



HHS Public Access

Author manuscript

NASN Sch Nurse. Author manuscript; available in PMC 2015 August 21.

Published in final edited form as:

NASN Sch Nurse. 2013 January ; 28(1): 15–19.

Addressing Diabetes and Depression in the School Setting:

The Role of School Nurses

Michelle D. Owens-Gary, PhD and

Centers for Disease Control and Prevention, Atlanta, GA

Pamela Allweiss, MD, MPH

Centers for Disease Control and Prevention, Atlanta, GA

Summary: What Can School Nurses Do to Address Diabetes and Depression in the School Setting?

1. Remember that depression and diabetes are common comorbidities. If you see signs of depression, remember to obtain the appropriate consent and approvals for students under the age of 18 before screening.
2. Remember that depression can interfere with self-management skills and may make diabetes worse--so connect students to community resources to help them reduce the risk of complications.
3. Remember that depression and risk-taking behaviors are common in adolescents with diabetes. Have educational materials ready and available to help students in need.

To learn more about diabetes, visit the National Diabetes Education Program's Website at www.YourDiabetesInfo.org.

Keywords

diabetes; depression; school nurses

Diabetes in Youth

Diabetes is one of the most common chronic diseases among children and adolescents in the United States, with about 215,000 people 20 years of age or younger having this disease (Centers for Disease Control and Prevention [CDC], 2010). Each year, more than 13,000 young people are diagnosed with type 1 diabetes, and between 8% and 43% of new cases of childhood diabetes are classified as type 2 diabetes (CDC, 2010).

For reprints and permission queries visit SAGE's Web site, <http://www.sagepub.com/journalsPermissions.nav>.

Brought to you by the National Diabetes Education Program

Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

While diabetes can be a challenging disease for anyone, having diabetes as an adolescent can bring additional concerns beyond the typical challenges that can impede self-management behaviors (Jaser, 2010; Owens, Shea, & Lewis, 2010). Having a chronic illness like diabetes often requires that adolescents juggle their pursuit of independence with the need to rely on others—teachers, parents, and school nurses—to successfully manage their illness on a daily basis. If managing diabetes becomes stressful or overwhelming for the adolescent and these feelings persist, the teenager may become depressed (Davis, 2005; Hood et al., 2006; Jaser, 2010). Although depression is often not recognized as a common comorbidity in diabetes, depression affects 14% to 20% of adolescents with diabetes and is more common in girls (CDC, 2012c; Davis, 2005; Hood et al., 2006; Jaser, 2010; Lawrence et al., 2006).

Depressive symptoms, such as persistent sadness, difficulty concentrating, and feeling tired all the time, can impact a teen's ability to follow through on daily self-management behaviors (e.g., monitoring blood glucose levels on a consistent basis) and to problem-solve when urgent issues with diabetes care arise (e.g., low blood sugar levels; Antal & Wysocki, 2008). Depression that occurs with diabetes also can increase a teen's risk for acute and chronic diabetes-related complications, such as retinopathy, diabetic ketoacidosis, and hospitalization (Herpertz et al., 2001; Hood et al., 2006; Jaser, 2010). Additionally, depression can impact school performance, peer relations, and risk-taking behaviors (Antal & Wysocki, 2008; Jaser, 2010; Shrier, Harris, Sternberg, & Beardslee, 2001). Please see Figure 1 to learn more about recognizing the signs of depression.

The Social Environment

Teens with both diabetes and depression can have a difficult time staying focused at school, may experience social isolation, may have challenges in their peer-to-peer relationships, and may see their grades begin to suffer (Antal & Wysocki, 2008; Frojd et al., 2008). These factors can influence school attendance, graduation rates, and educational attainment if the depression is not identified and treated (Cammarata et al., 2009; Humensky et al., 2012). More specifically, some research has shown that persons with diabetes are about 6% more likely to drop out of high school, 4% to 6% less likely to attend college, and 50% less likely to graduate from college than their peers without diabetes, resulting in average lifetime earnings of persons with diabetes being about \$160,000 less than those of persons who do not have diabetes (Fletcher & Richards, 2012; Maslow, Haydon, McRee, Ford, & Halpern, 2011).

Along with having an effect on educational outcomes and attainment, diabetes is also associated with teens engaging in risk-taking behavior, such as using drugs or alcohol and intentionally omitting insulin (Jaser, Yates, Dumser, & Whittemore, 2011; Suris, Michaud, Akre, & Sawyer, 2008). There is a growing body of research that examines how risk-taking behaviors affect diabetes self-management skills and risk for adverse outcomes (Jaser et al., 2011; Reynolds et al., 2011).

Teens with both diabetes and depression may have a difficult time staying focused, may see their grades begin to suffer, and may begin to engage in risk-taking behaviors.

Tobacco smoking is often initiated in adolescence, with approximately 80% of adult smokers reporting that they started smoking in their youth (CDC, 2012b). A nationwide survey found that 8.8% of eighth grade students reported having tried smoking for the first time in the fifth grade and that 22.3% of eighth graders reported having first smoked in the eighth grade (Campaign for Tobacco-Free Kids, 2009). In a study with 3,466 youth who had diabetes, Reynolds and colleagues (2011) found that tobacco use by youth with diabetes, particularly those with type 1 diabetes, is similar to use by youth without diabetes. The study found that 22% of teens with type 1 diabetes and 36% of youth with type 2 diabetes reported ever having tried smoking cigarettes (Reynolds et al., 2011). Tobacco smoking in people with diabetes is concerning because it places individuals with already compromised health at risk for adverse outcomes including pulmonary disease, cardiovascular disease, cancer, and premature death (Jaser et al., 2011). For instance, the Reynolds et al. (2011) study showed that youth with diabetes who smoked had risk factors for cardiovascular disease, such as physical inactivity and high triglyceride levels.

Alcohol is the most commonly used drug among adolescents in the United States (CDC, 2012a; Jaser et al., 2011). Data from the 2011 Youth Risk Behavior Survey show that, among high school students, 39% reported drinking alcohol in the past 30 days, 22% binge drank, and 8% drove after drinking alcohol (CDC, 2012a). Similar rates of alcohol use have been found for adolescents with diabetes (Martinez-Aguayo et al., 2007). Alcohol use among adolescents with diabetes is particularly concerning because it can impact blood glucose control, contribute to hypo- or hyperglycemia or other complications, and impact judgment and appetite, all of which can make it challenging to maintain appropriate self-management behaviors (Jaser et al., 2011).

Eating disorders are also very common concerns for many teens and young adults. In the United States, approximately 10 million females and one million males have an eating disorder such as anorexia or bulimia (National Eating Disorders Association, 2005). The prevalence of eating disorders among adolescent females with type 1 diabetes is approximately 10%, which is twice as high as the rate for girls without diabetes (Jaser et al., 2011). Up to 40% of young women with type 1 diabetes omit their insulin as a form of purging, thus leading to weight loss (Grylli, Karwautz, Hafferl-Gattermayer, & Schober, 2003; Jaser et al., 2011). Not taking insulin as required can lead to uncontrolled diabetes and associated acute and chronic complications, including depression (Grylli et al., 2003; Jaser et al., 2011).

Depression is associated with risk-taking behavior (Suris et al., 2008). Yet, noticeably absent from the literature is an examination of the interaction that depression has with both risk-taking behaviors *and* diabetes self-management in adolescents. School nurses should be aware of the connection between risky behaviors, depression, and diabetes and have resources in place to address these conditions in their students.

The Role of the School Nurse: Screening for Depression

School nurses have a unique opportunity to help students who have diabetes and are also dealing with depression. Students with diabetes and depression may frequently come to the

school nurse with somatic complaints, such as headaches, stomachaches, and abdominal pain that could be associated with depression (Humensky et al., 2012; Lieb, Pfister, Masataler, & Wittchen, 2000). (Note: It is important to differentiate chronic complaints of stomachaches and abdominal pain from an acute episode, which may indicate a problem such as diabetic ketoacidosis in a student with type 1 diabetes. If the episode is acute or the student has other symptoms, such as fruity breath, recent illness, and extreme thirst, it is important to check the student's blood sugar, and if it is over 240 mg/dl, check the urine for ketones.) Since school-age students have limited contact with primary care providers, depression screening and referrals for treatment by school nurses can help to increase early recognition and intervention for such mental health concerns (Carnevale, 2011).

Four depression screening tools are often used in the school setting: the Beck Depression Inventories–Youth (BDI-Y), the Center for Epidemiological Studies–Depression Scale for Children (CES-DC), the Children's Depression Inventory, and the Reynolds Adolescent Depression Scale–Short Form (see Table 1). Though all four of these scales have good reliability and internal consistency, the BDI-Y and the CES-DC stand out as common choices for use by school nurses because of their affordability, ease of administration, and ability to be scored easily (Table 1). Both the BDI-Y and the CES-DC have 20 items that assess depressive symptoms and target children 6 to 17 years of age. Both take about 5 to 10 minutes to administer and should be used by school nurses who are familiar with how to use the tools. The CES-DC often is preferred over the BDI-Y because it is free and therefore more affordable (Carnevale, 2011).

Several issues must be considered in screening for depression in the school system (Carnevale, 2011): The school system must institute a protocol and have procedures for addressing the mental health needs of students before depression screening can occur with students who are symptomatic. Such procedures should include how to inform parents of minor children of any observed behaviors that are compatible with depression. In addition, the school should have specific plans for addressing suicidal ideation.

- The school system must determine the process for obtaining parental or guardian approval and consent before any screening can occur (Chartier et al., 2008).
- School nurses need to be aware of the appropriate procedures for administering, scoring, and interpreting the results from the selected screening tool.
- A protocol should be in place outlining how the depression screening will take place, how confidentiality will be maintained, and the steps to refer a student to a mental health agency for follow-up, if deemed necessary.
- Collaboration with community mental health agencies and school administrators is needed to ensure that the school system is aware of available mental health resources for its students and that the referral process is well coordinated with the parents or guardians (Carnevale, 2011).

Early recognition of depression in adolescents with diabetes is critical for (1) reducing the risk of students developing diabetes-related complications that might be avoided if depression is treated, (2) addressing psychosocial issues that could impact school

performance and educational attainment, and (3) improving the overall quality of life of students with diabetes. School nurses can serve as a bridge to community mental health resources by providing depression screenings in the school setting and collaborating with school administrators, parents or legal guardians, and community leaders to ensure appropriate referrals to address mental health needs of students with diabetes.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed.. Washington, DC: American Psychiatric Association; 1994.
- Antal H, Wysocki T. For parents. Depression in adolescents with diabetes. *Diabetes Self-Management*. 2008; 25(1):53–54. 56–57. [PubMed: 18268810]
- Beck, JS.; Beck, AT.; Jolly, JB. Beck youth inventories. San Antonio, TX: Psychological Corporation; 2001.
- Cammarata C, Meyer KJ, Geffken G, Felipe D, Vargas A, Kamps JL. Psychosocial issues that affect youth with diabetes. *American Journal of Health Education*. 2009; 40(5):277–281.
- Campaign for Tobacco-Free Kids. The path to smoking addiction starts at very young ages. Washington, DC: Campaign for Tobacco-Free Kids; 2009. from <http://www.tobaccofreekids.org/research/factsheets/pdf/0127.pdf> [Retrieved October 2, 2012]
- Carnevale T. An integrative review of adolescent depression screening instruments: Applicability for use by school nurses. *Journal of Child and Adolescent Psychiatric Nursing*. 2011; 24:51–57. [PubMed: 21272114]
- Centers for Disease Control and Prevention. [Retrieved August 16, 2012] Fact sheet: SEARCH for diabetes in youth. 2010. from <http://www.cdc.gov/diabetes/pubs/pdf/search.pdf>
- Centers for Disease Control and Prevention. [Retrieved October 4, 2012] Fact sheet: Underage drinking. 2012a. from <http://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm>
- Centers for Disease Control and Prevention. [Retrieved October 3, 2012] Fact sheet: Youth and tobacco use. 2012b. from http://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/index.htm#estimates
- Centers for Disease Control and Prevention. QuickStats: Prevalence of current depression among persons aged 12 years, by age group and sex—United States, National Health and Nutrition Examination Survey, 2007–2010. *Morbidity and Mortality Weekly Report*. 2012c; 60:1747.
- Chartier M, Stoep AV, McCauley E, Herting JR, Tracy M, Lymp J. Passive versus active parental permission: Implications for the ability of school-based depression screening to reach youth at risk. *Journal of School Health*. 2008; 78(3):157–164. [PubMed: 18307611]
- Davis NM. Depression in school children and adolescents. *The Journal of School Nursing*. 2005; 21:311–317. [PubMed: 16285840]
- Fletcher J, Richards M. Diabetes’s “health shock” to schooling and earnings: Increased dropout rates and lower wages and employment in young adults. *Health Affairs*. 2012; 31:27–34. [PubMed: 22232091]
- Frojd SA, Nissinen ES, Mirjami UIP, Marttunen MJ, Koivisto AM, Kaltiala-Heino R. Depression and school performance in middle adolescent boys and girls. *Journal of Adolescence*. 2008; 31:485–498. [PubMed: 17949806]
- Grylli G, Karwautz A, Hafferl-Gattermayer A, Schober E. Eating disorders and type 1 diabetes in adolescence: A review. *Eating and Weight Disorders*. 2003; 8:88–94. [PubMed: 12880184]
- Herpertz S, Albus C, Kielmann R, Hagemann-Patt H, Lichtblau K, Kohle K, et al. Comorbidity of diabetes mellitus and eating disorders: A follow-up study. *Journal of Psychosomatic Research*. 2001; 51:673–678. [PubMed: 11728508]
- Hood KK, Huestis S, Maher A, Butler D, Volkening L, Laffel LMB. Depressive symptoms in children and adolescents with type 1 diabetes: Association with diabetes-specific characteristics. *Diabetes Care*. 2006; 29:1389–1391. [PubMed: 16732028]

- Humensky J, Kuwabara SA, Fogel J, Wells C, Goodwin B, Van Voorhees BW. Adolescents with depressive symptoms and their challenges with learning in school. *The Journal of School Nursing*. 2012; 26:377–392. [PubMed: 20606058]
- Jaser SS. Psychological problems in adolescents with diabetes. *Adolescent Medicine*. 2010; 21:138–151.
- Jaser SS, Yates H, Dumser S, Whittemore R. Risky business: Risk behaviors in adolescents with type 1 diabetes. *The Diabetes Educator*. 2011; 37(6):756–764. [PubMed: 22002971]
- Kovacs, M. *Children's depression inventory (CDI) manual*. Toronto: Multi-Health Systems Inc; 1992.
- Lawrence JM, Standiford DA, Loots B, Klingensmith GJ, Williams DE, Ruggiero A, et al. for the SEARCH for Diabetes in Youth Study. Prevalence and correlates of depressed mood among youth with diabetes: The SEARCH for Diabetes in Youth Study. *Pediatrics*. 2006; 117:1348–1358. [PubMed: 16585333]
- Lieb R, Pfister H, Masataler M, Wittchen HU. Somatoform syndromes and disorders in a representative population sample of adolescents and young adults: Prevalence, comorbidity and impairments. *Acta Psychiatrica Scandinavica*. 2000; 101:194–208. [PubMed: 10721868]
- Martinez-Aguayo A, Araneda JC, Fernandez D, Gleisner A, Perez V, Codner E. Tobacco, alcohol, and illicit drug use in adolescents with diabetes mellitus. *Pediatric Diabetes*. 2007; 8:265–271. [PubMed: 17850469]
- Maslow G, Haydon A, McRee AL, Ford C, Halpern C. Growing up with a chronic illness: Social success, educational/vocational distress. *Journal of Adolescent Health*. 2011; 49:206–212. [PubMed: 21783055]
- National Eating Disorders Association. Statistics: Eating disorders and their precursors. 2005 from <http://www.nationaleatingdisorders.org/uploads/file/Statistics%20%20Updated%20Feb%2010,%202008%20B.pdf>.
- National Institute of Mental Health. *Depression*. Washington, DC: U.S. Department of Health and Human Services; 2011. (NIH Publication No. 11–3561)
- Owens MD, Shea L, Lewis S. Helping students cope with diabetes: The role of the school nurse. *School Nurse News*. 2010; 27(4):29–30.
- Reynolds K, Liese AD, Anderson AM, Dabelea D, Standiford D, Daniels SR, et al. Prevalence of tobacco use and association between cardiometabolic risk factors and cigarette smoking in youth with type 1 or type 2 diabetes mellitus. *Journal of Pediatrics*. 2011; 148:594–601. [PubMed: 21129757]
- Reynolds WM, Mazza JJ. Reliability and validity of the Reynolds Adolescent Depression Scale in young adolescents. *Journal of School Psychology*. 1998; 36(3):295–312.
- Shrier LA, Harris SK, Sternberg M, Beardslee W. Association of depression, self-esteem, and substance use with sexual risk among adolescents. *Preventive Medicine*. 2001; 33(1):179–189. [PubMed: 11522159]
- Suris JC, Michaud P, Akre C, Sawyer SM. Health risk behaviors in adolescents with chronic conditions. *Pediatrics*. 2008; 122:e1113–e1118. [PubMed: 18977960]
- Weissman MM, Orvaschel H, Padian N. Children's symptoms and social functioning self-report scales: Comparison of mothers' and children's reports. *Journal of Nervous and Mental Disease*. 1980; 168(12):736–740. [PubMed: 7452212]

Biographies

Michelle D. Owens-Gary, PhD

Michelle Owens-Gary, PhD, is a behavioral scientist in the Division of Diabetes Translation at the Centers for Disease Control and Prevention. She serves as a staff member of the National Diabetes Education Program, where she works on topics related to diabetes and youth, gestational diabetes, and mental health.

Pamela Allweiss, MD, MPH

Pamela Allweiss, MD, MPH, works for the Centers for Disease Control and Prevention, Division of Diabetes Translation, in Atlanta, Georgia. She is an endocrinologist who also finished a residency in occupational medicine. She works with the National Diabetes Education Program and the CDC sponsored National Healthy Worksite Program.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Signs of depression include

- Feeling sad, anxious, or empty for most of the day.
- Sleeping too much or too little.
- Not enjoying hobbies or activities that were once pleasurable.
- Feeling hopeless, worthless, or helpless.
- Feeling slowed down or restless.
- Eating more or less than usual, with weight gain or weight loss.
- Feeling tired all of the time.
- Having trouble thinking or staying focused.
- Thinking of death or suicide.
- Having aches or pains, headaches, or digestive problems that do not ease with treatment.

Major depression occurs when five or more of these symptoms persist for at least 2 weeks.

Figure 1.
Recognizing Depression
Source: National Institute of Mental Health (2011).

Table 1

Adolescent Depression Screening Inventories

Depression Screening Tool	Brief Description	Additional Information
Beck Depression Inventory–Youth (Beck, Beck, & Jolly, 2011)	20-item self-report inventory Targets children 7–14 years of age	Copyrighted Cost for use of inventory Assesses all criteria for depression based on the <i>Diagnostic and Statistical Manual of Mental Disorders–IV</i> (American Psychiatric Association, 1994) Available at: http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8014-197
Center for Epidemiological Studies– Depression Scale for Children (Weissman, Orvaschel, & Padian, 1980)	20-item self-report Short version—10 items Targets children 6–17 years of age	Free Available on the Internet for downloading does not assess for suicidality Available at: http://www.chcr.brown.edu/pcoc/cesdscale.pdf
Children’s Depression Inventory (Kovacs, 1992)	27-item self-report assessment Short version—10 items Targets children 7–17 years of age	Copyrighted Cost for use of inventory Available at: http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8044-762
Reynolds Adolescent Depression Scale–Short Form (Reynolds & Mazza, 1998)	30-item self-report scale Targets adolescents 13–18 years of age	Copyrighted Cost for use of scale Available at: http://www.sigmaassessmentsystems.com/assessments/rads.asp

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript