’s room shortly after the nurse had had him undress and taken the initial history and vital signs. You noted the chief complaint of “stomach cramps” and the fact that Mike reported no significant illnesses,
prior surgical procedures, or allergies; he also stated to the nurse that he was in good health (he was on the cross-country team at college) and taking no medications. He appeared awake, alert, oriented and appropriate, and in mild distress rubbing his mid-abdomen. In response to your questions, he stated he drank only occasionally, but had had “a couple of beers tonight,” and did not use any recreational drugs or smoke cigarettes; he exhibited no obvious signs of intoxication. He lived in the dormitory of a nearby prestigious university, and stated he was doing a double major in political science and economics, was on the debate team, and ran a minimum of 10 miles per day, 6 days a week. He stated the abdominal pain and nausea began about 3 hr prior to admission and had become appreciably worse over the past hour. He denied vomiting, but stated he “could throw up any minute.” His last meal, pizza and breadsticks, was about 8 hr ago. He denied diarrhea or constipation and stated his last bowel movement was yesterday morning and it was normal. He denied any testicular pain, tenesmus, or penile discharge.

Your examination revealed a well-nourished, well-developed young man in mild to moderate distress. His skin was warm and dry to the touch, and mucous membranes were pink and moist. His entire physical examination was negative except for diffuse abdominal pain to palpation, with mild diffuse rebound tenderness. His testes were nontender to palpation and descended bilaterally. His penis was circumcised without lesions or discharge, and you did not detect a direct or indirect hernia on palpation. His rectal examination was negative for guarding and tenderness, there was no prostate enlargement or bogginess, and there was no stool to test for blood. His vital signs on admission were as follows: blood pressure 118/76, pulse 100, respirations 18 and nonlabored, and temperature 37.8°C (100°F). You explained to Mike that you were concerned that his symptoms could be early signs of appendicitis, and you would like to run some blood tests to start with. As soon as you said that, Mike panicked; his face became rigid and his eyes opened wide. He exclaimed, “I can’t have appendicitis! I have two papers due next week, and if I don’t get As on them, my parents are going to kill me.” He appeared visibly shaken at the thought of having appendicitis. As you were leaving the room you told him, “Let’s not get ahead of ourselves. We’ll get the lab tests and go from there.”

THE STUDY

Sample and Setting

Horowitz et al. (2012) reported on the development and validation of a screening tool for use in pediatric EDs to identify children and young adults at risk for suicide. Their focus was on developing a brief questionnaire that could easily fit into the work demands of busy pediatric EDs and that would be equally accurate when applied to those presenting with nonsympathetic and psychiatric chief complaints. The study took place over a 3-year period, from 2008 to 2011, in three large pediatric teaching hospitals. Patients aged 10–21 years were eligible to participate if they presented with either a medical–surgical or psychiatric complaint. Patients with developmental disabilities, who were critically ill, or younger than 18 years without a parent or guardian, or young children whose parents were non-English-speaking, were not eligible.

Procedures

Potential screening questions for the tool were identified from multiple sources, including the literature, information gathered from expert clinicians in the fields of child and adolescent psychiatry, items contained in a Centers for Disease Control and Prevention (CDC) behavior survey, and an existing screening tool—the Risk of Suicide Questionnaire. The study team assembled all the items and subjected them to repeated review and revision by a panel of experts in pediatric mental health, health services research, and analytical methods. After multiple versions and pilot
testing, their final survey contained 17 questions in a “yes,” “no,” and “no response” format. Among these 17 questions were those already identified as indicative of severe emotional distress, such as questions about severe depression or ideas about or plans for suicide. If participants answered yes to any of those “trigger” questions during the study, they were automatically referred for a more complete psychiatric evaluation.

After enrolling patients in the study, a research assistant administered the 17 questions to the participants, followed by administering the Suicide Ideation Questionnaire (SIQ), a previously validated suicide risk assessment tool. Both the 17 questions and the SIQ were administered without the parents present, although participants were warned that if the research assistant had any concerns after administering the questionnaires, their parents and ED staff would be made aware of them. As a safety precaution, if a participant answered positively on the nine “trigger questions” in the 17-item tool, or screened positively on the SIQ, or responded positively to eight critical items on the SIQ, a psychiatric evaluation was required prior to the patient being discharged.

**Analysis**

The analysis focused on determining the fewest items necessary from the 17-item tool to achieve the best predictors of risk when compared with the “gold standard” SIQ. The authors tested their 17-question model in a variety of ways to establish the validity of the questions themselves and to determine the most parsimonious model. Multiple combinations of questions were tested for their sensitivity, specificity, and positive and negative predictive values. Likelihood ratios were also calculated to assess the accuracy of the best versions of possible questionnaires. As described by the authors (Horowitz et al., 2012), the final version consisted of “…the candidate items that maximized sensitivity, specificity, and NPV [negative predictive value] such that the minimum number of suicide-positive patients would be misclassified and ED clinicians would not be overburdened managing false-positive patients” (p. 1172). Sample size calculations, required to ensure a large enough sample to complete a meaningful analysis, indicated a need for a total of 450 participants, or approximately 150 from each site.

**RESULTS AND DISCUSSION**

The final sample size included 524 participants; 180 presented with psychiatric chief complaints, and 344 presented with medical–surgical complaints. The mean age at enrollment was 15.2 years; 57% of participants were female; 50% were White; and 53.2% were privately insured. A total of 98 participants (18.7%) screened positive for suicide risk on the SIQ, 14 of whom were in the ED for medical–surgical concerns, which the authors state, is consistent with other reports of suicidality in nonpsychiatric patients in EDs. Using logistic regression, the authors tested combinations of six, five, and four of the questions in their 17-item tool that resulted in the best sensitivity, specificity, and positive and negative predictive values when compared with the gold standard of the SIQ. The final model contained just four questions that, when tested against other combinations, showed the best positive and negative predictive values; these were chosen for the Ask Suicide-Screening Questions (ASQ). These questions are given in Table 1.

In their discussion, the authors emphasized the importance of being able to administer a valid and reliable suicide screening tool in the often chaotic ED environment. The fact that the instrument identified elevated risks among patients who presented with medical–surgical complaints was a critical advantage to using the ASQ. Although this represented a small percentage of their sample (4.1%), the ability to detect the elevated risk using a tool that takes less than 2 min to administer was identified as an important advantage of the ASQ over other suicide risk evaluation instruments. The authors identified several
Table 1. Ask Suicide-Screening Questions retained in final model

<table>
<thead>
<tr>
<th>Question</th>
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<td>1. In the past few weeks, have you felt that you or your family would be better off if you were dead?</td>
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<tr>
<td>2. In the past few weeks, have you wished you were dead?</td>
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<tr>
<td>3. In the past week, have you been having thoughts about killing yourself?</td>
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<tr>
<td>4. Have you ever tried to kill yourself?</td>
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SUSAN’S COMMENTS

This study is an excellent example of how to develop and test a clinical decision rule (CDR; Shapiro, 2006). The authors described clearly how they chose the items to be included in the questionnaire, as well as the multiple kinds of analyses they undertook to test the tool. Emergency department advanced practice nurses (APRNs) use CDRs routinely in their practice (the Ottawa Ankle Rule is a perfect example) but do not often stop to consider how these rules were developed or tested. Developing and testing a CDR that will work in a variety of settings with a variety of patients, and that consistently guide practice toward the best possible outcomes, takes a great deal of time and effort, and Horowitz et al. (2012) have done a very good job of reporting the rigor with which they developed what appears to be a usable, reliable CDR. That’s the good news.

The bad news is that this one study alone cannot establish the reliability and validity of this particular tool. As the authors themselves point out, the tool was tested only once in a convenience sample of ED patients, and this was only to compare the predicted risks with an already established tool. There was no attempt to follow patients longitudinally to determine how accurately the ASQ predicted either attempted or successful future suicides, or even to determine outcomes of patients referred for further evaluation. A search of PubMed and PsycINFO (a similar database focusing on the psychological literature) using search terms “ASQ and suicide” yielded no further studies after that of Horowitz et al.’s 2012 publication. According to guidelines for evaluating CDRs (McGinn et al., 2000; Shapiro, 2005), the ASQ is in very early stages of development, that is, this report only addressed how the tool was developed and tested in a limited way with one prospective sample. Although the authors presented a very promising start, further studies validating Horowitz et al.’s (2012) findings in larger, more diverse samples are required before the ASQ can be said to be a reliable and valid predictor of suicidality in children and young adults.

MELISSA’S COMMENTS

Suicide is second leading cause of preventable death among adolescents (CDC, 2015), and suicidal ideation and attempts are more common among adolescents than any other age cohort (Miranda, Ortin, Scott, & Shaffer, 2014). Not only is there a real need to detect suicide risk during this developmental stage but there is also a critical need to identify subgroups of adolescents who are at greatest risk to transition from suicidal ideation to attempting and completing suicide. The high morbidity and mortality associated with suicide in adolescents underscore the timeliness and urgent need for a screening tool such as the ASQ.

Studies indicate that 90% of adolescents who attempt and complete suicide will have visited a health care provider within the 12 months prior to their suicide attempt.
(McCarty et al., 2011), making an ED visit a critical opportunity for early detection and intervention. The ASQ prompts adolescents to respond to each question over “the past week” time frame, focusing on very recent thoughts and actions, and does not inquire about characteristics of the suicidal ideation. A recent prospective study by Miranda et al. (2014) among adolescents 12–21 years of age found the frequency of thinking about suicide and the length of time an adolescent thought about suicide (an hour or more) was predictive of a future suicide attempt within a year from screening. It is unclear whether Horowitz et al. (2012) considered these findings as they developed the ASQ; if not, timing may need to be considered in future work validating the instrument.

In 2014, the U.S. Preventative Services Task Force (USPSTF) published its recommendation for screening of suicide risk in primary care settings (LeFevre, 2014). Although the USPSTF’s recommendation was not specific to screening in the ED, its conclusion and supporting evidence, including the need to include adolescents among those screened, cannot be ignored. That said, the USPSTF also acknowledged a need for more and better studies evaluating the risks, benefits, and harms associated with screening patients using specially designed suicide risk assessment tools (LaFevre, 2014). In this initial study by Horowitz et al. (2012), the ASQ instrument demonstrated sensitivity and specificity on the higher end of the range reported by the USPSTF. These promising findings, in addition to the brevity of the scale, make it a potentially useful tool for ED use once validation studies can be completed, and this, in turn, presents an opportunity for ED APRNs and RNs to partner with their research colleagues to conduct validation trials for the ASQ in their own work settings.

CONCLUSION

After entering your orders for a complete blood cell count, chemistry panel, urine drug screen, and urinalysis, you began thinking about Mike’s unusual reaction when you shared your impression and plan. Having recently read about college suicides among high-achieving college students (Scelfo, 2015), you became concerned that Mike might be at increased risk of suicide. While waiting for his laboratory results, you returned to his room to check on him, and in the course of your discussion you expressed concern over his anxiety level. Mike looked down and was quiet for a bit and then said, “You have no idea what it’s like these days. I used to be the top of my class, and now I’m barely able to keep up in some courses. I don’t think I can do this.” You asked him the four questions identified by Horowitz et al. (2012) and learned that although he had never tried to kill himself, in the past few weeks he had thought he would be better off dead; that it would be easier on everyone, and he’d been wondering what the “best” way to kill himself might be. After hearing that, you informed Mike that in addition to ruling out appendicitis, you were very concerned about his thoughts of harming himself and that you would be calling a member of the psychiatric assessment team to talk with him further about the stresses in his life, how best to deal with them, and what services were available at his university. Mike reluctantly agreed stating, “That’s probably not a bad idea.”

REFERENCES


