Published in final edited form as:

J Pediatr Health Care. 2010 ; 24(3): 152–167. doi:10.1016/j.pedhc.2009.03.003.

Identification of Suicide Risk Among Rural Youth: Implications for the Use of *HEADSS*

Virginia Sue Biddle, PhD, RN, CPNP, PMHNP-BC,

53 Harrison Road East, West Chester, PA 19380, Business Phone: 215.955.6593, Home Phone: 610.431.4858, Home Fax: 610.431.4858, E-mail: gingerbiddle@comcast.net, Chair, NAPNAP Development, Behavioral, and Mental Health Special Interest Group, Co-Chair of Pennsylvania's Youth Suicide Prevention Committee, Pediatric Primary Care and Family Psych/Mental Health Nurse Practitioner, Child and Adolescent Psychiatry, Thomas Jefferson University

L. Kathleen Sekula, PhD, APRN-BC,

Coordinator of MSN Forensic Nursing Programs, Associate Professor, School of Nursing, Duquesne University

Rick Zoucha, PhD, APRN, BC, CTN, and

Coordinator of MSN Psychiatric/Mental Health CNS Program and Transcultural/International Nursing Post-Master's Certificate, Associate Professor, School of Nursing, Duquesne University

Kathryn R. Puskar, DrPH, RN, CS, FAAN

Coordinator of Psychiatric CNS Health & Community Systems Masters Program, Professor, School of Nursing, University of Pittsburgh

Abstract

Introduction—Nurse practitioners have the power to detect suicide risk and prevent suicide, a problem plaguing rural areas of the United States. Suicide risk assessment can be completed using the *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) interview instrument. The purpose of this study was to determine if *HEADSS* is appropriate for guiding suicide risk assessment of rural adolescents.

Method—High school students in Southwestern Pennsylvania completed qualitative questions from the Child Behavior Checklist and Coping Response Inventory as part of the *Intervention to Promote Mental Health in Rural Youth*. Qualitative content analysis was performed.

Results—Prominent themes identified by participants included *academic performance*, *relationships*, *dislikes about school*, *friends*, *death*, *mental health*, and the *future*. Several minor themes concerned *safety*. Most known risk factors for suicide were concerns of participants.

Discussion—The expansion of *HEADSS* to include *death* and *safety* should be considered. The modified version—*HEADDSSS*— can be used to guide suicide risk assessment of youth in rural Pennsylvania, ensuring both thoroughness of assessment and safety.

Nurse practitioners are in a prime position to detect suicide risk and prevent suicide, the third leading cause of death for youth 15 through 19 years of age in the United States (Economic Research Service, 2004). Although youth suicide rates have recently declined in the United States, the declines are not evenly distributed (State and Territorial Injury Prevention Directors

Association Rural Youth Suicide Prevention Workgroup, 2008). Western and mountainous states that have rural counties, where the population density is low and residents live in small communities separated by vast landscapes, have the highest youth suicide rates. Nurse practitioners can prevent these suicides because they are often the most prevalent providers, alleviating clinician shortages while providing quality care (National Advisory Committee on Rural Health and Human Services, March 3, 2002). Furthermore, most persons who have died by suicide have had contact with a primary care provider within a month prior to death (Luoma et al., 2002).

One way to prevent suicide is to identify youth at risk and refer them for treatment. A tool that is often used in primary care to guide psychosocial risk assessment is the *HEADSS* interview instrument (*Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression*) (Cohen, Mackenzie, & Yates, 1991). Whether *HEADSS* is an appropriate tool to use with rural youth, particularly for suicide risk assessment, has never been studied. Therefore, the purpose of this research was to determine if *HEADSS* is an appropriate tool for nurse practitioners to use to assess rural youth for suicide risk.

Background

Prevalence

The rate of suicide per 100,000 youth 15 through 19 years of age in the United States decreased from a high of 11.14 in 1990 to 7.66 in 2005 (Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2009). Despite this decrease, suicide rates per 100,000 population in states having large rural areas remain intolerably high. Iowa, Wisconsin, Minnesota, Louisiana, Arkansas, Nebraska, New Mexico, Arizona, Colorado, Nevada, Wyoming, South Dakota, Alaska, North Dakota, and Montana have suicide rates that vary from 10.6 (Iowa) to 26.6 (Montana) for youth 15 through 19 years of age. While Pennsylvania has vast rural areas, its statewide suicide rate for this age group is less than the national rate (6.85 compared to 7.66 in 2005). However, 2,898 years of life (prior to age 65) were lost (Table 1). Furthermore, the suicide rate for the Commonwealth's 48 rural counties combined (7.60) is near the national rate (7.66) (Pennsylvania Department of Health, n.d.). More alarming is that the rate for suicide by firearm for 15 through 19 year olds in rural Pennsylvania was 5.32 for 2005 compared to 3.5 for the U.S. as a whole. These rates may indicate that we are failing to recognize those at risk, perhaps because we are not accurately assessing psychosocial concerns.

Characteristics of Rural Life

Understanding how rural life may contribute to suicide risk is a necessity because "ruralness" has important psychosocial implications, including fewer job opportunities, fewer resources in school, and lower levels of available services such as health care (Heck et al., 2004; Robertson & Husenits, 2007). In Pennsylvania, a greater percentage of rural compared to urban residents do not have health insurance or are insured through Medical Assistance. Twenty-two percent live in areas that have too few health care providers (Pennsylvania Rural Health Association, 2003). Rural children are less likely to receive outpatient mental health services compared to urban children (Robertson & Husenits, 2007). Childhood obesity is now more common in rural than urban regions (Center for Rural Pennsylvania, 2005). More rural than urban children live in households with incomes below the poverty level and are eligible for the Free and Reduced School Lunch Program (Center for Rural Pennsylvania, 2007). More rural households receive food stamps, and fewer rural adults have high school diplomas.

Pennsylvania's rural youth are also placed at risk due to recreation and occupations that pose dangers to their safety and well-being. Risky sports that can injure and kill include snowmobile

and all terrain vehicle riding (Department of Conservation and National Resources, 2004). Potential methods for killing one's self include guns used for hunting and pesticides used on Pennsylvania's farmlands (Hirsch, 2006; Pennsylvania State University, 2005).

The Pennsylvania Department of Health (2000) created the *State Health Improvement Plan: Special Report and Plan to Improve Rural Health Status* to address suicide and other issues. The report focuses on *Healthy People 2010: Understanding and Improving Health* (U.S. Department of Health and Human Services, 2000). Objective 18-1, to reduce the suicide rate for all ages combined from 11.3 per 100,000 in 1998 to 5.0 per 100,000 by 2010, has not been achieved. Suicide rates for all ages combined (11.0) and youth 15 through 19 years of age (6.85) continue to be greater than the target rate of 5.0 (Pennsylvania Department of Health, n.d.).

Risk Factors for Suicide

Problems and concerns of rural youth must be explored and understood in order to detect and prevent suicide. *Risk factors*--conditions or agents that increase the likelihood of problematic behavior and negative outcomes (Jessor, 1991; Jessor, Turbin, & Costa, 2003)—may be associated with or lead to suicide (Education Development Center, n.d.). According to Pfeffer (2002), the recognition of risk factors is the most important endeavor in reducing risk and preventing suicidal behavior. Factors range from self- and parental psychiatric problems and history of suicide attempts to dysfunctional cognition, stressful life events, parental divorce, relationship problems, and socioenvironmental factors that include problems at school or work, sexual orientation, and biological risk factors (Gould & Kramer, 2001) (Table 2). Many studies have investigated risk factors, but none have focused solely on Pennsylvania's rural youth.

Psychosocial issues of Southwestern Pennsylvania's rural high school students were studied by Puskar and colleagues, who surveyed students using quantitative self-report questionnaires. Psychosocial concerns included stressors and coping methods, anxiety, anger, somatic complaints, depression, health, and risk behaviors (Puskar & Martsolf, 1993; Puskar, Ren, Bernardo, Haley, & Stark, 2008; Puskar, Sereika, & Haller, 2003; Puskar, Tusaie-Mumford, Sereika, & Lamb, 1999a and 1999b). Common stressors identified by students were school (exams, tests, and grades), family (fighting with parents and loss of a family member), and friendship/social concerns (girlfriends, boyfriends, and dating) (Puskar & Martsolf). Problems identified in another study included confusion about the future, depression, feeling lonely, trouble at home, suicidal thoughts, lack of a best friend, tobacco and alcohol use, sexual abuse, and general health concerns of both a physiological and psychosocial nature (feeling tired, being overweight, and headaches) (Puskar et al., 1999a). Puskar and colleagues also found that depression, negative life events, anxiety, and drug use were related to anger (Puskar et al., 2008). While these studies contributed greatly to our knowledge about psychosocial problems of rural youth, none concerned suicide risk.

Other studies that addressed psychosocial risk factors used psychological autopsies—tools used by researchers to gather information about persons who died by suicide. Sources include forensic reports, psychiatric and health care records and other documents, and structured interviews of family members, relatives, and friends. The purpose is to synthesize information and identify factors that may have been related to a person's suicide (Isometsa, 2001).

Brent and colleagues conducted psychological autopsies that included both rural and urban youth from the 28 counties in western Pennsylvania (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Brent, Perper, Moritz, Baugher, Schweers & Roth, 1993). All but four of these counties (Allegheny, Beaver, Erie, and Westmoreland) are classified as rural. Risk factors for completed suicides included conduct disorder, substance abuse, mood disorders with nonaffective comorbidity or comorbid with substance abuse, major depression, mixed bipolar

state, past suicide attempts, family history of psychopathology, stressors (parent-child conflict, boy/girlfriend conflict, disruption of a romantic relationship, legal/disciplinary problems), and guns in the home (Brent et al., 1999; Brent, Perper, Moritz, Allman et al., 1993; Brent, Perper, Moritz, Baugher et al., 1993). These studies greatly increased our knowledge of risk factors for suicide, but only families and friends of the deceased could be surveyed. Due to the nature of the studies (psychological autopsies), subjects (deceased youth) could not participate.

A literature search of MEDLINE, CINAHL, and PsycINFO revealed only a few studies concerning suicide risk factors among rural youth who live in other states. Quantitative self-report surveys addressed perceived risk factors for suicide among rural youth in Nevada (Albers & Evans, 1994; Evans, Smith, Hill, Albers, & Neufeld, 1996). Students responded to questions concerning suicidal ideation (Albers & Evans, 1994; Evans et al., 1996) and attempts (Evans et al., 1996), as well as lists of common concerns. The lists were created by focus groups of students. Top concerns identified in both studies included abuse, AIDS, family conflict/relationships with parents and step-parents, alcohol/substance abuse, pregnancy, and what to do after high school (Albers & Evans, 1994; Evans et al., 1996). Other concerns included quality of education, paying for education after high school, making decisions, obtaining a satisfying job, family bills (Albers & Evans, 1994), psychological/emotional problems, relationship/dating issues, and sexuality issues other than pregnancy (Evans et al., 1996).

A secondary analysis of female adolescent smokers in rural Virginia was conducted using quantitative data from the Youth Risk Behavior Survey and the Teen Assessment Project (Huebner et al., 2005). Female adolescents who previously smoked but had not smoked during the past 30 days had fewer suicide attempts, fewer suicidal thoughts, and less depression compared to those who smoked during the past 30 days.

None of the studies reviewed provided adolescents with the opportunity to express concerns in their own words. This is important because self-descriptions can help clinicians understand the perspectives of youth and become more sensitive to their problems and concerns. Furthermore, causes of psychosocial issues, including suicidal ideation, could not be determined.

Although the types of psychosocial concerns discussed in the literature review can be viewed as problematic, one might be inclined to argue that they are part of normal adolescence. While adolescence can be an exciting time, too many new experiences can be overwhelming, especially to those who are already vulnerable in any way (Petersen, Leffert, & Graham, 1995). Furthermore, adolescence is a phase that includes a predominance of risk-taking behavior and special dangers (Remschnidt, 1994). The outcome and timing of pubertal processes can be affected by psychosocial factors. Therefore, identification of problems and concerns is essential.

Status of Evidence Based Practice

No studies exist concerning the value of suicide risk assessment in primary care. Research concerning screening instruments, impact of screening on suicide completions and attempts, and treatment outcomes for primary care patients is needed. Thus, the United States Preventive Services Task Force (2004) does not recommend for or against screening.

The American Academy of Pediatrics (AAP), however, recommends that pediatricians ask questions to elicit known risk factors for suicide, inquiring into suicidal thoughts or concerns (Shain, 2007). The American Medical Association's (AMA) *Guidelines for Adolescent Preventive Services* (GAPS) include asking all adolescents annually about emotions or behaviors that indicate severe or recurrent depression or suicide risk (Department of Adolescent Health, 1997). The Institute of Medicine's Committee on Pathophysiology and Prevention of

Adolescent and Adult Suicide (Goldsmith, Pelmar, Kleinman, & Bunney, 2002) recommends that risk factors for suicide be uncovered during primary care visits. According to the committee, both primary care providers and those who deal with special high-risk populations such as adolescents have an important role in the identification and referral of patients at risk for suicide.

Conceptual Framework

The theoretical basis for suicide risk assessment using *HEADSS* is the model proposed by Kral and Sakinofsky (1994). In this model, suicide risk assessment is performed by assessing two tiers of risk factors: (1) *background* risk factors, and (2) *subjective* risk factors.

Background risk factors include sociodemographic and related indices correlated with increased risk of suicide (Kral & Sakinofsky, 1994). They are based on different populations, cultures, and cohorts, and inform clinicians about a client's general level of risk. Many of the indices change over time. Therefore, they should be assessed at every visit. One background factor alone may not be very meaningful, but, as background factors accumulate, the risk for suicide increases. The assessment of background factors (e.g. recent loss and alcohol abuse) can provide the means for assessing the second tier of risk factors—*subjective* factors.

The identification of *subjective* factors that concern psychological state includes the assessment of mental state, experience, thinking, emotions, and personal meaning and experience of distress (Kral & Sakinofsky, 1994). Clinicians must assess *perturbation* (degree of upset, disturbance, anguish, discomfort, turmoil, hopelessness, dread, tension, discomfort, or other excessive psychological pain), *lethality* (consciously selecting suicide as a viable option, then as a specific option, and eventually as the only option to alleviate perturbation), and *cognitive constriction* (tunnel vision or a narrowing of options to two and ultimately one—suicide).

HEADSS Interview Instrument

We recommend psychosocial assessment of *background* and *subjective* risk factors using *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) (Table 2). *HEADSS* is a psychosocial interview designed to prompt health care professionals to ask questions about areas they might otherwise ignore or forget (Cohen et al., 1991). It helps clinicians focus on stressors that may contribute to mental and physical illness. The process involved in conducting the interview and ordering the questions allows the provider to develop a relationship with the client. The interview begins with less emotionally charged concerns, such as home, and progresses to sensitive concerns, such as sexuality. Youth welcome the opportunity to discuss topics that they may think are outside of the provider's interests and often appreciate the extra interest taken in them. In order for the interview to be successful, clinicians must set the stage by making it safe to talk about charged issues such as suicide (Clark & Ginsburg, 1995, Winter; Cohen et al., 1991).

Questionnaires such as the Suicidal Behaviors Interview, Suicide Probabilities Scale, and Multi-Attitude Suicide Tendency Scale (Cull & Gill, 1988; Orbach et al., 1991; Reynolds, 1990, 1991) may complement suicide risk assessment using *HEADSS*. However, they should not substitute for assessment by providers (Simon, 2002).

Assessments that were completed using *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) for 1,015 new homeless/runaway clients at a High Risk Youth Clinic in Los Angeles were compared to assessments for non-homeless youth (Cohen et al., 1991). Homeless teens were far more likely to be depressed, to experience current suicidal ideation, and to have dropped out of school. They were six times

more likely to be at risk for HIV and to have engaged in their first sexual intercourse at a younger age. They also had a higher incidence of prostitution and sexual abuse.

Although further research concerning *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) is needed, a prospective interventional investigation showed that documentation of *HEADSS* categories was increased when the acronym was stamped on charts prior to medical interview (Van Amstel, Lafleur, & Blake, 2004). However, a review of 100 adolescent inpatient records showed that screening using *HEADSS* was complete in only 7 charts (all 7 domains were screened), thorough in only 3 charts (5–6 domains were screened), inadequate in 29 charts (1–4 domains were screened), and absent from 62 charts (0 domains were screened) (Yeo, Bond, & Sawyer, 2005). Perhaps *HEADSS* is not an appropriate tool for inpatient settings or perhaps clinicians must be more diligent in assessing for psychosocial risk. No studies have determined if *HEADSS* is an effective acronym to use to assess psychosocial risk of rural youth. This is the first study to do so.

Purpose

The purpose of this study was to determine if *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) is an appropriate tool to use for suicide risk assessment of rural youth. The research questions included the following: (1) *What are the self-identified problems and concerns of rural high school students in Southwestern Pennsylvania?* (2) *Do identified problems and concerns include known risk factors for suicide?* and (3) *Do the problems and concerns of participants in this study fit the domains of the HEADSS assessment or should a modified version of HEADSS be used when performing risk assessment of rural youth?*

Methodology

This study was a secondary analysis of qualitative data collected during Phase I of the *Intervention to Promote Mental Health in Rural Youth*, a two-phase study that was funded by the National Institute of Nursing Research (NINR) of the National Institutes of Health (NIH). Purposes of Phase I of the study were to: (1) determine the prevalence of symptoms of anxiety in the sample of rural youth, (2) identify relationships among anxiety symptoms, depressive symptoms, and somatic complaints, and (3) determine how somatic complaints predict depression and anxiety. The goal of Phase II was to test the effectiveness of a nurse-managed intervention in increasing coping, social support, and self-esteem of rural students.

Many beliefs, understandings, and life experiences that place youth at risk are difficult to quantify, but they must be assessed and evaluated (Rich & Ginsburg, 1999). Health care providers use qualitative techniques every day when they ask open-ended questions and analyze responses. In a similar manner, open-ended questions were asked of participants in this study and a secondary analysis of the data was performed.

Participants and Setting

The sample for Phase I of the study included 466 adolescents drawn from four rural high schools in Southwestern Pennsylvania. Students were predominantly Caucasian (97%), and included 9th (42.3%), 10th (27.7%), 11th (27.9%), and 12th graders (2.1%). Physical and mental health were assessed using a baseline battery of self-report instruments including the Screen for Child Anxiety Related Emotional Disorders (SCARED), the Reynolds Adolescent Depression Scale (RADS), the Child Behavior Checklist-Youth Self-Report (CBCL-YSR), and the Coping Response Inventory-Youth (CRI-Y).

Data Collection

Consent was granted for the quantitative and qualitative portions of the study by the Institutional Review Board of the University of Pittsburgh. Letters of support for the *Intervention to Promote Mental Health in Rural Youth* were sent by high school administrators to the researchers. Parents, students, and teachers were given an informational letter about the study. The letter and consent forms were distributed during health class and assemblies. Criteria for participation included enrollment in regular, college preparatory, or honors classes, and ability to read and write in English. After consent was obtained, research associates (master level nurses) administered nine questionnaires to students for one and one-half hours during school time.

Data was obtained from written qualitative narratives included on the Child Behavior Checklist-Youth Self-Report (CBCL-YSR) and the Coping Response Inventory-Youth (CRI-Y). The CBCL-YSR can be completed by 11 through 18-year-old adolescents to describe their own problems and competencies (Achenbach & Ruffle, 2000). The following open-ended qualitative questions that were used in this study were designed to provide background information and starting points for interviews (Achenbach, 1991): (a) "Please describe any concerns or problems you have about school," and (b) "Please describe any other concerns you have."

The Coping Response Inventory-Youth (CRI-Y) is a 48-item instrument that assesses how adolescents cope with problems (Moos, 1993). The first 10 questions concern the problem described in the open-ended qualitative question that was used in this study. That question—"Describe the problem or situation"—is located at the beginning of the questionnaire.

Data Analysis

Content analysis was the qualitative technique used to examine responses and inductively derive themes from the data (Denzin & Lincoln, 1998). Analyses followed a *summative* approach in which key words were identified and quantified (Hsieh & Shannon, 2005). The following process involved isolating, interpreting, and counting themes (Denzin & Lincoln, 1998).

1. All problems and concerns of participants were entered into Microsoft Excel.
2. Codes, units of meaning, were assigned to individual problems and concerns.
3. Themes were then identified by comparing the codes to each other and grouping those that were most similar. Fifty-one themes were identified, some by a large number of participants (47.9%, $n = 223$) and others by as few as one participant (0.2%). Because of this variation, we needed to determine criteria for classifying themes as prominent and non-prominent (*minor*). We decided to look at the number of participants who identified the six most common themes (top 10% of themes). That number ranged from 56 (12.0%) to 223 (47.9%). Therefore, we decided to consider all themes that were identified by at least 56 participants to be prominent themes. Minor (non-prominent) themes were identified by 55 or fewer participants.
4. Themes were also mapped to the domains of the *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) acronym. We assessed whether the *HEADSS* acronym is comprehensive enough for assessing all prominent themes identified in this study and whether modification of *HEADSS* would help to ensure that all themes are assessed during a *HEADSS* interview.

Strategies for Validating Findings

Findings were validated by having a second coder code the data. The second coder was a doctorally prepared psychiatric clinical nurse specialist and qualitative researcher who was a member of the research team. Codes to be used were discussed, and each coder coded the data independently. Results were compared. Inter-rater reliability was 95%. Differences were discussed, and final coding was completed.

Findings

Prominent themes identified in the study included *academic performance, relationships, dislikes about school, friends, death, mental health*, and the *future* (Table 3). Several minor themes were also identified (Table 4). Direct quotations are contained in Tables 3 and 6.

Academic performance

A number of participants were insightful about their academic achievement, taking problems with school performance seriously. Some were concerned about earning high grades while others were concerned about passing grades. Problems ranged from trouble understanding particular subjects to having a job that interfered with study time, negatively impacting grades. Concerns were also raised about the level of difficulty of classes and people not understanding what a difficult time they were having grasping material. Some students who were likely performing well in school were concerned about grades being high enough to make the honor roll or about being at the top of their class.

Relationships

The second prominent theme involved *relationships*. Participants had insight into their own relationship problems, including those with family members and significant others. Concerns about parents included divorce or separation, affairs (“cheating” on the other parent), not getting along with step-parents, not getting enough love at home, arguing with parents, not seeing each other’s point of view, and not spending enough time with parents. Other problematic situations included living with grandparents, fighting with family members over “stupid” things, and fighting or breaking up with girlfriends or boyfriends.

Dislikes about school

Participants identified several things that they disliked about school, ranging from quality of the education to quality of the food. Some were concerned about preparation for college, including whether or not they were taking enough college prep classes. Other students thought that their classes were not challenging enough or “moved too slowly.” Additional concerns included the choice of electives and lack of athletics. A few participants disliked particular teachers or coaches, and some accused school personnel of favoritism. Others made suggestions that would improve their educational experience, such as upgrading computers. Complaints were also made about rude people, long hours, small schools, the dress code for physical education, short lunch periods, vending machines purposely turned off, uncomfortable temperatures (too cold or too hot), and the poor condition of restrooms.

Friends

Participants had several concerns about friends. These concerns may have had a negative effect on the participants themselves, their friends, or both. Students discussed fighting with friends and losing them as a result, or fighting with a friend over a girl. In some cases, close contact would be lost because friends were moving away or would graduate soon. Some students struggled to make new friends. Other concerns about friends included depression, suicide attempts, trying to control each other’s lives, not getting along with parents, pregnancy, making

poor choices, drinking and using drugs, overdosing, allegedly being abused, illness, anorexia, and belonging to gangs. Others were concerned about the way they were treated by friends, reporting that they had been “stabbed in the back” or lied to. Some participants were also concerned about not having enough time to spend with friends and trying to please friends.

Death

Another prominent theme was death. Concerns included the deaths of relatives (parents, grandparents, aunts, uncles, and cousins), friends, and a pet. One student discussed how his mother developed cancer and died. Another felt sad because her grandmother died when she was a child, and her grandfather died just one year ago. One participant lost a close aunt over Fourth of July weekend. Another discussed losing a “blood brother” as well as a best friend who died in gang violence. A male student suffered a significant loss when his friend’s father died, and another was concerned about the death of his 19 year old neighbor who killed himself. An additional concern was “What happens to you when you die?”

Mental Health

A variety of mental health problems were discussed. Depression and suicide attempts were the most concerning problems of participants. One student experienced depression combined with anxiety. Jealousy, self-consciousness, worrying about what others think, worry in general, family dysfunction, rebelling against parents, stress, and being angry over little things also had negative impact on the mental health of participants and their ability to function. Others were concerned about being happy or finding reasons to be happy.

Future

Students who participated in the current study also expressed concerns about the future. Some participants wondered what life will be like after they graduate from high school, whether jobs will be available, and how they will earn a living. Related concerns included money and the possibility of not succeeding in life. Another student was concerned about not being able to play pro basketball. College was an important future concern, with some participants wondering if they would be able to go to college. Some students had not decided upon a career. Others were concerned about their personal lives. One wondered if marriage would lead to divorce and another wondered if he could handle life in the real world.

Discussion

The qualitative questions asked in this study added to our knowledge about the use of *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) for suicide risk assessment of rural youth. We explored self-reported psychosocial problems and concerns of rural adolescents in Southwestern Pennsylvania, identified themes in the data, compared those themes to known risk factors for suicide, and determined if *HEADSS* is comprehensive enough to use as a guide for suicide risk assessment of Southwestern Pennsylvania rural youth based on identified themes. Three questions were addressed.

What are the self-identified problems and concerns of rural high school students in Southwestern Pennsylvania?

Using qualitative content analysis, we identified the prominent *themes of academic performance, relationships, dislikes about school, friends, death, mental health, and the future* (Table 3). Several minor themes were also identified (Table 4). Most problems and themes were discussed in prior Puskar studies of Southwestern Pennsylvania rural youth, including stressors (school, family, loss of a family member, friends, dating), the future,

loneliness, friends, suicide, drugs and alcohol, depression, anxiety, anger, somatic complaints, and risk behaviors (Puskar & Martsof, 1993; Puskar et al., 2003; Puskar et al., 1999a and 1999b). The prominent themes of dislikes about school and death of friends were identified in this study only. Perhaps the qualitative nature of the questions enabled participants to discuss particular concerns such as dislikes about school. These dislikes may have been due to the inability of school districts to provide particular services and amenities because of limited tax revenue (Center for Rural Pennsylvania, 2007, September/October). Concerns about the death of friends were also identified in this study only. At least two friends who died were adults (the friend of a father and a neighbor) rather than peers. Perhaps this demonstrates features of rural culture—that residents know one another and one another's families, and that they have a strong sense of loyalty to each another, especially during crises (State and Territorial Injury Prevention Directors Association Rural Youth Suicide Prevention Workgroup, 2008).

Several psychosocial issues identified by rural youth in states other than Pennsylvania were also identified by participants in this study, including mental health concerns, stressors, relationship and family issues, illness and deaths of significant others, and future plans. Sexuality issues, abuse, and drug and substance use were only discussed by a small number of participants (minor themes). Perhaps participants were concerned about confidentiality, despite reassurances. AIDS was discussed by just one student as the cause of death of a cousin. Perhaps AIDS was not a prominent concern because only seven percent of AIDS cases in Pennsylvania have occurred in rural areas (Center for Rural Pennsylvania, 2000, July/August). Another concern, paying for education after high school, was not discussed. Participants may have expected to obtain financial aid or scholarships. A few were concerned about being prepared for college or being accepted into a "good" college. Others wondered if they would attend college at all.

Do identified problems and concerns include known risk factors for suicide?

Most risk factors for suicide were themes in this study (Table 2). These factors included problems with family relationships and other interpersonal conflicts, lack of support, school problems, legal issues and violence, substance abuse, neglect and abuse, forced sexual relations, history of suicide attempts and attempts by family and friends, family psychopathology, conduct problems, self-esteem issues, hopelessness, stressful life events, losses, extreme perceptions of weight, physical illness, and low psychosocial adjustment. Risk factors that were *not* identified by rural participants included *not* being in school (since only active high school students participated in this study). In addition, no participants discussed dropping out of school, although some were concerned about earning passing grades. None discussed carrying a weapon at school, although one participant was concerned about a gun being stolen. Perhaps the lack of concern about firearms is an indication of the acceptability of guns in rural areas. Other concerns that were not discussed in this study included binge drinking, gay/lesbian/bisexual/unsure status and mobility impairments. This may have been due to concerns about confidentiality, despite reassurances. Whether any participants had mobility impairments is unknown. While physical/emotional/sexual abuse was an identified problem, it is unknown whether any participants experienced a lifetime history of abuse, another risk factor for suicide. No information was available about the use of formal (teacher, minister/priest, clinician) or family networks.

Do the problems and concerns of participants in this study fit the domains of the HEADSS assessment or should a modified version of HEADSS be used when performing suicide risk assessment of rural youth?

Except for death and safety, all themes identified in this study are an obvious part of existing HEADSS domains (Table 5). Death is important because suffering the loss of a preexisting relationship due to death has been identified as a risk factor for suicide (Brent, Perper, Moritz,

Baughner, Roth et al., 1993). Several minor themes identified in this study concerned safety, an important topic addressed by nurse practitioners via counseling (Anonymous, 1998) (Table 6). Since threats to safety may result in morbidity and mortality, the addition of Safety to *HEADSS* must be considered. In their study of adolescents who presented to an emergency department with non-fatal firearm injuries, Paris et al. (2002) added Safety. Goldenring and Rosen (2004) added *Eating and Safety*. Mattel Children's Hospital of UCLA (*Counsel Teens About Drugs and Alcohol*, 2001, September) suggested that the Ss represent Sexual identify or activity, Suicide or depression, and Safety.

Perhaps Viner's (2003) view of *HEADSS* (Home, Education, Activities, Drug use and abuse, Sexual behavior, and Suicidality and depression) is correct. He referred to the *Suicide* domain as "shorthand" for self-harming behavior, depression, and other mood disturbances. The meaning of *HEADSS* "shorthand" may depend upon the interpretation and experience of the individual clinician. Thus, whether to expand *HEADSS* may depend upon clinician preference. However, we believe that the safest and most thorough approach based on the results of this study may be to expand *HEADSS* to *HEADDSSS*--Home, Education, Activities, Death, Drug use and abuse, Sexual behavior, Safety, and Suicidality and depression. The remaining themes identified in this study could be incorporated into existing domains (Table 5).

Limitations and Future Considerations

The current study had several limitations. Because it was a secondary analysis of qualitative data, it did not provide an opportunity to study the use of *HEADSS* in clinical practice. The study was also limited to adolescents in rural Southwestern Pennsylvania. Results may not apply to other rural areas or cultures. Questionnaires were administered to participants sequentially, and some responses may have been influenced by previous questions or answers. Since data was analyzed after data collection ended, there were no opportunities to clarify meaning with participants. An additional limitation was the reliance on student self-report. Problems and concerns were based on participant perceptions. Problems such as drug use were discussed, but frequency of use was not obtained. Despite reassurances, students may not have reported concerns about drug/substance use, safety, sexuality, and mental health due to concerns about confidentiality. In addition, some students chose not to participate in this study. Their problems and concerns are unknown. Despite these limitations, themes identified in this study included most risk factors for suicide and several psychosocial problems identified in the literature review.

Future research should include duplication of this study with rural populations having high adolescent suicide rates. This will help to determine if *death* and *safety* or any other domains need to be added to *HEADSS*. Clinical charts must be audited to determine if risk assessments using *HEADSS* are documented and thorough, that appropriate mental health referrals have been made, that youth are participating in treatment, and that rates for suicides and suicide attempts are declining. In order for referrals to occur, mental health outpatient services must be available to rural youth. Telepsychiatry, a method of providing mental health services via phone, the Internet, and one- or two-way televideo, is currently being piloted in Greene County in Pennsylvania (Office of Mental Health and Substance Abuse Services, 2006).

Summary and Implications

The purpose of this qualitative secondary analysis was to determine if *HEADSS* is an appropriate interview instrument to use for suicide risk assessment of rural youth. The study added to our knowledge about *HEADSS* by providing initial evidence that two new domains, *death* and *safety*, may need to be added to *HEADSS*. Expanding *HEADSS* would help to ensure that risk assessments are thorough and that clients remain safe. The modified version,

HEADDSSS (Home, Education, Activities, Death, Drug use and abuse, Sexual behavior, Safety, and Suicidality and depression), is the expanded acronym that can be used for suicide risk assessment of rural youth in Southwestern Pennsylvania. The remaining prominent themes from this study—*academic performance, relationships, dislikes about school, friends, mental health*, and the *future*—can be assessed using the original *HEADSS* domains (Home, Education, Activities, Death, Drug use and abuse, Sexual behavior, and Suicidality and depression).

Many known risk factors for suicide were concerns of participants in this study. The study showed that these factors can be incorporated into domains of the modified *HEADDSSS* acronym, illustrating its comprehensiveness in the identification of suicide risk.

This study must be duplicated with other rural adolescent populations to determine if *HEADDSSS* is the most appropriate interview instrument for suicide risk assessment of America's rural youth. The goal is to prevent the lost years of life, grief, guilt, and devastation that suicide brings to individuals, families, and communities.

Acknowledgments

Funded by the National Center for Nursing Research, Grant 5R01NR003616-03

References

- Achenbach, TM. Manual for the youth self-report and 1991 profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Achenbach TM, Ruffle TM. The Child Behavior Checklist and related forms for assessing behavioral/emotional problems and competencies. *Pediatrics in Review* 2000;21:265–271. [PubMed: 10922023]
- Albers E, Evans W. Suicide ideation among a stratified sample of rural and urban adolescents. *Child & Adolescent Social Work Journal* 1994;11:379–389.
- Anonymous. Put prevention into practice. Safety. *Journal of the American Academy of Nurse Practitioners* 1998;10(5):221–223. [PubMed: 9801557]
- Bearman PS, Moody J. Suicide and friendships among American adolescents. *American Journal of Public Health* 2004;94:89–95. [PubMed: 14713704]
- Blum RW, Kelly A, Ireland M. Health-risk behaviors and protective factors among adolescents with mobility impairments and learning and emotional disabilities. *Journal of Adolescent Health* 2001;28:481–490. [PubMed: 11377992]
- Borowsky IW, Ireland M, Resnick MI. Adolescent suicide attempts: Risks and protectors. *Pediatrics* 2001;107:485–493. [PubMed: 11230587]
- Brent DA. Firearms and suicide. *Annals of the New York Academy of Sciences* 2001;932:225–240. [PubMed: 11411188]
- Brent DA, Baugher M, Bridge J, Chen T, Chiappetta L. Age- and sex-related risk factors for adolescent suicide. *Journal of the American Academy of Child & Adolescent Psychiatry* 1999;38:1497–1505. [PubMed: 10596249]
- Brent DA, Moritz G, Bridge J, Perper J, Canobbio R. Long-term impact of exposure to suicide: A three-year controlled follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry* 1996;35:646–653. [PubMed: 8935212]
- Brent DA, Perper JA, Moritz G, Allman C, Friend A, Roth C, et al. Psychiatric risk factors for adolescent suicide: A case-control study. *Journal of the American Academy of Child & Adolescent Psychiatry* 1993;32:521–529. [PubMed: 8496115]
- Brent DA, Perper JA, Moritz G, Baugher M, Roth C, Balach L, et al. Stressful life events, psychopathology, and adolescent suicide: A case control study. *Suicide & Life-Threatening Behavior* 1993;23:179–187. [PubMed: 8249030]

- Brent DA, Perper JA, Moritz G, Baugher M, Schweers J, Roth C. Firearms and adolescent suicide. A community case-control study. *American Journal of Diseases of Children* 1993;147:1066–1071. [PubMed: 8213677]
- Center for Rural Pennsylvania. Reported cases of AIDS declines in PA. Newsletter. 2000 July/August. Retrieved October 5, 2008, from <http://www.ruralpa.org/news0700.html#f>
- Center for Rural Pennsylvania. Overweight children in Pennsylvania. 2005. Retrieved July 24, 2005, from http://www.ruralpa.org/Overweight_child.pdf
- Center for Rural Pennsylvania. Rural by the numbers: A look at Pennsylvania's rural population. 2007. Retrieved August 31, 2007, from http://www.ruralpa.org/Rural_by_numbers07.pdf
- Center for Rural Pennsylvania. Act 50's impact on local taxes. 2007 September/October. Retrieved October 5, 2008, from <http://www.ruralpa.org/news0907.html#6>
- Centers for Disease Control and Prevention. Fatal and nonfatal suicide attempts among adolescents--Oregon, 1988–1993. *Morbidity & Mortality Weekly Report* 1995;44(16):312–315. [PubMed: 7715589]
- Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS) Fatal Injuries: Mortality Reports. National Center for Injury Prevention and Control. 2009. Retrieved May 11, 2009, from <http://webappa.cdc.gov/sasweb/ncipc/>
- Clark LR, Ginsburg KR. How to talk to your teenage patients. *Contemporary Adolescent Gynecology* 1995 Winter;:23–27.
- Cohen E, Mackenzie RG, Yates GI. HEADSS, a psychosocial risk assessment instrument: Implications for designing effective intervention programs for runaway youth. *Journal of Adolescent Health* 1991;12:539–544. [PubMed: 1772892]
- Counsel Teens About Drugs and Alcohol. 2001 Sep. Retrieved September 3, 2005, from <http://www.healthcare.ucla.edu/physicians/pediatric-updates/Pediatric-Update-Fall-2001.pdf>
- Cull, J.; Gill, WS. Suicide probability scale (SPS) manual. Los Angeles: Western Psychological Services; 1988.
- Denzin, NK.; Lincoln, YS., editors. Collecting and interpreting qualitative materials. Thousand Oaks, CA: Sage Publications; 1998.
- Department of Adolescent Health, American Medical Association. Guidelines for Adolescent Preventive Services (GAPS): Recommendations Monograph. 1997. Retrieved January 9, 2008, from <http://www.ama-assn.org/ama/upload/mm/39/gapsmono.pdf>
- Department of Conservation and National Resources, Commonwealth of Pennsylvania. Pennsylvania snowmobile and ATV guide. 2004. Retrieved August 31, 2007, from <http://www.dcnr.state.pa.us/forestry/atv/ATVGuide.pdf>
- Economic Research Service, United States Department of Agriculture. Briefing room. Measuring rurality: Rural-Urban Continuum Codes. 2004. Retrieved September 28th, 2004, from <http://www.ers.usda.gov/Briefing/Rurality/RuralUrbCon/>
- Education Development Center, Inc., Suicide Prevention Resource Center, Substance Abuse and Mental Health Services Administration. (n.d.). Risk and protective factors for suicide. Retrieved September 5th, 2006, from <http://www.sprc.org/library/srisk.pdf>
- Evans W, Smith M, Hill G, Albers E, Neufeld J. Rural adolescent views of risk and protective factors associated with suicide. *Crisis Intervention & Time-Limited Treatment* 1996;3(1):1–12.
- Field T, Diego M, Sanders CE. Adolescent suicidal ideation. *Adolescence* 2001;36(142):241–248. [PubMed: 11572303]
- Goldenring JM, Rosen DS. Getting into adolescent heads: An essential update. *Contemporary Pediatrics* 2004;21:64–90.
- Goldsmith, SK.; Pelmar, TC.; Kleinman, AM.; Bunney, WE., editors. Reducing suicide: A national imperative. Washington, D.C: The National Academies Press; 2002.
- Gould MS, Fisher P, Parides M, Flory M, Shaffer D. Psychosocial risk factors of child and adolescent completed suicide. *Archives of General Psychiatry* 1996;53:1155–1162. [PubMed: 8956682]
- Gould MS, Kramer RA. Youth suicide prevention. *Suicide & Life-Threatening Behavior* 2001;31:6–31. [PubMed: 11326760]

- Heck, KE.; Borba, JA.; Carlos, R.; Churches, K.; Donohue, S.; Fuller, AH. California's rural youth. 2004. Retrieved January 20, 2005, from <http://fourhcyd.ucdavis.edu/extending/specialreports.html>
- Hirsch JK. A review of the literature on rural suicide: Risk and protective factors, incidence, and prevention. *Crisis: The Journal of Crisis Intervention and Suicide Prevention* 2006;27(4):189–199.
- Hsieh H, Shannon SE. Three approaches to qualitative content analysis. *Qualitative Health Research* 2005;15:1277–1288. [PubMed: 16204405]
- Huebner AJ, Shettler L, Matheson JL, Meszaros PS, Piercy FP, Davis SD. Factors associated with former smokers among female adolescents in rural Virginia. *Addictive Behaviors* 2005;30(1):167–173. [PubMed: 15561457]
- Isometsa ET. Psychological autopsy studies--a review. *European Psychiatry: the Journal of the Association of European Psychiatrists* 2001;16(7):379–385. [PubMed: 11728849]
- Jessor R. Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health* 1991;12:597–605. [PubMed: 1799569]
- Jessor R, Turbin MS, Costa FM, Dong Q, Zhang H, Wang C. Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence* 2003;13:329–360.
- Kaplan SJ, Pelcovitz D, Salzinger S, Mandel F, Weiner M, Labruna V. Adolescent physical abuse and risk for suicidal behaviors. *Journal of Interpersonal Violence* 1999;14:976–988.
- Klomek AB, Marrocco F, Kleinman M, Schonfeld IS, Gould MS. Bullying, depression, and suicidality in adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry* 2007;46:40–49. [PubMed: 17195728]
- Kral MJ, Sakinofsky I. Clinical model for suicide risk assessment. *Death Studies* 1994;18:311–326.
- Lewinsohn PM, Rohde P, Seeley JR. Psychosocial characteristics of adolescents with a history of suicide attempt. *Journal of the American Academy of Child & Adolescent Psychiatry* 1993;32:60–68. [PubMed: 8428885]
- Lipschitz DS, Winegar RK, Nicolaou AL, Hartnick E, Wolfson M, Southwick SM. Perceived abuse and neglect as risk factors for suicidal behavior in adolescent inpatients. *Journal of Nervous & Mental Disease* 1999;187(1):32–39. [PubMed: 9952251]
- Luoma JB, Martin CE, Pearson JL. Contact with mental health and primary care providers before suicide: A review of the evidence. *American Journal of Psychiatry* 2002;159(6):909–916. [PubMed: 12042175]
- Mazza JJ, Eggert LL. Activity involvement among suicidal and nonsuicidal high-risk and typical adolescents. *Suicide and Life-Threatening Behavior* 2001;31:265–281. [PubMed: 11577912]
- Moos, R. Coping response inventory. Odessa, FL: Psychological Assessment Resources; 1993.
- National Advisory Committee on Rural Health and Human Services, U. S. Department of Health and Human Services. National Advisory Committee on Rural Health Meeting Summary. Mar 3. 2002 Retrieved August 17, 2008, from <http://ruralcommittee.hrsa.gov/March2002/March2002minutes.htm>
- Neiger BL, Hopkins RW. Adolescent suicide: Character traits of high-risk teenagers. *Adolescence* 1988;23(90):469–475. [PubMed: 3044017]
- Noell JW, Ochs LM. Relationship of sexual orientation to substance use, suicidal ideation, suicide attempts, and other factors in a population of homeless adolescents. *Journal of Adolescent Health* 2001;29:31–36. [PubMed: 11429303]
- O'Donnell L, O'Donnell C, Wardlaw DM, Stueve A. Risk and resiliency factors influencing suicidality among urban African American and Latino youth. *American Journal of Community Psychology* 2004;33:37–49. [PubMed: 15055753]
- O'Donnell L, Stueve A, Wardlaw D, O'Donnell C. Adolescent suicidality and adult support: The Reach for Health Study of urban youth. *American Journal of Health Behavior* 2003;27:633–644. [PubMed: 14672394]
- Office of Mental Health and Substance Abuse Services. Service Area Plan Resource and Networking Guide. 2006. Retrieved August 31, 2007, from http://www.dpw.state.pa.us/Resources/Documents/Pdf/AnnualReports/SAP_Resource-NetworkGuide.pdf

- Orbach I, Milstein I, Har-Even D, Apter A, Tiano S, Elizur A. A multi-attitude suicide tendency scale for adolescents. *Psychological Assessment: A Journal of Consulting and Clinical Psychology* 1991;3:398–404.
- Paris CA, Edgerton EA, Sifuentes M, Seidel JS, Lewis RJ, Gausche M. Risk factors associated with non-fatal adolescent firearm injuries. *Injury Prevention* 2002;8:147–150. [PubMed: 12120835]
- Pennsylvania Department of Health. State Health Improvement Plan: Special Report and Plan to Improve Rural Health Status. 2000. Retrieved April 25, 2007, from http://www.dsf.health.state.pa.us/health/lib/health/old_dir/pdf/hpa/ship/ruralship.pdf
- Pennsylvania Department of Health. (n.d.). EpiQMS, Resident deaths: Suicide (intentional self-harm). Retrieved September 11th, 2006, from http://app2.health.state.pa.us/epiqms/Asp/SelectParams_Tbl.asp
- Pennsylvania Rural Health Association. Status check III. Pennsylvania rural health care. 2003. Retrieved August 1, 2008, from <http://porh.psu.edu/publications/statusiii.pdf>
- Pennsylvania State University. Pesticide Education. 2005. Retrieved July 15, 2008, from <http://www.pested.psu.edu/>
- Perkins DF, Hartless G. An ecological risk-factor examination of suicide ideation and behavior of adolescents. *Journal of Adolescent Research* 2002;17:3–26.
- Petersen AC, Leffert N, Graham BL. Adolescent development and the emergence of sexuality. *Suicide & Life-Threatening Behavior* 1995;25(Suppl):4–17. [PubMed: 8553427]
- Pfeffer CR. Suicide in mood disordered children and adolescents. *Child & Adolescent Psychiatric Clinics of North America* 2002;11(3):639–647. [PubMed: 12222087]
- Puskar, KR.; Martsolf, D. Stress in rural families. In: Fawcett, CS., editor. *Family psychiatric nursing*. Mosby; St. Louis, MO: 1993. p. 213–223.
- Puskar K, Ren D, Bernardo LM, Haley T, Stark KH. Anger correlated with psychosocial variables in rural youth. *Issues in Comprehensive Pediatric Nursing* 2008;31(2):71–87. [PubMed: 18569198]
- Puskar KR, Sereika SM, Haller LL. Anxiety, somatic complaints, and depressive symptoms in rural adolescents. *Journal of Child and Adolescent Psychiatric Nursing* 2003;16:102–111. [PubMed: 14603986]
- Puskar KR, Tusaie-Mumford K, Sereika SM, Lamb J. Health concerns and risk behaviors of rural adolescents. *Journal of Community Health Nursing* 1999a;16(2):109–119. [PubMed: 10349821]
- Puskar KR, Tusaie-Mumford K, Sereika SM, Lamb J. Screening and predicting adolescent depressive symptoms in rural settings. *Archives of Psychiatric Nursing* 1999b;13:3–11. [PubMed: 10069097]
- Remschnidt H. Psychosocial milestones in normal puberty and adolescence. *Hormone Research* 1994;41 (Suppl 2):19–29. [PubMed: 8088699]
- Reynolds WM. Development of a semistructured clinical interview for suicidal behaviors in adolescents. *Psychological Assessment: A Journal of Consulting and Clinical Psychology* 1990;2:382–390.
- Reynolds WM. A school-based procedure for the identification of adolescents at risk for suicidal behaviors. *Family and Community Health* 1991;14:64–75.
- Rich M, Ginsburg KR. The reason and rhyme of qualitative research: Why, when, and how to use qualitative methods in the study of adolescent health. *Journal of Adolescent Health* 1999;25:371–378. [PubMed: 10608576]
- Robertson, DU.; Husenits, K. The impact of mandatory managed care for Medicaid clients on the delivery of mental health services to children and adolescents in rural Pennsylvania. 2007. Retrieved August 31, 2007, from http://www.ruralpa.org/mandatory_managed_care07.pdf
- Rueter MA, Kwon HK. Developmental Trends in Adolescent Suicidal Ideation. *Journal of Research on Adolescence* 2005;15(2):205–222.
- Russell ST, Joyner K. Adolescent sexual orientation and suicide risk: Evidence from a national study. *American Journal of Public Health* 2001;91:1276–1281. [PubMed: 11499118]
- Shah S, Hoffman RE, Wake L, Marine WM. Adolescent suicide and household access to firearms in Colorado: Results of a case-control study. *Journal of Adolescent Health* 2000;26(3):157–163. [PubMed: 10706163]
- Shain BN. Suicide and suicide attempts in adolescents. *Pediatrics* 2007;120(3):669–676. [PubMed: 17766542]

- Simon RI. Suicide risk assessment: What is the standard of care? *The Journal of the American Academy of Psychiatry and the Law* 2002;30:340–344. [PubMed: 12380411]
- Slap GB, Vorters DF, Chaudhuri S, Centor RM. Risk factors for attempted suicide during adolescence. *Pediatrics* 1989;84:762–772. [PubMed: 2797971]
- State and Territorial Injury Prevention Directors Association Rural Youth Suicide Prevention Workgroup. Preventing youth suicide in rural America: Recommendations to states. 2008. Retrieved July 23, 2008, from <http://www.sprc.org/library/ruralityouth.pdf>
- Thompson EA, Moody KA, Eggert LL. Discriminating suicide ideation among high-risk youth. *Journal of School Health* 1994;64(9):361–367. [PubMed: 7877277]
- U. S. Preventive Services Task Force. Screening for suicide risk: Recommendation and rationale. *Annals of Internal Medicine* 2004;140(10):820–821. [PubMed: 15148071]
- U.S. Department of Health and Human Services. Healthy people 2010: Understanding and improving health. 2. Washington, DC: U.S. Government Printing Office; 2000.
- Van Amstel LL, Lafleur DL, Blake K. Raising our HEADSS: Adolescent psychosocial documentation in the emergency department. *Academic Emergency Medicine* 2004;11:648–655. [PubMed: 15175203]
- Viner, R. Adolescent Medicine. In: McIntosh, N.; Helms, PJ.; Smyth, RL., editors. *Forfar and Arneil's textbook of pediatrics*. 6. New York: Churchill Livingstone; 2003.
- Watt TT, Sharp SF. Gender differences in strains associated with suicidal behavior among adolescents. *Journal of Youth and Adolescence* 2001;30:333–348.
- Windle M. Suicidal behaviors and alcohol use among adolescents: A developmental psychopathology perspective. *Alcoholism: Clinical and Experimental Research* 2004;28:29S–37S.
- Yeo MS, Bond LM, Sawyer SM. Health risk screening in adolescents: Room for improvement in a tertiary inpatient setting. *Medical Journal of Australia* 2005;183:427–429. [PubMed: 16225451]
- Zweig JM, Phillips SD, Lindberg LD. Predicting adolescent profiles of risk: Looking beyond demographics. *Journal of Adolescent Health* 2002;31:343–353. [PubMed: 12359380]

Table 1

Age at Death in Years	Number of Suicides	PYLL per Suicide (Based on Age 65 Years)	Total PYLL
15	6	$65 - 15 = 50$	$6 \times 50 = 300$
16	14	$65 - 16 = 49$	$14 \times 49 = 686$
17	7	$65 - 17 = 48$	$7 \times 48 = 336$
18	12	$65 - 18 = 47$	$12 \times 47 = 564$
19	22	$65 - 19 = 46$	$22 \times 46 = 1,012$
Total	61		2,898

Table 2**Risk Factors for Suicide Based on HEADDSSS Domains**

HEADDSSS Domains and Corresponding Risk Factors for Suicide	Concern in Prominent Theme	Concern in Minor Theme
Home		
• Less parental closeness (Zweig, Phillips, & Lindberg, 2002)	*	-
• Loss of a parent through divorce (Neiger & Hopkins, 1988) or living in a non-intact family (Brent et al., 1999)	*	-
• Few activities with parents (Bearman & Moody, 2004)	*	-
• Parent-child conflict (Brent et al., 1999) or sibling conflict (Brent, Moritz, Bridge, Perper, & Canobbio, 1996)	*	-
• Family history of conduct or affective problems/psychopathology or substance abuse (Brent et al., 1999; Brent et al., 1996)	*	-
• Lack of family support/availability or no one to count on (O'Donnell, Stueve, Wardlaw, & O'Donnell, 2003; Perkins & Hartless, 2002)	*	-
• Basic needs not being met (O'Donnell, O'Donnell, Wardlaw, & Stueve, 2004)	*	-
Education		
• Poor school performance (Slap, Vorters, Chaudhuri, & Centor, 1989; Watt & Sharp, 2001)	*	-
• Lower GPA than students not at risk for suicide (Field, Diego, & Sanders, 2001)	-	*
• Self- and parental dissatisfaction with grades (Lewinsohn, Rohde, & Seeley, 1993)	-	*
• Failing a grade (Caucasian youth) (Gould, Fisher, Parides, Flory, & Shaffer, 1996) or repeating a grade (Hispanic females) (Borowsky, Ireland, & Resnick, 2001)	*	-
• Missed school days (Lewinsohn et al., 1993)	*	-
• Greater likelihood of dropping out of school compared to other students (Thompson, Moody, & Eggert, 1994) or having already dropped out of school (Gould et al., 1996)	-	-
• More unmet school goals compared to other students (Thompson et al., 1994)	*	-
• Spend fewer afternoons/evenings spent doing homework compared to others (Mazza & Eggert, 2001)	*	-
• Suspended from school (Gould et al., 1996)	*	-
• Disciplinary crises (Gould et al., 1996)	*	-
• Conduct disorder combined with disruptive behavior at school (Shah, Hoffman, Wake, & Marine, 2000)	-	*
• Carrying a weapon at school (Borowsky et al., 2001)	-	-
• Not being in school or not working ("drifting") (Gould et al., 1996)	-	-
• Not going to college (Gould et al., 1996), being female and not expecting to attend college when one's mother attended college, or being male and not expecting to attend college (Watt & Sharp, 2001)	*	-
• School climate (whether teachers really cared about the subject, teachers paying attention to the subject, receiving a lot of encouragement at school, and liking school) (males) (Perkins & Hartless, 2002)	*	-
• Socially disconnected at school	*	-
• School related problems in general (Borowsky et al., 2001; Brent et al., 1999; Centers for Disease Control and Prevention, 1995)	*	-
Activities		
• Arrest for and/or involvement in a crime (Windle, 2004) or disciplinary/legal problems (Brent et al., 1999; Brent et al., 1996)	-	*
• Perpetration of violence/carrying a weapon (Borowsky et al., 2001)	-	*
• Fighting (females) (Bearman & Moody, 2004; Zweig et al., 2002)	-	*
• Socially isolated from peers (Bearman & Moody, 2004)	*	-

HEADSSS Domains and Corresponding Risk Factors for Suicide	Concern in Prominent Theme	Concern in Minor Theme
<ul style="list-style-type: none"> • Work problems (Gould et al., 1996) 	-	*
<ul style="list-style-type: none"> • Friendship networks among females that encourage expression of emotional distress, heighten perceived severity, and encourage drastic responses (Watt & Sharp, 2001) 	*	-
Drug Use and Abuse		
<ul style="list-style-type: none"> • Substance abuse (alcohol, marijuana, etc.) (Borowsky et al., 2001; Brent et al., 1999; Perkins & Hartless, 2002; Zweig et al., 2002) 	-	*
<ul style="list-style-type: none"> • Comorbidity of substance abuse and mood disorder (Brent et al., 1999) 	*	-
<ul style="list-style-type: none"> • Binge drinking (Windle, 2004) 	-	-
Death		
<ul style="list-style-type: none"> • Friends died by suicide (Borowsky et al., 2001) 	*	-
<ul style="list-style-type: none"> • Loss of a preexisting relationship due to death (Brent, Perper, Moritz, Baugher, Roth et al., 1993) 	*	-
Sexual Behavior		
<ul style="list-style-type: none"> • Homosexuality; homosexual attraction; gay/lesbian/bisexual/unsure (GLBU) status; or being both homeless and gay, lesbian, or bisexual (Bearman & Moody, 2004; Borowsky et al., 2001; Noell & Ochs, 2001; O'Donnell et al., 2004; Russell & Joyner, 2001) 	-	-
<ul style="list-style-type: none"> • Sexual abuse (Brent et al., 1996; Lipschitz et al., 1999; Perkins & Hartless, 2002) 	-	*
<ul style="list-style-type: none"> • Forced sexual relations (females) (Bearman & Moody, 2004) 	-	*
Suicidality and depression		
<ul style="list-style-type: none"> • Past suicide attempts; family history of suicide attempts, including parental attempts and ideation; and suicide attempts by friends (Bearman & Moody, 2004; Borowsky et al., 2001; Brent et al., 1999; Rueter & Kwon, 2005; Russell & Joyner, 2001) 	*	-
<ul style="list-style-type: none"> • Mood/affective disorders, sadness or depression, hopelessness, or problems with conduct/conduct disorder (Bearman & Moody, 2004; Brent et al., 1999; Brent et al., 1996; O'Donnell et al., 2004; O'Donnell et al., 2003; Perkins & Hartless, 2002; Shah et al., 2000) 	*	-
<ul style="list-style-type: none"> • Self-esteem issues (females) (Bearman & Moody, 2004) 	*	-
<ul style="list-style-type: none"> • Stressful events (Windle, 2004) 	*	-
<ul style="list-style-type: none"> • Emotional neglect/abuse (Lipschitz et al., 1999) 	*	-
<ul style="list-style-type: none"> • Interpersonal conflict (Brent et al., 1996) 	*	-
<ul style="list-style-type: none"> • Disruption of a romantic relationship (Brent et al., 1999) or preexisting relationship (Brent, Perper, Moritz, Baugher, Roth et al., 1993) 	*	-
<ul style="list-style-type: none"> • Intransitive relationships (Bearman & Moody, 2004) 	*	-
<ul style="list-style-type: none"> • Emotional or learning disabilities (Blum, Kelly, & Ireland, 2001) 	-	-
<ul style="list-style-type: none"> • Mobility impairments (Blum et al., 2001) 	-	-
<ul style="list-style-type: none"> • Low psychosocial adjustment (Zweig et al., 2002) 	*	-
<ul style="list-style-type: none"> • Extreme perceptions of weight (underweight and overweight)/BMI (Bearman & Moody, 2004) 	-	*
<ul style="list-style-type: none"> • Physical illness (Brent et al., 1996) 	-	*
<ul style="list-style-type: none"> • Less likely to have accessed formal network of contacts (teacher, minister/priest, medical doctor/nurse, mental health professional) alone (O'Donnell et al., 2003) 	-	-
Safety		
<ul style="list-style-type: none"> • Being a victim of violence (Borowsky et al., 2001) 	-	*
<ul style="list-style-type: none"> • Witnessing violence (Brent et al., 1996) 	-	*
<ul style="list-style-type: none"> • Physical abuse (Brent et al., 1996; Kaplan et al., 1999; Lipschitz et al., 1999; Perkins & Hartless, 2002) or lifetime history of abuse (Brent et al., 1999) 	-	*

<i>HEADDSSS</i> Domains and Corresponding Risk Factors for Suicide	Concern in Prominent Theme	Concern in Minor Theme
• Being bullied or frequent bullying of others (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007)	-	*
• Firearm/gun in the home (Bearman & Moody, 2004; Brent, 2001; Brent et al., 1999)	-	*

* *Note.* = risk factor identified in this study. - = risk factor not identified in this study.

Table 3

Grouping of Codes to Form Prominent Analytical Themes

Qualitative Statements	Codes Assigned to Statements	Prominent Analytical Themes	n	Percentage of Participants
<ul style="list-style-type: none"> • “I would like to do as well in school as I can. Mostly to make my family proud. But either I can’t grasp certain subjects or I’m not dedicated enough.” • “Not being able to get my English grade up enough to pass the class.” • “Bringing my Grade Point Average up.” 	<ul style="list-style-type: none"> - Performance - Passing a class - Grades 	<i>Academic Performance</i>	223	47.9%
<ul style="list-style-type: none"> • “I sometimes argue with my parents. It doesn’t get really bad, but we just can’t always see the other’s point of view.” • “Having problems with my brother. He doesn’t seem to want anything to do with me.” • “Last year I thought a lot that my girlfriend was cheating on me and she almost did and we used to get into big fights but that changed.” 	<ul style="list-style-type: none"> - Parental Relationship - Sibling Relationship - Relationship with Girl/ Boyfriend 	<i>Relationships</i>	138	29.6%
<ul style="list-style-type: none"> • “I feel my school does not have adequate college prep courses. I feel I may not be prepared when I go to college for the classes I will need to take.” • “The food is not very good and they don’t give you enough of it.” • “Anyone with a popular last name automatically makes any sport, etc. Favoritism really hurts everyone.” 	<ul style="list-style-type: none"> - Dislike Curriculum - Dislike School Food - Dislike Favoritism at School 	<i>Dislikes about school</i>	133	28.5%
<ul style="list-style-type: none"> • “I worry about losing my friends. Last year, I had a fight with my old friends and we still are not speaking. I worry the same thing will happen with my new friends.” • “I have a concern about a friend who keeps letting another friend control her life.” • “My most difficult situation was having to deal with the many changes of high school. My friends all seemed to be different and nothing seemed the same as it was last year.” 	<ul style="list-style-type: none"> - Loss of Friends - Boundaries of Friends - Friends Changing 	<i>Friends</i>	74	15.9%
<ul style="list-style-type: none"> • “A couple of months ago my best friend’s dad died. He was very close to me. He was like my father. We used to go camping all the time, tubing, and other stuff that was fun. It was very hard for me to cope with.” • “My grandfather died two months ago of lung cancer. I had a hard time because at the same time last year, my grandmother died of the same cancer.” 	<ul style="list-style-type: none"> - Death of Father Figure - Death of Grandparent 	<i>Death</i>	65	13.9%

Qualitative Statements	Codes Assigned to Statements	Prominent Analytical Themes	n	Percentage of Participants
<ul style="list-style-type: none"> • “My dog died.” 	- Death of Pet			
<ul style="list-style-type: none"> • “Pretty severe depression. I thought about suicide a lot. I usually would come to my senses after awhile, but then it would happen again. Some months were okay and I thought I was fine. Other months were awful. I would cry a lot and scream and yell. God has helped me get through, though.” • “Got <i>threw</i> being really depressed and having anxiety attacks by getting help.” • “I am very jealous of others. I am very self conscience and I always worry about what others think.” 	<ul style="list-style-type: none"> - Suicidal Ideation - Depression - Jealousy 	<i>Mental health</i>	58	12.4%
<ul style="list-style-type: none"> • “I get nervous about what I’m going to do after school.” • “I’m afraid that after I graduate I won’t be able to handle it in the real world.” • “I am afraid I won’t get a good job after college.” 	<ul style="list-style-type: none"> - Future Career - Future in Real World - Future Job 	<i>Future</i>	56	12.0%

Table 4

Top 10 Minor Themes

Minor Themes	Frequency	Percentage of Participants
1. Parental Approval or Disapproval	35	7.5%
2. Classmates	32	6.9%
3. Organized Sports	32	6.9%
4. Physical Health	24	5.2%
5. Labeled/Rumors	18	3.9%
6. Having Enough Time	18	3.9%
7. Moving	17	3.6%
8. Relationship between Parents	16	3.4%
9. Peer Pressure	14	3.0%
10. Bullying	11	2.4%

Table 5

Proposed HEADDSSS Domains, Corresponding Themes, and Sample Interview Questions for Assessment

<i>HEADDSSS Domains</i>	Corresponding Themes		Sample Interview Questions
	Prominent	Minor	
<i>Home</i>	Relationships	Parental approval or disapproval	<ul style="list-style-type: none"> • How do you get along with your mother/father? him/her? What do you think of
		Relationship between parents	<ul style="list-style-type: none"> • How do you get along with your sister and brother?
		Parent's significant other or spouse	<ul style="list-style-type: none"> • Describe your relationship with your stepfather. • Do you live with your parents?
		Home life	<ul style="list-style-type: none"> • Are your parents divorced? What has it been like for you?
		Caring for own children	<ul style="list-style-type: none"> • Being a parent and going to school can be tough. How has it been for you?
<i>Education</i>	Academic performance	Classmates	<ul style="list-style-type: none"> • How have your grades been this year? What were they?
		Punishment at school	<ul style="list-style-type: none"> • What do you like about school? Dislike about school?
	Dislikes about school	Favoritism at school	<ul style="list-style-type: none"> • What concerns do you have about school?
		Attending high school	<ul style="list-style-type: none"> • How do get along with your classmates?
<i>Activities</i>	Friends	Organized Sports Time	<ul style="list-style-type: none"> • Sometimes people do things for fun that aren't safe. What about your friends? What about you?
		Peer pressure	<ul style="list-style-type: none"> • What do you like to do in your spare time?
		Organized activities	<ul style="list-style-type: none"> • What kinds of things do you like to do with friends?
		Current job	<ul style="list-style-type: none"> • Where do you work? What do you like about it? Dislike about it?
		Religion	<ul style="list-style-type: none"> • Do you have any religious beliefs you would like me to be sensitive to?
<i>Death</i>	Death	Pet	<ul style="list-style-type: none"> • It can be difficult to lose someone we love. Have you lost any members of your family? A grandparent? A pet? • Have you lost any friends? • Have you had any other losses in your life?
		Alcohol/drug use	<ul style="list-style-type: none"> • Sometimes kids drink or use drugs to fit in. How about your friends?
		Drug problems of classmates	<ul style="list-style-type: none"> • How about you?
<i>Drug use and abuse</i>	None	Exposure to alcohol/drug use by others	<ul style="list-style-type: none"> • Have you ever drunk alcohol? Smoked marijuana? What other drugs?
		Smoking weed	<ul style="list-style-type: none"> • What do you think about drinking and driving?
		Chewing tobacco	<ul style="list-style-type: none"> • What if the driver of the car in which you were riding was drinking?
			<ul style="list-style-type: none"> • How would you keep yourself safe?
<i>Sexual behavior</i>	None	Sexual activity and pregnancy	<ul style="list-style-type: none"> • Are you sexually active with males, females, or both?

Corresponding Themes			
HEADSSS Domains	Prominent	Minor	Sample Interview Questions
			<ul style="list-style-type: none"> • Do you use any type of contraception or methods to prevent pregnancy? What do you use? • Do you use any barriers? What type(s)?
Suicidality and depression	Mental health	Physical health	<ul style="list-style-type: none"> • Is there anything you would change about yourself if you could?
		Labeled/rumors	<ul style="list-style-type: none"> • Sometimes when people are depressed they think about hurting or killing themselves or someone else. Have you thought about hurting or killing yourself? Someone else?
	The Future	Moving	
		Prejudice/hate	
		Expectations	<ul style="list-style-type: none"> • What do you plan to do after graduation?
		Concerns about the world, environment, or people	<ul style="list-style-type: none"> • What are your plans for the future?
		Suicidal ideation	<ul style="list-style-type: none"> • Have you lost interest in things that you use to enjoy? Tell me about them.
		Alleged abuse	
		Concerns about weight	<ul style="list-style-type: none"> • Have you ever been physically hurt by someone?
		Behavior	<ul style="list-style-type: none"> • If you had three wishes, what would they be?
		Making choices	<ul style="list-style-type: none"> • Do you worry most days? What kinds of things do you worry about?
		Boredom	<ul style="list-style-type: none"> • How is your sleep? Do you have trouble getting to sleep? Wake up in the middle of the night and can't get back to sleep? Wake up earlier than you need to in the morning and can't get back to sleep?
Safety	Safety	Bullying	<ul style="list-style-type: none"> • Are you teased or bullied by anyone?
		Motor vehicle accidents	<ul style="list-style-type: none"> • Has anyone ever touched you without your permission?
		Trouble with the law	<ul style="list-style-type: none"> • Have you ever gotten into physical fights? Were you or anyone else hurt?
		Alleged abuse	
		Harassment	<ul style="list-style-type: none"> • Have you ever gotten into trouble with the law?
		Drowning	<ul style="list-style-type: none"> • Have you ever been part of a gang?
		Gun	<ul style="list-style-type: none"> • Have you ever committed a crime? Ever had a crime committed against you?
		Violence	
		Friends in gangs	<ul style="list-style-type: none"> • Have you ever run away? Thought about running away?
		Running away	<ul style="list-style-type: none"> • Are there any guns in your home?

HEADSS content from Cohen, Mackenzie, and Yates (1991).

Note. Interview questions are based on the clinical experience of the authors.

Table 6

Codes that Form the Safety Theme

Qualitative Statements	Codes Assigned to Statements	n	Percentage of Participants
• "The 2 girls want to beat me up. Everywhere I see them they swear at me and call me all of these names. They always say that they are going to jump me. I can't go anywhere without getting threatened. The bad part is my cousin is the one that is telling them to do it."	- Bullying	11	2.4%
• "I was driving a snowmobile and I wrecked. I broke my leg."	- Motor vehicle accidents	8	1.7%
• "I received \$10 from a stolen check and got a \$1200 fine and 18 months probation and a felony 3 charge."	- Trouble with the law	8	1.7%
• "Father being charged with many types of abuse against me. Not being able to see my brother 'cause of it."	- Alleged Abuse	3	0.6%
• "Too many of my close friends are in gangs.."	- Friends in gangs	3	0.6%
• "Taking my ex-boyfriend to court to get him to stop bothering me since June 5—months of stalking, harassment, threats and everything else, trying to break in, etc.."	- Harassment	1	0.2%
• "I almost drown in the ocean while on vacation."	- Drowning	1	0.2%
• "Shot gun was stolen."	- Gun	1	0.2%
• "Violence (school)."	- Violence	1	0.2%
• "I got drunk and ran away from home and the police had to find me."	- Running away	1	0.2%
TOTAL		38	8.0%