

Medical University of South Carolina

MEDICA

MUSC Theses and Dissertations

2013

Adolescent Depression Education Program for Middle School Nurses: A Feasibility Study

Teresa Carnevale

Medical University of South Carolina

Follow this and additional works at: <https://medica-musc.researchcommons.org/theses>

Recommended Citation

Carnevale, Teresa, "Adolescent Depression Education Program for Middle School Nurses: A Feasibility Study" (2013). *MUSC Theses and Dissertations*. 515.

<https://medica-musc.researchcommons.org/theses/515>

This Dissertation is brought to you for free and open access by MEDICA. It has been accepted for inclusion in MUSC Theses and Dissertations by an authorized administrator of MEDICA. For more information, please contact medica@musc.edu.

Adolescent Depression Education Program for Middle School Nurses: A Feasibility Study

By

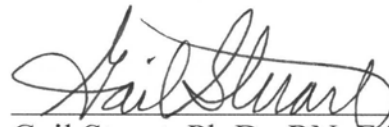
Teresa Carnevale

A dissertation to the faculty of the Medical University of South Carolina in partial fulfillment of the requirement for the degree of Doctor of Philosophy in the College of Graduate Studies

College of Nursing

2013

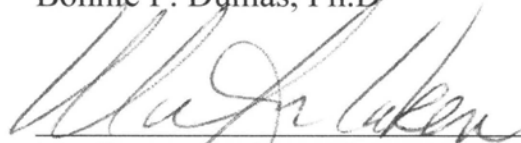
Approved by:



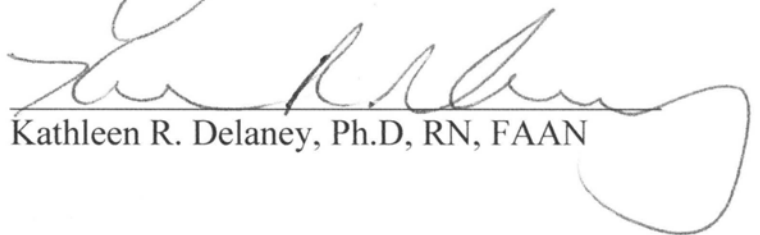
Gail Stuart, Ph.D., RN, FAAN
Chair Dissertation Committee



Bonnie P. Dumas, Ph.D



Marilyn A. Laken, Ph.D, RN, FAAN



Kathleen R. Delaney, Ph.D, RN, FAAN

Acknowledgements

I am genuinely indebted to the members of my dissertation committee, Dr. Gail W. Stuart – (Chair), Dr. Bonnie Dumas, Dr. Marilyn Laken, and Dr. Kathleen R. Delaney. I would also like to thank Dr. Susan. D. Newman for her direction and assistance with this process. Although not a member of my dissertation committee, she graciously provided guidance and expertise to me throughout the internal review board (IRB) process. I am especially grateful to Dr. Stuart for her advisement, faith, guidance, and encouragement, not only during my research, but also throughout the whole PhD program. She is an exceptionally gracious lady, and I admire her tremendously.

I thank my family and friends for providing me loving support and encouragement throughout this process. Their continuous reassurance, letters, cards, and comments of encouragement and support were invaluable, as was their assistance in providing me quiet time and space in which to work.

I am especially grateful to my church family and work family for the multitude of prayers that represent their undeterred faith that I could and would finish this educational chapter of my life. Many times I asked my prayer warriors for their assistance, and they never faltered from the task.

I also want to acknowledge my mother and father, and my children, Kent, Patrick and Brooke as well as their father, Adam. They offered me understanding and love when I was busy studying or writing and unable to attend to other family duties. My sister, Christy, also deserves praise for taking on duties within the family when I was unable to

do so. In addition I would like to give a special acknowledgment to Mike Heineman, Anita Cox, and Peter Hill for their encouragement and support.

Finally, I would be remiss if I did not acknowledge my 2008 MUSC PhD cohort of friends. They held me up when I fell down, worked with me through many late night brainstorming sessions, shared many good times and much laughter, encouraged me continuously and sent a multitude of texts and emails that kept me going when I thought I could go no further. I thank each and every one of you – Collette, Brian, Melissa, Mary, Sarah, Rebecca, Hollie and Diane.

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vi
ABSTRACT	vii
CHAPTERS	
1. Introduction	1
2. An Integrative Review of Adolescent Depression Screening Instruments: Applicability for Use by School Nurses	10
3. Universal Adolescent Depression Prevention Programs: A Review.....	17
4. Adolescent Depression Education Program for Middle School Nurses: A Feasibility Study	32
5. Summary	60
APPENDICES	
A. Survey Instruments	67
B. Study Marketing and Study Materials	71
C. MUSC Institutional Review Board (IRB)	76
D. MUSC IRB Amendment Approvals	81
E. Author Rights from John Wiley and Sons (permission to include publication in dissertation).....	83
F. Author Rights from National Association of School Nurses and SAGE Publications (permission to include publication in dissertation)	84
REFERENCES	87

LIST OF TABLES

TABLE 1: Participation of Measures of Study Sample	41
TABLE 2: Number of Students seen in the School Health Office	48
TABLE 3: DAQ Factor Results	49
TABLE 4: QIDS Participant Knowledge Rating	50
TABLE 5: DAQ Factors Percentage Changes	62
TABLE 6: Demographic Information	63

LIST OF FIGURES

FIGURE 1: Social Ecology Model 82

FIGURE 2: Active Change Model 83

Adolescent Depression Education Program For Middle School Nurses: A Feasibility Study (Under direction of Dr. Gail Stuart)

Abstract

While healthcare providers have increased depression screening of adolescents during preventive care, an enormous number of adolescents do not have regular contact with healthcare providers and, therefore, do not get screened. Nationwide screenings by school nurses would be an ideal way to capture students not seen by healthcare providers; however, this screening is not required and therefore does not occur.

The purpose of this dissertation is to describe the three-step process by which the feasibility of using school nurses to identify and screen for adolescent depression (AD) was explored. In a pre-dissertation study, school nurses reported they lacked knowledge, time, and effective instruments to screen adolescents for depression. To begin addressing these barriers, an integrative review of the literature (Manuscript I) was conducted to identify screening instruments that could be used with adolescents in the school environment.

A second integrative review (Manuscript II) was then completed to identify universal depression prevention programs that school nurses might use in primary prevention of adolescent depression. The review revealed that even if programs and instruments were identified, school nurses still face barriers in implementing programs, including lack of competence in the subject matter of adolescent depression, lack of school administrative support, and lack of time needed to provide prevention programs. Nurses also are burdened by an overload of duties and students. Therefore, research was needed to develop a school nurse friendly program that would increase the school nurses'

knowledge of the signs and symptoms of adolescent depression, train nurses to use the QIDS-C free screening instrument, and identify resources clarifying when and where to refer individuals identified as needing follow-up.

To address this need, a quasi-experimental study (Manuscript III) using an online program for school nurses was developed to increase the school nurse's ability to identify, screen and refer adolescents with depression. Findings from this dissertation are significant for school nurses and school nurse educators. The information gained through this feasibility study seeks to enhance and further develop online courses for the dissemination of adolescent depression education and training for school nurses.

Introduction

Adolescence should be a time of growth and experimentation, yet for as many as 20% of the adolescent population, it is instead a time of sadness and depression. Adolescent depression estimates vary greatly and are difficult to accurately determine, especially since parents and other adults often characterize a teen with a depressed mood as being a “normal teenager” (Maughan, Collishaw, & Stringaris, 2013). Estimating the extent of adolescent depression is also difficult because no standardized nationwide method of screening for depression in teenagers has been established. In recent years, many organizations including the World Health Organization (WHO), Institute of Medicine (IOM) and the United States Preventive Services Task Force (USPTF) have recognized adolescent depression as a global problem that needs to be addressed immediately (WHO, 2003; USPSTF 2009; NIHCM, 2010). Because they come into contact with so many adolescents, school nurses have the potential to play a significant role in addressing the problem of adolescent depression. School nurses are in a prime position to identify, screen and refer adolescents who present with depression in the school setting.

This dissertation focuses on exploring and determining the factors associated with school nurses in identifying and screening for adolescent depression (AD).

A variety of definitions exist for the word *adolescent*. In this dissertation, *adolescent* is specifically applied to children between the ages of 11-15. This age-range for adolescents was determined through research presented in Manuscript I, where the average age of the first onset of depression is typically 14 years old.

By diagnostic definition, adolescent depression characteristics are much the same as those of adult depression with a few differences. In adolescent depression, the depression can manifest as significant irritability, poor concentration and diminishing academic performance (Crowe, Ward, Dunnachie, & Roberts, 2006). The psychosocial and physical impacts of adolescent depression, however, extend well beyond a simple decrease in academic performance and become much more significant later in life. Of those who have depression earlier in their teenage years, as many as 50-70% will have a recurrence of depression within 5 years (Maughan, Collishaw, & Stringaris, 2013). A host of other problems directly associated with adolescent depression also can impact young adulthood including: impaired social functioning, substance abuse, and even suicide (Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013). The prospective cost of not identifying adolescents with depression and the resulting recurrences of depression into adulthood are great, not only monetarily but also socially.

The purpose of this dissertation is to explore and determine factors associated with screening for adolescent depression with the objective of determining an

approach to gain support from school nurses to identify, screen, and refer students with depression in the school setting. A literature review was conducted to provide a greater understanding of school nurses and their potential to identify adolescent depression and a study was subsequently conducted to address gaps identified through the literature review.

Specific aims of this dissertation were:

Aim 1: To conduct an integrative review to explore the literature on screening instruments and examine their applicability for use in the school setting by school nurses.

Aim 2: To conduct an integrative review to explore and examine the literature on universal depression prevention programs, to determine the feasibility of the school nurse using these programs to identify students with depression or those at risk for having depression, and to identify gaps in current research literature.

Aim 3: To conduct a feasibility study using a descriptive quasi-experimental design with a pre-post data collection to evaluate the effect of an online depression educational program to influence school nurses' attitudes toward identifying, screening, and referring children with adolescent depression, post an online educational training experience.

Theoretical Framework

The Social Ecology Model of Health Promotion (SEM) and the Active Change Model (ACM) were used to provide a perspective lens and framework through which the problem and research study can be examined and viewed. While

the SEM was a particularly useful theoretical framework used in the integrative review, the feasibility study required a theoretical framework through which to examine a change in school nursing practice.

The SEM is a broad model, developed from the original work of Bronfenbrenner in the late 1960's and early 1970's, that at its core examines relationships between groups or an individual and their environment through a complex interplay between environment and interactions that affect health behavior (Glanz, Rimer, & Viswanath, 2008). This model identifies four levels of influence including the: individual, interpersonal relationship, community and society as a whole. The SEM model also takes into consideration personal and environmental attributes that can lead to either resiliency or an increased risk for disease (Glanz et al., 2008). This model served as the theoretical framework through which the integrative review was performed and served as a means to effectively evaluate and organize material. Information gained helped focus the dissertation study toward a change in school nursing practice.

The ACM is a six-step process directly related to changing a behavior or practice (K. B. Quade, R., 2001): 1. Perceive: an individual has to be made aware of the information. 2. Describe: the individual is able to describe fully the information perceived. 3. Accept: the individual accepts what has been perceived and described, regardless of personal feelings toward the information. 4. Question: the individual seeks to investigate the information more fully and determines questions that will lead

to answers. 5. Act: the individual puts answers found by questioning information into action. 6. Change: when answers have been put into action, there is a new result which impacts practice. This process is circular and continues to evolve and adapt. In the application of the ACM to the dissertation study:

Step 1: Perceive Increase the school nurse's ability to perceive adolescent depression: In the study, school nurses' perception of adolescents with depression were examined. The educational training provided necessary information to school nurses regarding the incidence of adolescent depression and the commonly noted characteristics specifically related to adolescents. This particular portion of the model was examined through the use of the Depression Attitude Questionnaire (DAQ), which the participating school nurses completed pre and post completion of the educational program.

Step 2: Describe Improve school nurse's ability to describe signs and symptoms of adolescent depression. School nurses who participated in the educational program were able to describe signs and diagnostic criteria specific to adolescents (versus adults) that might be mistaken as part of normal adolescence. School nurses were also able to describe community resources commonly available in the school district. This step of the process was also analyzed in the pre and post DAQ scores, as well as examined through the follow-up questionnaire data.

Step 3: Accept Increase the school nurse's acceptance of depression as specific and distinct problem in adolescence. By becoming aware of the signs and symptoms of adolescent depression and having the ability to fully describe the phenomena, the

school nurse began to see adolescent depression as a specific and distinct childhood problem. After being provided with the necessary education, the school nurse felt more at ease identifying adolescents who may have a mental health disorder for further evaluation. The ACM model places an emphasis on the six-step process leading toward an effective change in practice. Since persons within the environment can significantly impact the acceptance or denial of an intervention given their awareness, knowledge, comfort level, and skill ability, education is an important factor in reducing the stigma associated with mental health disorders. This educational training program supported the school nurse in future endeavors, as well as provided confidence in identifying, screening and referring of adolescents for depression. In this step the pre and post education of the QIDS-C were examined.

Step 4: Question Question the apparent lack of policy on depression screening for adolescents Recently the World Health Organization (WHO), the Institute of Medicine (IOM) and other governmental agencies have strongly urged health care providers to increase early identification, referral and treatment of adolescents with depression to reduce disparities. Although some states have taken on the challenge, currently there are no nationwide requirements for screening adolescents for symptoms of depression. Improving school nurse awareness, knowledge, and skills can help establish a means of engaging and identifying depressed youth if school nurses become empowered to champion for change. The educational training program provided evidence-based interventions and information to inform nursing

practice for school nurses. This step of the process was analyzed by examination of the data from the follow-up questionnaires.

Step 5: Act Put into action knowledge learned through the educational program on adolescent depression Under the Comprehensive School Health Guidelines, school nurses have a responsibility to assess, identify and refer for treatment adolescents who present with signs and symptoms of depression. The educational module assisted participating school nurses in meeting these responsibilities by providing them with adequate knowledge and the ability to screen and refer for further evaluation any child exhibiting signs and symptoms of depression. The study's educational program was directed at reinforcing and/or increasing evidence-based nursing practice by school nurses to strengthen the ability to provide appropriate care and guidance for the adolescent population. This step of the process was examined through analysis of the follow-up questionnaires.

Step 6: Change Change current practice by school nurses. Armed with knowledge, school nurses who participated in the study are poised to make real changes in practice. Based on this six-step process, the ACT model was a theoretical base for measuring these constructs for the school nurses' readiness for change. This step was analyzed by examining school nurses' who had received the online training and their use of the QIDS-C and increase in the number of referrals.

The study was intended to change current school nurse practice by focusing on the individual school nurse and his or her relationship to the change content versus the constructs or even the process. In the study, variables such as attitude toward

adolescent depression, opinions toward the subjective norm of adolescent behavior, and the school nurse's individual ability and readiness to make a change in practice were examined. A better understanding of these variables can assist future researchers in predicting the likelihood of school nurses to implement screening and referring of children with adolescent depression.

Existing Knowledge

In recent studies, the research focus has largely been on screening for adolescent depression and ensuring a system is in place when a child is identified through a positive screen. The US Preventive Services Task Force (USPSTF) recently recommended that primary healthcare providers screen adolescents for depression in the primary care setting during a well visit (Corona, McCarty, & Richardson, 2013). This recommendation, despite the great intention, is flawed. Adolescents often complain of ailments when depressed, but most of these complaints are mild and/or general in nature, such as headaches and stomachaches, and do not result in adolescents or parents seeking care by a primary care physician. Because many adolescents do not visit primary care for these issues, the number of adolescents in whom depression goes undetected is far greater than those who are screened and identified as depressed. Even adolescents who do visit primary care often have undetected depression. A recent study (Corona et al., 2013) found that as many as 50% of cases seen by primary care physicians are missed, simply because the primary care physician did not screen.

Other longitudinal research has found that those adolescents who do not receive treatment for adolescent depression often have a recurrence in 5 years or less, and when depression is finally detected they have additional comorbidities of at least one, if not more, coexisting mental health issues. These additional problems only add to the depression. The problems can include: substance abuse, anxiety, panic attacks, anger issues and impaired social interactions. When combined with depression, these additional problems can cause damage for the depressed late teenager or young adult and result in significant amounts of work-time loss, loss of social support from families, and even alienation and loss of support from peers and other significant interpersonal relationships. If depression is caught early however, some of these problems may be decreased in severity or eliminated altogether (Bardone et al., 1998; Hatch & Wadsworth, 2008). School nurses are in a prime position to be able to identify and screen adolescents earlier, therefore increasing the likelihood of treatment and decreasing or eliminating the likelihood that problems will be compounded later in adulthood.

Gaps in Knowledge

Few studies described in the literature have examined the attitude of school nurses toward adolescents with depression (Haddad, & Tylee, 2012; Haddad & Tylee, 2010). Of the studies examined, only one was conducted in the United States. This dissertation addresses gaps in the literature on school nurses' willingness, attitude, and ability to screen and identify adolescents for depression. It also addresses the gap

in the literature related to identification of a screening instrument appropriate for use
in the school environment

An Integrative Review of Adolescent Depression Screening Instruments: Applicability for Use by School Nurses

Teresa Carnevale, MSN, RN

Teresa Carnevale, MSN, RN, is a Doctoral Student, Medical University of South Carolina, and a Clinical Educator, Lenoir-Rhyne University, Hickory, North Carolina, USA.

Search terms:

Adolescent depression, depression screening instrument, school nursing

Author contact:

carnevalet@lr.edu, with a copy to the Editor: poster@uta.edu

doi: 10.1111/j.1744-6171.2010.00256.x

BACKGROUND: Major depression is a significant yet underdiagnosed problem of adolescence. The consequences of undiagnosed and untreated depression in this vulnerable population can have detrimental effects. School nurses are in a prime position to perform early screening and referral. However, the school environment requires special consideration as the setting for screening of adolescent depression.

OBJECTIVE: The purpose of this paper is to identify instruments that can be utilized by the school nurse to perform easily administered, rapid adolescent depression screenings that are valid, reliable, and economical.

METHODS: An integrative review of current depression instruments used in adolescents was conducted.

RESULTS: Of the seven most commonly used instruments, only four of those fit the criteria listed for conducting screening in the school setting by the school nurse. The four instruments include the Beck Depression Inventory-Youth (BDI-Y), the Children's Depression Inventory, the Center for Epidemiological Studies-Depression Scale for Children, and the Reynolds Adolescent Depression Scale.

CONCLUSION: Although all four of the identified instruments provide reliability and validity in the school setting, it is the other criteria: affordability, ease of administration, and the ability of the instrument to be rapidly scored, that placed the Center for Epidemiological Studies-Depression Scale for Children and the BDI-Y as the reasonable choice of instruments for use by the school nurse.

Introduction

Current research on adolescent depression in the United States indicates that the problem has increased, but the advent and access to accurate screening instruments to identify depression in children also has increased (Cuijpers, Boluijt, & van Straten, 2008; Gutierrez & Osman, 2009; Lenz, Coderre, & Watanabe, 2009). The identification of depression in adolescence has become one of the main mental health priorities of the World Health Organization, due primarily to the increased risk of psychosocial problems including poor academics, compromised social functioning, and suicide risk (World Health Organization, 2003; Woolley & Curtis, 2007). The early identification of depression in children is a serious problem, but primary care providers often have limited access to this population based primarily on episodic physical illness. Therefore, screening for adolescent depression may need to be completed by those who have ready access to this population. School nurses are in a prime position to screen

for adolescent depression and refer for treatment. However, choosing an instrument to screen for depression in adolescents and using it in the school setting can be daunting tasks because of the nature of the school environment.

Background

Depression is one of the most pervasive mental health problems of adolescents in the United States and around the world (Reynolds & Mazza, 1998; Woolley & Curtis, 2007). If depression goes undiagnosed and untreated, then it can have a dire impact on the emotional and physical well-being, as well as the academic success of the adolescent (Chartier et al., 2008). A simple yet unincorporated way to increase the early recognition of adolescent depression is routine screening in the school environment. The success of such an ambitious goal rests exclusively on finding an instrument that demonstrates reliability and validity in the school setting, yet is economical and feasible to perform under critical time constraints. The

purpose of this paper is to identify instruments that can be utilized by the school nurse to perform rapid adolescent depression screenings that are valid, reliable, affordable, and easy to administer.

Literature Search Methods

The search for instruments to measure adolescent depression was conducted utilizing key words: depression, childhood, children, adolescent depression, instruments, scales, rating, and measurement. An electronic search that included the Cumulative Index of Nursing and Allied Health Literature, ProQuest, PubMed, the Education Resource Center, and PsycINFO was completed utilizing search criteria for articles dating from years 1985 to 2009. Instruments were included if the instrument: (a) was used to measure depression in children; (b) examined psychometric properties; and (c) included measures that assess depression, in adolescents. Instruments were excluded if they were not appropriate for the population or if the instrument had not been evaluated for reliability or validity.

Results

Available Instruments to Measure Adolescent Depression

Seven instruments were identified in the search, with four that matched the criteria outlined in the search methodology and described in Table 1. For the purpose of this review, only the four identified will be discussed in-depth. The factors assessed for the table included: (a) instrument name and author; (b) instrument description; (c) method of measurement including self-report, number of items, and scoring; (d) sample tested description; (e) reliability; (f) validity; and (g) feasibility of use (cost of instrument, amount of time to complete, training for use, environments the instrument can be used).

Instrument Psychometric Evidence

Quality of instruments is often determined by their psychometric evidence, in particular, their reliability and validity. Therefore, the discussion of the psychometric evidence will focus on these two aspects for each of the identified instruments.

Reliability is determined as the extent to which an instrument is considered consistent over time (Di Iorio, 2005). Consistent instruments are those that provide a similar or identical score when given on two separate occasions (time period not exceeding a length greater than 2 weeks) referred to as the test-retest reliability. If the instrument is consistent over multiple items within the scale, then this is considered

internal consistency reliability. Of the four measures, internal consistency reliability is the most frequently reported and cited test of reliability of an instrument (Cuijpers et al., 2008; LeBlanc, Almudevar, Brooks, & Kutcher, 2002; Reynolds &

Mazza, 1998; Swallen, Reither, Haas, & Meier, 2005; Wilcox, Field, Prodromidis, & Scafidi, 1998). This reliability is often measured by the Cronbach's alpha coefficient, which is reported as a range of 0.00 - 1.00. The closer the Cronbach's alpha coefficient is to 1.00, the better the internal consistency. An acceptable coefficient is considered 0.80 or higher (Burns & Grove, 2001). Of all instruments reviewed, the internal consistency coefficients ranged from 0.82 to 0.96; thus, all are considered reliable for measuring depression.

Validity is another psychometric property that can assist in the determination of the quality of a measurement instrument. Instruments are considered valid if they measure the constructs they are intended to measure (Di Iorio, 2005). Validity can be demonstrated in several ways including construct validity that includes convergent, discriminate, and known group validity. Construct validity is the most commonly cited type of validity in the reviewed articles. It measures the fit between variables by comparing their operational and conceptual definitions, and by determining whether or not it theoretically measures the constructs (Burns & Grove, 2001). Another way that validity is established is the comparison between one instrument and an established instrument often called the "gold standard." In the case of this systematic review, the "gold standard" or the one that most other children's depression instruments are scored against is the Children's Depression Inventory (CDI; Timbremont, Braet, & Dreesen, 2004). The CDI as well as the Beck Depression Inventories-Youth (BDI-Y), Center for Epidemiological Studies-Depression Scale for Children (CES-DC), and Reynolds Adolescent Depression Scale (RADS) will now be described.

BDI-Y

The BDI-Y was originally created by Judith Beck, Beck, and Jolly (2001). It is one of the five inventories that can be used separately or together. The depression inventory is a 20-question self-reported survey designed to assess items of depressive symptoms required for the diagnosis of depression according to the *Diagnostic and Statistical Manual of Mental Disorders-IV* in children age 7 - 14 (Stapleton, Sander, & Stark, 2007). Items are measured on a Likert scale of 0 - 3. The items include 0 = never, 1 = sometimes, 2 = often, and 3 = always. The scores range from 0 to 60, with a higher score indicating depressive symptomology. Reliability was tested using the test-retest method and Cronbach's alpha coefficient. Of the articles reviewed using the BDI-Y, all reported Cronbach alpha greater than 0.84 (Basker, Moses, Russell, & Russell,

Table 1. Instruments to Rate Adolescent Depression

Instrument/ reference	Instrument description	Method of measurement No. of items, type, and scoring	Sample description	Reliability	Validity	Feasibility
Beck Depression Inventories-Youth Subscale (Beck et al., (2001) (BDI-Y)	The first attempt at using a self-reported survey to assess the severity of symptoms of depression.	20-item self-reported tool Scored 0–3. Used in children 7–14 years of age. Scores range 0–60. Written at the second-grade level. Higher score indicates increased levels of depression with positive cutoff suggested at 17–20 depending on age.	1. 1,712 students in grades 7–12 in Nova Scotia to screen for adolescent depression comparing the Kutcher Adolescent Depression Scale with the BDI-Y (LeBlanc et al., 2002). 2. 178 adolescents ages 14–17 to evaluate the psychometric properties of the BDI-Y in a pediatric clinical setting in India (Basker et al., 2007).	Internal consistency $a = 0.88$ Internal consistency $a = 0.96$	None reported High convergent validity with the Children's Depression Rating Scale (CDRS) throughout $r = 0.72$ and high discriminate validity with Impact Event Scale (IES) $r = 0.26$	\$75.00 for a kit including a manual and 25 instruments \$40.00 for pack of 25. 5–10 min to complete. Administered by a trained professional
Center for Epidemiological Studies-Depression Scale for Children (Weissman, Orvaschel, & Padian, 1980)	An instrument for identifying depression in the general population.	20-item self-reported instrument for children ages 6–17 with a rating of 0–60. Higher scores indicate increased levels of depression. Positive cutoff score suggested at 15.	1. 4,743 adolescents in grades 7–12 from the school year 1994–1995 (Swallen et al., 2005). 2. 1,392 adolescents ages 14–16 screened using the Internet (Cuijpers et al., 2008). 3. 111 children ages 7–15 to analyze caregiver and family characteristics to predict success in a lifestyle intervention program (Pott, Albayrak, Hebebrand, & Pauli-Pott, 2009).	$a = 0.89$ Test-retest $a = 0.93$ $a = 0.89$	Not reported Not reported High validity reported	Free and available on the Internet for download. Approximately 5–10 min to complete.
Children's Depression inventory Kovacs (1992)	A self-reported 27-item scale originating from a modified (BDI).	27-item self-reported tool Short form of 10 items for children ages 7–17. Scoring is 0–54 on long form and 0–20 on the short form. Scale is positive for depression score greater than 20 on the long form and greater than 7 on the short form.	1. 80 children from ages 8 to 18 in inpatient and outpatient clinics in Belgium and the Netherlands 2. 678 adolescents ages 11–14 (Cortese et al., 2009) 3. Study of depression symptoms' correlation with sleeping problems in twins 8 and 10 years old (Gregory et al., 2009). 4. Study of 188 adolescents to determine the role of anxiety, depression, and emotional eating (Goossens et al., 2009).	$a = 0.86$ High internal consistency $a = 0.83–0.88$ $a = 0.82$ with 8 year olds and 0.80 with 10 year olds High levels of internal consistency Test-retest reliability $a = 0.86$	Correlation between item scores is 0.50 or higher Discriminate validity achieved in children ages 6–16 High predicative, convergent, discriminate, and construct validity	Kit cost \$132.00, which includes a manual and packet of 25 forms. Quick forms = \$59.00 for 25. 15 min to complete original instrument or 5 min for the short form.
Reynolds Adolescent Depression Scale-Short Form (Reynolds & Mazza, 1998)	Designed for health professionals to screen children for depressive symptoms in adolescents.	30-item self-reported scale measuring the severity of depression in adolescents age 13–18. Designed for the clinical and school setting. Takes around 5 min to complete. Four-point Likert scale Test scores range 30–120. Cutoff score of 77 is a positive screen for depression.	1. 9,315 students from 13–17 from New Zealand. 2. 246 adolescents age 14–18 to identify the roles of sex, gender, and coping in adolescent depression (Li et al., 2006).	Internal consistency $a = 0.90$ $a = 0.88$	Not reported Not reported	\$142.00 for the kit and \$54.00 for a pack of 25 instruments. 10 min to complete.

2007; Beck et al., 2001; LeBlanc et al., 2002). Validity was established by convergent validity with the CDI.

CDI

The CDI was developed in 1992 and designed specifically for children age 7 – 17 years to assess key symptoms of depression such as feelings of worthlessness, loss of interest in pleasurable activities, and negative mood, which have occurred within the last 2 weeks (Cortese et al., 2009). The instrument contains 27 items with a shorter form that contains 10 items. Children are asked to choose one of three responses for each item. Scoring ranges from 0 to 54 on the longer form, with a cutoff score of 19 indicating a positive result (Woolley & Curtis, 2007). Five studies that used the CDI reported good reliability with high internal consistency, and Cronbach's alpha coefficient ranged from 0.80 to 0.88 (Carey, Faulstich, Gresham, Ruggiero, & Enyart, 1987; Cortese et al., 2009; Goossens, Braet, Van Vlierberghe, & Mels, 2009; Timbremont et al., 2004). Validity was established using a stepwise discriminate analysis comparing psychiatric samples to non-referred samples of children: $F = 0.84$, $\chi^2(1, N = 168) = 27.9$, $p < 0.00005$ (Carey et al., 1987).

CES-DC

The CES-DC instrument was developed by the CES to screen for depressive symptoms in children ages 6 – 17 years at least 2 weeks prior to the administration of the instrument (Cuijpers et al., 2008). The instrument is a self-reported 20-item scale or a 10-item short-form scale. Each item is measured on a Likert scale with answers 0 = not at all, 1 = little, 2 = some, and 3 = a lot, with a maximum score of 60 on the long form and 30 on the short form (Libbey, Story, Neumark-Sztainer, & Boutelle, 2008). The higher the score is toward the maximum, the higher the incidence of increasing depression. The CES-DC has been tested in numerous studies (Cuijpers et al., 2008; Hussey, Chang, & Kotch, 2006; Swallen et al., 2005; Wilcox et al., 1998) and in several countries (Berganza & Aguilar, 1992; Kokkevi, Richardson, Florescu, Kuzman, & Stergar, 2007; Miller & Plant, 2003). For this article, three studies were reviewed (Cuijpers et al., 2008; Libbey et al., 2008; Swallen et al., 2005). In each of the three studies, reliability was demonstrated by strong internal consistency with Cronbach's alpha coefficients ranging from 0.85 to 0.93 (Cuijpers et al., 2008; Libbey et al., 2008; Swallen et al., 2005). Validity was not reported in any of the three studies.

RADS

This instrument was developed in 1986 to assess the severity of symptoms of depression in adolescents age 13 – 18. RADS is a 30-item self-reported instrument with each of the items on

the instrument scored on a weighted four-point scale with answers 1 = almost never, 2 = hardly ever, 3 = sometimes, and 4 = most of the time (Reynolds & Mazza, 1998). Scores range from 30 to 120, with a 77 or above considered a positive score for further review, screening, or referral. Three studies were reviewed for this article (Hyun, Nam, Kang, & Reynolds, 2009; Li, DiGiuseppe, & Froh, 2006; Reynolds & Mazza, 1998). All three studies found the instrument to demonstrate high reliability ranging from 0.88 to 0.93. Test-retest was found to be 0.87, which demonstrated stability overall of rank order RADS scores (Reynolds & Mazza, 1998). Criterion-related validity was noted to be $r(87) = 0.72$, $p < 0.001$ (p. 304). Concurrent reliability has been demonstrated in numerous studies comparing the RADS with other depression scales for children (p. 304).

Depression Screening Instruments Comparison

Prior research studies have compared these instruments, often one against another. Most of the studies compared the validity and reliability of the instruments finding high correlations and similarities between questions and aspects of measurement. Such is the case for the BDI-Y, which has been compared with the CDI and the CES-DC (DeRosa & Logsdon, 2006; Olsson & von Knorring, 1997; Stapleton et al., 2007; Steer, Kumar, Beck, & Beck, 2001; Wilcox et al., 1998). In a study, Olsson and von Knorring (1997) researched the efficiency and validity of the BDI-Y compared with that of the CES-DC. The results of this study demonstrated that the instruments roughly have the same specificity and equal efficiency with a total correlation of 0.81 (Olsson & von Knorring, 1997). In another study performed by Wilcox et al. (1998), the BDI and CES-DC were compared in a sample of teenage mothers to detect the relationship between the two instruments. Findings in this study conclude that both the BDI and CES-DC are adequate screening instruments for capturing adolescent depression in teenage mothers based on their high degree of correlation ($r = 0.58$, $p < 0.01$) (Wilcox et al., 1998).

Other than correlational data, a few studies indicated other comparisons of the identified individual instruments that may be of interest to clinicians. In the Wilcox et al. (1998) study, the researchers examined the preference of adolescent mothers in completing the CES-DC or the BDI. The all-female participants of the study preferred to fill out the CES-DC over the BDI, citing that it was easier to understand and simpler to complete (Wilcox et al., 1998). However, it should be noted that in an earlier study of a mixed gender sample, the findings indicate that the CES-DC can create problems with interpretation for adolescents because of the four positive feeling items that are reverse-scored, especially for males who often deny negative symptoms or possibly do not pay attention to the wording (Olsson & von Knorring,

1997). There has been other criticism concerning wording of instrument items. The BDI-Y, for instance, contains items that are worded negatively, whereas the CDI instrument contains a mix of both positive and negative items (Stapleton et al., 2007). The negatively worded BDI-Y has raised concerns in some clinicians that without some positive items, the BDI-Y could be less accepted by nonclinical adolescents (Olsson & von Knorring, 1997). However, contrary to this finding, there have been numerous further studies utilizing the BDI-Y in both clinical and nonclinical samples with statistically good results (DeRosa & Logsdon, 2006; LeBlanc et al., 2002; Stapleton et al., 2007). The CDI instrument wording has also been called into question, as it requires the participant to use levels of severity to answer items, increasing the use of discriminate memory, which can cause difficulty for younger children as well as children who function at a lower level (Costello & Angold, 1988). In support of the CDI, it too has had several later studies that demonstrate acceptable CDI internal consistency and construct validity (Cortese et al., 2009; Goossens et al., 2009; Gregory, Rijdsdijk, Lau, Dahl, & Eley, 2009). Each of the four identified instruments has been widely used in the screening for adolescent depression both in clinical and nonclinical populations, and has comparable psychometric properties.

Training and Administration of Instruments

Screening for depression by utilizing a chosen instrument in the adolescent population has many aspects that must be taken into careful consideration before initiation. Involvement of relevant stakeholders must take place prior to any screening initiative (Weist, Rubin, Moore, Adelsheim, & Wrobel, 2007). These stakeholders include administrative school personnel, families, educators, and community mental health agencies that are likely to receive referrals from the process. Approval and consent must be obtained from participants, parents/guardians, and school districts. A protocol should then be determined for the administration, collection, scoring, interpretation, and follow-up of the screening (Weist et al., 2007). Each of the instruments chosen for this review is self-reported and relatively easy to administer.

Administration can be completed either individually or in group settings, such as in the classroom or in after-school programs. The BDI-Y, CES-DC, CDI, and RADS have all been approved for and utilized in group settings (Olsson & von Knorring, 1997; Puskar, Tusaie-Mumford, Sereika, & Lamb, 1999; Stapleton et al., 2007; Weber, 2009). School nurses and collaborating school staff will need training with the chosen instrument prior to administration to become familiarized with the layout and structure of the particular instrument.

Scoring of the individual instruments should be completed by the school nurse or other professional trained to use the instruction templates and/or manuals provided with the

instrument with a recommended set cutoff score identified. This cutoff score should be specific to the population age and instrument, and high enough to reduce the number of potential false negatives while maintaining good sensitivity. The BDI-Y, CES-DC, CDI, and the RADS all have established suggested cutoff scores (See Table 1).

Interpretation of the scores should only be performed by the professional who has a clear understanding of adolescent mental health issues. These professionals may be the school nurse who has had professional development in this area or previous mental health experience, which includes mental health screening of adolescents, or other trained school personnel such as school counselors, social workers, or school psychologists (Foster et al., 2005).

Administrators of the instrument should have an established list of available school and community mental health resources for identified students (Weist et al., 2007). Follow-up and referral are crucial and necessary steps in the screening process. The school nurse or qualified designee should keep an accurate, confidential record of students who score above the cutoff on the instrument and perform follow-up as soon as possible after the screen. This is particularly imperative in identifying and assisting students with extremely high scores that may be in immediate crisis (Weist et al., 2007). Referral procedures should be clearly outlined and followed. By collaborating with stakeholders such as parents, participants, school staff, and community mental health resources prior to screening, the process of follow-up and referral will be more efficient and successful (Chartier et al., 2008).

Discussion

In the adolescent population, the accurate and reliable measurement of depressive symptoms is extremely important for nurses and educators to screen for depression, refer for treatment, and prevent depression-related complications including the risk for suicide. The purpose of this article was to review current childhood depression measurement instruments and identify instruments that can be utilized by the school nurse. Several instruments have been developed to measure depression in children. Of these instruments, four of these are the most widely used in the adolescent population, the BDI-Y, CDI, CES-DC, and the RADS. All four instruments have been in use for more than 20 years in a wide variety of settings. Internal consistency was demonstrated in each of the instruments reviewed. Validity, nonetheless, was not consistently reported for each of the instruments. Those that did report validity suggest that the validity was demonstrated by convergent, discriminate, and construct validity. However, of the four instruments under consideration, only two of those identified met the criteria of feasibility, which included cost, time required to administer/score, and training

required for the administrators: the BDI-Y and the CES-DC. The CES-DC is free and can be downloaded from the Internet; however, the instrument can only be used as a preliminary screening instrument, and it does not assess suicidality (Radloff, 1991). The BDI-Y is equal in length to the CES-DC, is easily administered and scored, and assesses for all the *Diagnostic and Statistical Manual of Mental Disorders-IV* criteria of depression. Nevertheless, this instrument can be costly to administer, with each packet costing \$40.00 per 25 copies. If school nurses have the financial support of their school system, then the BDI-Y would be an appropriate instrument for routine rapid depression screenings. If the school nurse has limited financial resources, then the CES-DC may be a better choice as a preliminary screening instrument.

Implications

Depression is a significant and increasing problem in the adolescent population. In performing this review, it was found that there are a number of reliable and valid instruments that can screen for adolescent depression. School nurses are strategically positioned to do this valuable screening. Prevention strategies geared toward adolescent depression have been proven to be more successful if used in identified at-risk youth. Yet the number of school nurses currently screening for depression in adolescence is unknown. Further research is required to identify school nurses who routinely screen as well as facilitators and barriers to screening for depression in the school setting.

References

- Basker, M., Moses, P. D., Russell, S., & Russell, P. S. (2007). The psychometric properties of Beck Depression Inventory for adolescent depression in a primary-care paediatric setting in India. *Child and Adolescent Psychiatry and Mental Health, 1*(1), 8.
- Beck, J. S., Beck, A. T., & Jolly, J. B. (2001). *Beck youth inventories*. San Antonio, TX: Psychological Corporation.
- Berganza, C. E., & Aguilar, G. (1992). Depression in Guatemalan adolescents. *Adolescence, 27*(108), 771 - 782.
- Burns, N., & Grove, S. (2001). *The practice of nursing research: Conduct, critique, & utilization* (4th ed.). Philadelphia: Saunders.
- Carey, M. P., Faulstich, M. E., Gresham, F. M., Ruggiero, L., & Enyart, P. (1987). Children's Depression Inventory: Construct and discriminant validity across clinical and nonreferred (control) populations. *Journal of Consulting and Clinical Psychology, 55*(5), 755 - 761.
- Chartier, M., Stoep, A. V., McCauley, E., Herting, J. R., Tracy, M., & Lymp, J. (2008). Passive versus active parental permission: Implications for the ability of school-based depression screening to reach youth at risk. *Journal of School Health, 78*(3), 157 - 164.
- Cortese, S., Falissard, B., Angriman, M., Pigaiani, Y., Banzato, C., Bogoni, G., . . . Maffei, C. (2009). The relationship between body size and depression symptoms in adolescents. *Journal of Pediatrics, 154*(1), 86 - 90.
- Costello, E. J., & Angold, A. (1988). Scales to assess child and adolescent depression: Checklists, screens, and nets. *Journal of the American Academy of Child Adolescent Psychiatry, 27*(6), 726 - 737.
- Cuijpers, P., Boluijt, P., & van Straten, A. (2008). Screening of depression in adolescents through the Internet: Sensitivity and specificity of two screening questionnaires. *European Child and Adolescent Psychiatry, 17*(1), 32 - 38.
- DeRosa, N., & Logsdon, M. C. (2006). A comparison of screening instruments for depression in postpartum adolescents. *Journal of Child and Adolescent Psychiatric Nursing, 19*(1), 13 - 20.
- Di Iorio, C. K. (2005). *Measurement in health behavior: Methods for research and evaluation*. San Francisco: Jossey-Bass.
- Foster, S., Rollefson, M., Doksum, T., Noonan, D., Robinson, G., & Teich, J. (2005). *School mental health services in the United States 2002-2003*. DHHS Pub. No. (SMA) 05-4068. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration.
- Goossens, L., Braet, C., Van Vlierberghe, L., & Mels, S. (2009). Loss of control over eating in overweight youngsters: The role of anxiety, depression and emotional eating. *European Eating Disorder Review, 17*(1), 68 - 78.
- Gregory, A. M., Rijsdijk, F. V., Lau, J. Y., Dahl, R. E., & Eley, T. C. (2009). The direction of longitudinal associations between sleep problems and depression symptoms: A study of twins aged 8 and 10 years. *Sleep, 32*(2), 189 - 199.
- Gutierrez, P. M., & Osman, A. (2009). Getting the best return on your screening investment: An analysis of the suicidal ideation questionnaire and Reynolds adolescent depression scale. *School Psychology Review, 38*(2), 200 - 217.
- Hussey, J. M., Chang, J. J., & Kotch, J. B. (2006). Child maltreatment in the United States: Prevalence, risk factors, and adolescent health consequences. *Pediatrics, 118*(3), 933 - 942.
- Hyun, M. S., Nam, K. A., Kang, H. S., & Reynolds, W. M. (2009). Reynolds Adolescent Depression Scale—Second Edition: Initial validation of the Korean version. *Journal of Advanced Nursing, 65*(3), 642 - 651.
- Kokkevi, A., Richardson, C., Florescu, S., Kuzman, M., & Stergar, E. (2007). Psychosocial correlates of substance use in adolescence: A cross-national study in six European countries. *Drug and Alcohol Dependence, 86*(1), 67 - 74.
- Kovacs, M. (1992). *Children's depression inventory (CDI) manual*. Toronto: Multi-Health Systems Inc.
- LeBlanc, J. C., Almudevar, A., Brooks, S. J., & Kutcher, S. (2002). Screening for adolescent depression: Comparison of the Kutcher Adolescent Depression Scale with the Beck Depression Inventory. *Journal of Child and Adolescent Psychopharmacology, 12*(2), 113 - 126.

- Lenz, K., Coderre, K., & Watanabe, M. D. (2009). Overview of depression and its management in children and adolescents. *Formulary*, *44*, 172 - 179.
- Li, C. E., DiGiuseppe, R., & Froh, J. (2006). The roles of sex, gender, and coping in adolescent depression. *Adolescence*, *41*(163), 409 - 415.
- Libbey, H. P., Story, M. T., Neumark-Sztainer, D. R., & Boutelle, K. N. (2008). Teasing, disordered eating behaviors, and psychological morbidities among overweight adolescents. *Obesity (Silver Spring, Md.)*, *16*(Suppl. 2), S24 - S29.
- Miller, P., & Plant, M. (2003). The family, peer influences and substance use: Findings from a study of UK teenagers. *Journal of Substance Use*, *8*(1), 19 - 26.
- Olsson, G., & von Knorring, A. L. (1997). Depression among Swedish adolescents measured by the self-rating scale Center for Epidemiology Studies-Depression Child (CES-DC). *European Child and Adolescent Psychiatry*, *6*(2), 81 - 87.
- Pott, W., Albayrak, O., Hebebrand, J., & Pauli-Pott, U. (2009). Treating childhood obesity: Family background variables and the child's success in a weight-control intervention. *International Journal of Eating Disorders*, *42*(3), 284 - 289.
- Puskar, K. R., Tusaie-Mumford, K., Sereika, S. M., & Lamb, J. (1999). Screening and predicting adolescent depressive symptoms in rural settings. *Archives of Psychiatric Nursing*, *13*(1), 3 - 11.
- Radloff, L. S. (1991). The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults. *Journal of Youth and Adolescence*, *20*(2), 149 - 166.
- Reynolds, W. M., & Mazza, J. J. (1998). Reliability and validity of the Reynolds Adolescent Depression Scale with young adolescents. *Journal of School Psychology*, *36*(3), 295 - 312.
- Stapleton, L. M., Sander, J. B., & Stark, K. D. (2007). Psychometric properties of the Beck Depression Inventory for Youth in a sample of girls. *Psychological Assessment*, *19*(2), 230 - 235.
- Steer, R. A., Kumar, G., Beck, J. S., & Beck, A. T. (2001). Evidence for the construct validities of the Beck Youth Inventories with child psychiatric outpatients. *Psychological Reports*, *89*(3), 559 - 565.
- Swallen, K. C., Reither, E. N., Haas, S. A., & Meier, A. M. (2005). Overweight, obesity, and health-related quality of life among adolescents: The National Longitudinal Study of Adolescent Health. *Pediatrics*, *115*(2), 340 - 347.
- Timbremont, B., Braet, C., & Dreesen, L. (2004). Assessing depression in youth: Relation between the Children's Depression Inventory and a structured interview. *Journal of Clinical Child and Adolescent Psychology*, *33*(1), 149 - 157.
- Weber, S. (2009). Results of psychometric testing of the RADS-2 with school-based adolescents seeking assistance for sexual orientation and gender identity concerns. Part 2: Research brief. *Journal of Child and Adolescent Psychiatric Nursing*, *22*(3), 126 - 131.
- Weissman, M. M., Orvaschel, H., & Padian, N. (1980). Children's symptom and social functioning self-report scales. Comparison of mothers' and children's reports. *Journal of Nervous and Mental Disease*, *168*(12), 736 - 740.
- Weist, M. D., Rubin, M., Moore, E., Adelsheim, S., & Wrobel, G. (2007). Mental health screening in schools. *Journal of School Health*, *77*(2), 53 - 58.
- World Health Organization. (Ed.). (2003). *Caring for children and adolescents with mental disorders: Setting WHO directions*. Geneva, Switzerland: World Health Organization.
- Wilcox, H., Field, T., Prodromidis, M., & Scafidi, F. (1998). Correlations between the BDI and CES-D in a sample of adolescent mothers. *Adolescence*, *33*(131), 565 - 574.
- Woolley, M. E., & Curtis, H. W. (2007). Assessing depression in latency-age children: A guide for school social workers. *Children and Schools*, *29*(4), 209 - 218.

The Journal of School Nursing

<http://jsn.sagepub.com>

Universal Adolescent Depression Prevention Programs: A Review

Teresa D. Carnevale

The Journal of School Nursing 2013 29: 181 originally published online 26 December 2012

DOI: 10.1177/1059840512469231

The online version of this article can be found at:

<http://jsn.sagepub.com/content/29/3/181>

Published by:

SAGE

www.sagepub.com

On behalf of:

SAGE

Journal Editor:

A. Taylor

Additional services and information for *The Journal of School Nursing* can be found at:

Email Alerts: <http://jsn.sagepub.com/alerts>

Subscriptions: <http://jsn.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Online Record - May 7, 2013

Journal of Record - Dec 26, 2012

Whole Text

Universal Adolescent Depression Prevention Programs: A Review

The Journal of School Nursing
29(3) 181-195
© The Author(s) 2012
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1059840512469231
jsn.sagepub.com



Teresa D. Carnevale, MSN, RN¹

Abstract

Although the subject of adolescent depression has gained significant attention, little is being done in the way of primary prevention. The purpose of this article is to conduct a review of the literature through the lens of the Reach, Effectiveness, Adoption, Implementation and Maintenance framework. This review was conducted utilizing several online databases, as well as web and hand searches. Eleven studies were identified through a process of elimination and critically appraised by a two-tiered method. Results indicated cognitive-behavioral universal prevention interventions can be effective on decreasing depressive symptomatology in adolescents. All reviewed studies were conducted in the school environment by professionals and/or school staff; however, only three of the programs implemented demonstrated adoption and sustainability. School nurses can be instrumental in bridging the gap between the planning and developing of prevention programs and translation into the real-world school environment.

Keywords

adolescent depression, childhood, prevention programs, health promotion, school-based, interventions and school nurses

Depression, once a condition ascribed mainly to adults, is now recognized as a persistent and real problem for adolescents. Adolescent depression can affect children of all races, cultures, and socioeconomic standing. *Child Health USA 2011: Health Status Adolescents* found nearly 8.1% of children aged 12–17 reported on survey at least one major depressive episode had occurred in the past year (2011). That is an estimated 2.0 million children in the United States. Although this number may seem small, the effects of this problem can be economically and socially significant. Without some type of intervention to decrease or prevent the continuing increase of depressive symptoms, the resulting effects of a major depressive episode on the adolescent can often have negative or even devastating results in the areas of emotional development, academics, family, and social life. The average age of a first episode of major depression in children is 14 years (Bhatia & Bhatia, 2007; Williamson, Birmaher, Axelson, Ryan, & Dahl, 2004). Those who experience a first episode of major depression in adolescence or earlier have a two- to fourfold risk of persisting depressive symptomatology into adulthood (Bhatia & Bhatia, 2007). Economically, the cost of depression continuing into adulthood can be staggering, with presumed increases in usage and need of health care and social services (Lynch & Clarke, 2006). World health leaders recognized this future potential social and economic burden, which led to a more recent interest with accompanying funding, in childhood mental health research (World Health Organization [WHO], 2007). Specifically, primary focus has been placed

on increasing translational research, with an emphasis on moving effective interventions into “real-world” practice (O’Connell, Boat, & Warner, 2009).

Researchers have presented much discussion and debate on where children with mental health issues should receive prevention interventions (Wintersteen, 2010). For children, this workplace is the school setting. Research in this area suggests prevention interventions and health promotion programs are more likely to be successful if provided in the context of an environment close to the individual’s home and by an individual deemed appropriate. The majority of children with mental health issues are identified by professionals working in one of three settings that regularly have contact with children. These include school system, juvenile justice system, and social services. The most frequent of these three, by sheer number and length of contact, is the school system. The school setting has proven in the last couple of decades to be a proven established channel in which to deliver interventions to children (Institute of Medicine [IOM], 2001). Professionals most likely to identify these children in the school setting include school staff and school nurses (Foster et al., 2005). Of those

¹ Medical University of South Carolina, Charleston, SC, USA

Corresponding Author:

Teresa D. Carnevale, Medical University of South Carolina, 169 Ashley Avenue, Charleston, SC 29403, USA.
Email: Rnme2@aol.com

Table 1. Adolescent Depression Symptoms.

Symptom	Description	Frequency
Depressed mood	Exhibits as sadness, irritability, ^a or can be expressed as anger. May also express vague complaints of physical symptoms. May be expressed or reported	Nearly all day for every day in the past 2 weeks or longer
Diminished pleasure	Demonstrates or reports decreased pleasure in all or most normally pleasing activities. May be expressed or observed	Nearly all day for every day in the past 2 weeks or longer
Prominent weight fluctuation	Either weight loss or weight gain of 5% body weight, which has not been caused by a physical problem	Over a period of 1 month
difficulty sleeping	Exhibited or reported oversleeping or insomnia	Occurring most of the time in the past 2 weeks or longer
Psychomotor agitation or retardation	Demonstrated as nervous movements or lethargic reactions as observed by others	Occurring most of the time in the past 2 weeks or longer
decreased energy	Reporting or demonstrating fatigue. Can also be observed as frequent school absences, delay in or absence of play, and decrease in response to environment	Nearly all day for every day in the past 2 weeks or longer
Low self-esteem	Can be expressed as feelings of unwarranted guilt or hopelessness as well as self-depreciative comments	Nearly all day for every day in the past 2 weeks or longer
Suicidal thought	With or without a specific plan. Verbal comments or nonverbal actions such as giving away prized possessions or suicide attempts	Recurrent
Decreased academic performance ^a	Can be demonstrated as subtle or significant decline in grades, difficulty concentrating, or indecisiveness	Almost every day for the past 2 weeks or longer

Note. Adapted from American Psychiatric Association, 2000; and "Overview of Depression and Its Management in Children and Adolescents," by K. Lenz, K. Coderre, and M. D. Watanabe, 2009. *Formulary*, 44, 172-180.^a Symptoms specifically characteristic of adolescents but not characteristic of adults.

identified, the school nurse or counselors are usually the most qualified, due to educational preparation, to provide mental health interventions (IOM, 2001, p. 35, 36). This type of activity is directly in line with the role of the school nurse, since promoting healthy physical and mental development is an overarching goal for school nurses. Therefore the purpose of this article is to utilize the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) model to review previously implemented adolescent depression prevention programs that can be administered by school nurses.

Background and Significance

The WHO leaders have reported that by the year 2020, depression is expected to be the second leading disease-related cause of disability worldwide (WHO, 2003). Presently depression is the third leading cause of mortality in 15- to 24-year-olds (O'Connell et al., 2009). In children the actual prevalence of depression is difficult to determine, as screening for depression is encouraged but not mandated in the United States. Many researchers and prominent government entities have estimated depression prevalence in the United States ranges anywhere from 4% to 28% in the adolescent population with a lifetime prevalence of around 14-25% (Asarnow et al., 2009; Cook, Peterson, & Sheldon, 2009; Cronholm et al., 2010; Lenz, Coderre, & Watanabe, 2009; Sihvola et al., 2007). Furthermore, depressive

Table 2. Total Numbers of Articles for Levels of Evidence Hierarchy and CASP Scores.

Levels of evidence	n per level	CASP scores	n per score
Level I	n = 0	CASP 5	n = 1
Level IIa	n = 9	CASP 6	n = 2
Level IIb	n = 1	CASP 7	n = 5
Level III	n = 0	CASP 8	n = 2
Level IV	n = 1	CASP 9	n = 1
Total (n = 11)		Total (n = 11)	

Note. CASP = critical appraisal skills program.

symptoms in adolescents are a strong predictor of later development of major depressive disorder (MDD; Kovacs & Lopez-Duran, 2010).

Depressive symptoms seen in adolescents are similar to those in the adult population, with two additional key symptoms noted in the school setting: diminishing academic performance and irritability (Crowe, Ward, Dunnachie, & Roberts, 2006). See table 1.

Other symptoms significant for this age group include anxiety, impaired attention span with poor concentration, which may mimic attention-deficit disorder, somatization especially of stomach pains and headache, and finally irritability that may be exhibited as aggression or even

Table 3. Detailed Evidence Table.

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Calear, A., Christensen, H. (2009)	CES-D. Depression RCMAS- Anxiety three data collection points Pre Post F/U 6 months	1,477 adolescents of age 12-17 Avg age: 14.13 grade 9, 10, 11 44% in 9 55% in 10 1% in 11 63.1% Female 36.9% Male Australia Participant characteristics representative Power analysis performed for postintervention effect size of 0.30 with a power of .90, $\alpha = .05$.	The MoodGYM is an online 5 week cognitive behavioral program 20-40 minutes to complete. Only male adolescents receiving the intervention had reduced depressive symptoms than their control counterparts at post-intervention and 6 month follow-up (Cohen's $d = 0.27-0.43$). Attrition: Postinterv. 15.6% tx, 11.7% control F/U: 18.8% tx, 19.5% control	32 schools approached, public, private, co-educational, and single-sex. 2 schools dropped out prior to initiation. Administrators: teachers & a project coordinator. External resources include the school counselor and a counseling helpline. No modifications made to the program to adapt to setting. Randomized to school	Training: Manual Online CBT based Mean number of modules taught was 3.16. 347 of 559 in intervention group completed all modules. Intervention site was separate from control site.	Outcome measured only at 6-month follow-up. No long-term individual effect. NNT utilized. Cost-effectiveness: Free The program was completed online by participants and school staff as well as other established resources already in place.	resources within the environment leads to better uptake. Teachers and other school staff can implement mental health programs in the school setting.	Ila Single RCT CASP: 7/10 See table 2 Randomized and blinded, subjects accounted for, intent to treat not reported, subjects nor clinicians were blinded to tx. Groups not representative of regular population
Gillham, J. et al. (2007)	CDI and CDRS-R four data collection points Pre Post F/U1 -3 m F/U2-3 years	697 of 4,000 Age: 12-13 Mean age: 12.13 grade 6, 7, 8 39% in 6 34% in 7 27% in 8 376 male 321 female Country: United States Screened initially with CDI. Eight data collection points Randomized to 1 of 3 conditions PRP, PEP, or control	The PRP and PEP group met for 12, once a week, 90 minute sessions. Study findings varied by school. PRP prevented onset of elevated symptoms compared to control in two schools but not in the third school. A B school PRP significantly reduced depressive symptoms over follow-up relative to control $p \leq .05$ CI 95% $1/4 -0.42$, no effect with PEP In school C PRP no effect, PEP demonstrated significant effect relative to PRP with $p < .05$ CI 95% $1/4 [0.01, 0.47]$ Attrition: 46 on F/U and 396 at 3-year F/U	Three middle schools Administrator's teachers, counselors, and psychologist graduate students. Teachers & Counselor led 25 groups School psychologist & grad students led 11 groups Research team led 2 groups	CBT based Sessions were audio-recorded. Select modules were monitored for fidelity. Training 30-hr workshop	In two schools the PRP demonstrated a decrease across the follow-up time period compared to the control and the PEP. In one school the PRP did not reduce levels of depressive symptoms over the follow-up time period and did not prevent high or clinical levels of symptoms compared to the control. Teachers stopped reminding students to attend the assessment sessions Schools varied in acceptance of the program. Cost-effectiveness: Not reported	School staff can implement programs effectively and the PRP has demonstrated it can be effectively administered by school staff and have longer lasting effects on depressive symptoms.	Ila Single RCT CASP 7/10 Randomized, all subjects accounted for, intent to treat not stated, group characteristics not reported

Utilizing already available

Table 3. (continued)

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Harnett, P. & Dadds M. (2004)	RADS Depression Anxiety by the RCMAS and coping by the ACS family conflict by the FES and protective factors by the SCS.	212 female students in the ninth grade, age 12-16 mean age 13.58 Middle to high socioeconomic status. Not representative of population. 5 data collection points Pre Post FU1 10 months FU2 1 year FU3 3 years	The RAP program is an 11, 40-50 min module based on cognitive-behavior therapy. The RAP program is an 11, 40-50 min module based on cognitive-behavior therapy. RAP-TPQ was completed to evaluate knowledge gained. Findings: Attrition: Prior to start 1 Post: 1.1% tx, 6.9% control, FU1: 10.9% tx, 15.4% control, FU2 16.4%tx, 19.0% control	Two independent private girls only schools in Australia. Eight school staff. One school counselor and seven teachers Administrators of the program were enthusiastic of intervention. Student satisfaction: moderately satisfied	1-day RAP training program provided by the researcher to 8 school staff over 6 hours. Administrators: Psychologist and 7 teachers, exp. 1-24yrs, 2 male & 6 female Manual & Video No observation Checklist 80.8% protocol delivered as planned.	School personnel administering the program reported confidence and ease of presenting the materials. Adherence to the program varied as more concepts were delivered in the early part of the program compared to the later modules. 1 year and 3 year follow-up did not demonstrate a more positive outcome for participants. Cost-effectiveness: supervision over program and training can be expensive.	School personnel are comfortable with administering a curriculum based prevention program but may lack the knowledge and skill to administer psychosocial interventions and due to busy schedules may not devote attention to rigor of program fidelity.	Iib Single nonrandomized trial CASP: 8/10 Nonrandomized, no blinding, fidelity minimal, no significant findings
Horowitz, J. et al. (2007)	CES-D, CDI: depression SASC, CASQ-R, COPE, CBQ, and a questionnaire on curriculum knowledge.	380 out of 600 ninth grade Avg age: 14.43 Representative of targeted population. Country: United States Three data collection points Pre Post FU 6 months	IPT-AST & CB Both interventions involved eight 90 minute, once a week sessions in the routine wellness class at school. Intervention and control sites were the same. At postintervention participants in both groups demonstrated lower depressive symptoms. Effect size CB $d \approx 0.37$ and IPT-AST $d \approx 0.26$ and larger effects were seen in the high-risk group with CB $d \approx 0.89$ and IPT-AST $d \approx 0.84$ Attrition: 16% tx, 15% control	Three suburban/rural high schools Eight group leaders (Master's-level psychology graduate students or recent psychology PhDs and eight co-leaders (clinical graduate students or undergraduate honor students). Supervised by senior-level clinicians. School counselors were informed about the project and consulted if needed.	Training: Manuals, training workshop, weekly supervision. Observation of therapist was not completed so program fidelity cannot be assured Barriers: No school staff directly involved. Training for program was provided by workshops with weekly supervision meetings. Schools did not permit taping of interventions.	Effects were short-term and not significant on 6-month follow-up. No long-term effects noted. Graduate students and clinical experts were used in this trial which is highly unrealistic in the real school setting. Cost-effectiveness: not cost effective due to number of mental health professionals needed to provide education. Did not utilize resources already in place.	Providing some type of intervention is probably better than not providing an intervention at all. Since effects were short term it may be beneficial to incorporate booster sessions.	Iia Single RCT CASP 8/10 randomized trial matched for economic and diversity in population. Fidelity minimal, power of study appropriate, with credible results

(continued)

Table 3. (continued)

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Lowry-Webster, Barrett, & Lock, 2003	CDI: depression SCAS	432 of possible 594 10- to 13-year-olds Mean age not reported Grades: 5, 6, 7 314 female 280 male Country: Australia Inclusion: parent & student consent	Friends for life program CBT intervention. 10 sessions for 75 min and 2 booster sessions during routine school hours in social studies class CDI significant effect seen for group versus control $p \leq .05$ Tx group demonstrated decreased scoring at both phases. Attrition: 21% at 12 m F/U no differences in groups.	7 Catholic schools, schools matched for size Administered by: teachers with 3-30 yrs exp.	Training 1 day manual & resource kit, reg. meetings, sessions randomly video-taped, checklist for teachers to self-rate. Classes integrated into curriculum	Children, parents and teachers provided satisfaction survey. Results: 86% children said would sometimes or often use skills, 70.7% parents said program useful, 88.9% teachers said program easy to administer. Cost-effectiveness: single model, teachers administered At 12-month F/U continued reduced symptoms.	Programs implemented as a part of regular curriculum can work. Booster sessions may be needed as these results show continued decrease.	Level IIa single RCT CASP 9/10 Randomized, blinded, adequate power analysis, population representative with credible results.
Possel et al. (2005)	CES-D: depression ATQ, GSE, BJI, HASSUP. The evaluation questionnaire. Measurements were baseline, postintervention and at 3-month follow-up.	303 of original 347 adolescents in the 8th grade mean age 14.18 participated. 113 male 87 female Power set at .80 Three data collection points Pre Post F/U 3 months Attrition 9 in tx, 15 in control prior to initiation Prior to f/u: 28 in tx and 11 in control	LISA (Leichtigkeit im sozialen Alltag: Training the Ease of Handling Social Aspects in Everyday Life) uses a universal cognitive-behavioral prevention 11 sessions over a 10-week period administered in two groups by one leader and one coleader. Depressive symptoms remained at a low level. $p < .05$, $g = .37$ Participants reported acceptance of the program and 2/3 rated the two key components of the program to be fun, exciting and/or not boring. Negative effect: On initial screen 24/303 rated positive on the depression screening but were allowed to continue in the program but no data from those subjects was analyzed.	Six participating schools in Germany. No characteristics of group noted for socioeconomic status, etc. Program administered by master level psychologist or graduate students Teachers were told about the program but not allowed to participate or remain in the classroom during sessions.	Each of the sessions was supervised and video recorded. Weekly meetings of leaders and coleaders. Manuals were provided. Intervention and control site were the same. Barrier: no involvement of regular staff	Three-month follow-up demonstrates significance in lower depression levels with $g = 0.75$. No mention was made of sustainment of the program or of follow-up greater than 3 months for participants. Cost-effectiveness: site resources not utilized.	Participants who have higher levels of self-efficacy show fewer depressive symptoms. Universal programs can have a positive effect.	IIa a single RCT CASP 7/10 Randomized, no blinding, d/t attrition groups not similar

(continued)

Table 3. (continued)

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Puskar et al. (2003)	RADS and CRI-Y: Depression and Coping	89 of 624 adolescents age 14-18 with an average age of 16 in the 10th grade. Primarily female (82.0%) and white (98.9%) Screened prior to selection and met set criteria. Four data collection points Pre Post F/U1 6 months F/U2 12 months	RADS demonstrated a decrease in scores from preintervention to postintervention 8.98% (6.30 points) TKC (Teaching Kids to Cope) program consists of 10 sessions focusing on self-esteem, stress and coping. Each session is 45 min once a week. For time effect $p \leq .001$, $d = .043$ Attrition rate: 0%	Four rural high schools in southwest Pennsylvania. Unknown school characteristics. Program administered by master level nurses with psychiatric mental health experience and group therapy experience	All sessions were audiotaped and randomly reviewed by therapist consultants. On average students received 9/10 sessions. Follow-up of continued improved depressive symptoms is cost effective	TKC participants who received a booster session reported decreased use of cognitive avoidance coping strategies at 9-month follow-up. Depression scores on RADS continued to decrease over the follow-up time period (2.95 points). By end of session participants were able to identify strategies to reduce intensity and emotional reactivity as well as depressed thoughts. The participants also were able to apply concepts to everyday life Results at 6 months F/U demonstrate fewer depressive symptoms $F(91, 27) = 4.51$, $p < .05$ Pilot study Program changed: language adjusted for Australia No cost-effectiveness reported	Coping skills short-term interventions can be effective in schools. Partnerships with mental health providers and schools need to be formed to improve adolescent psychosocial health. School nurses can play a major role in the provision of mental health promotion in the school system	IIa Single RCT CASP: 7/10 Randomized, no blinding reported, no cost-effectiveness reported comparatively, group characteristics similar, groups treated equally
Quayle & Dziurawiec, 2001	CDI, depression CASQ, CLQ SPPC	47 out of 70 all girls 10-13 years old Inclusion: parent and student consent Country: Australia Three data points Pre Post F/U 6 months Attrition rate: 13 control, 20 intervention Final sample 33/70 as only analyzed students who attended 3 or more sessions	Pen Prevention Program (PPP) 8, 80 min sessions during school Effects significant at F/U $p < .05$ Attrition rate: 10.6% at post & 19.1% at F/U	1 all girl private school Administered by: Post grad Psychology students	CBT intervention Program delivered 49% as planned. Training: 30 hr. Manual provided. Facilitators: developing working relationships with stakeholders such as teachers and administrators, communicating a clear direction and goal, providing teacher training and promoting school development	Results at 6 months F/U demonstrate fewer depressive symptoms $F(91, 27) = 4.51$, $p < .05$ Pilot study Program changed: language adjusted for Australia No cost-effectiveness reported	Prevention effectiveness for depression in a universal content	IIa Single RCT CASP: 5/10 Randomization procedure not reported just stated, blinding not reported, power calculation not reported, cost-effectiveness not reported

(continued)

Table 3. (continued)

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Sawyer et al. (2010)	CES-D: depression Optimistic thinking style, Adolescent Interpersonal Competence Questionnaire, Coping Action Scale, Perceived Social Support Scale, and A Social climate scale.	5,634 year 8 students (age 13–15) for 3 consecutive years. Avg age: 13.1 47% male 53% female Country: Australia Three data collection points Pre Post 1 year F/U 2 years Attrition: 8% in first group 20% in second group	Beyondblue is CBT 10 classroom sessions of 40–45 min over 3 terms. Not significant for any of the groups. Attrition rate: 9.5% at F/U 1 19.8% at F/U 2	25 matched secondary schools (50 total) willing to participate in the study. Beyondblue is in cooperation of school staff and students as well as community support	The Beyondblue school research initiative fidelity was monitored and reported on yearly. Barriers: schools are busy places which make it hard to maintain consistency and control of implemented programs. Teachers experience and knowledge vary greatly. School staff can be resistant to change. Implementation can take much longer than anticipated. Facilitators: Planning carefully and allowing time for adjustment. Gaining involvement of stakeholders is imperative.	Analyses conducted with intent-to-treat principle. CES-D scores over the 3-year period did not differ significantly between the control and intervention group. Individual-level risk and protective factors did not differ significantly. This program continues. Cost-effectiveness: Time and money is needed to train teachers.	A multilevel intervention program over a wide geographical region raises policy and practice issues as well as it failed to provide evidence of effectiveness at changing student trajectories toward depression.	Level IIa Single RCT CASP: 7/10 randomized trial matched for economic and diversity in population. Difficult to determine analysis methods, power of study appropriate, with credible results.
Shochet et al. (2001)	CDI, RADS, BHS: depression Assessment points: Pre Post F/U 10 months	260 of 295 242 randomized adolescents age 12–15 in grade 9 in 1997. Average age 13.49 Males 121 Females 139 Sample not representative From low- to middle-class socioeconomic status and mostly Anglo-Saxon. Country: Australia Inclusion: consent and students who do not meet clinical diagnosis	RAP is a universal cognitive-behavioral therapy and interpersonal based intervention. Family program includes parent education component. The program consisted of 10 one-hour weekly sessions. CDI found a significant Group x Time effect of $p < .05$ but not on the RADS. Intervention effects were significant for the RADS on intervention groups compared to control. Power calculation not reported Intent to treat not reported Attrition rate 14 on intervention 34 during t/u	One large secondary urban school, utilizing two cohorts different years. Administered by psychologist and graduate psychology students.	RAP administrators: Psychologist or psychology graduate students. The RAP training: 15 sessions involving 25 hr. School authorities would not allow splitting of classes to randomize Poor resources and time allocation problems. Good fidelity: Supervision, weekly meetings, debriefing at end of program. Intervention and control site same. 9/10 sessions delivered as intended Participants queried re: value of the program	At 10-month follow-up the RAP groups demonstrated lower rates of clinical and subclinical depression and higher rates in the healthy range compared to the control group. Anonymous nature of study did not allow for examining changes in individuals. Prevention and early intervention programs are usually less expensive. Approached as a research study. Cost-effectiveness: No school personnel involved in the study.	Universal intervention programs produce that promote mental health. Major benefit was to participants who began with moderate depressive ratings. It seems possible that depression prevention programs can be successfully implemented in the classroom.	III Cohort controlled Study CASP 8/10 No blinding, no power calculation reported. Good fidelity and program delivery.

(continued)

Table 3. (continued)

Citation	Measurement	Sample: Reach	Design: Efficacy	Procedure: Adoption	Results: Implementation	Outcomes: Maintenance	Implications	Level of Evidence/CASP
Spence, Sheffield, & Donovan (2003)	BDI, depression DT, ADIS-C, LIFE, YSR, CASAFS, the social problem-solving inventory, CASQ-R and teacher and student evaluations. Assessment points: Pre Post—BDI and Social Problem solving only F/U 12 months	1,500 1,234 started trial Age 12–14 in eighth grade. Male 47.5% Female 52.9% Control: Male 49.4% Female 50.8% Characteristics similar for targeted population. Country: Australia Inclusion: high-risk meeting cutoff of 13 BDI but not meeting clinical dx	Problem solving for life (PSFL) as part of their regular curriculum. Eight self-contained 45- to 50-min sessions once a week for 8 weeks. Participants with initial elevated depression scores (high risk) in the intervention group showed significance in the reduction of depressive symptoms and an increase in life problem-solving scores on postintervention assessment. Low risk in the intervention group demonstrated small decrease compared to control group over intervention time. Results were not maintained at the 12-month follow-up. 15% drop during intervention 217 (14.5%) dropouts during f/u	16 participating High schools in Queensland Australia. 8 schools participated in the intervention condition. Six state and 2 private schools. Administered by: 28 teachers. Homeroom teachers administered the questionnaires.	Teachers completed a sheet after each component of the program for the session taught. Not all the tasks were completed in every model. Use of current school staff. Training required 6 hr Teachers report being able to teach most of the program content. Facilitator: School staff was enthusiastic.	Student & teacher evaluations collected. 90% reported course as effective & 88% reported they would teach again. Students rated their potential to use skills taught as 34% would and 49% said maybe. Long-term significance was noted in reductions in avoidant problem-solving strategies and negative problem solving in high-risk participants. Cost-effectiveness: Relatively cheap to administer.	Longer term prevention may require a greater number of sessions, in a small group format and by individuals who have mental health training.	Ia Single RCT CASP 6/10 Not blinded, not concealed, no power calculation reported

Note. ADIS-C ¼ Structured Diagnostic Interview with High-Risk Students; ATQ ¼ Automatic Thought Questionnaire; BDI ¼ Beck Depression Inventory; BHS ¼ Beck Hopelessness Scale; BJL ¼ Bremen Youth's Event List; CASQ ¼ The Children's Attribution Style Questionnaire; CDRS-R ¼ Children's Depression Rating Scale; CES-D ¼ Children's Epidemiological Studies–Depression Scale; CDI ¼ Children's Depression Inventory; CRI-Y ¼ Coping Response Inventory for Youth; FESU ¼ The Questionnaire of Social Support; GSE ¼ General Self-Efficacy Scale; HASSUP ¼ Daily Hassles and Daily Uplifts Questionnaire; LIFE ¼ Longitudinal Follow-up Evaluation; RCMAS ¼ Revised Children's Manifest Anxiety Scale; RADS ¼ Reynolds Adolescent Depression Scale; SCAS ¼ Spence Children's Anxiety Scale; SPPC ¼ Self-Worth Sub-Scale of Self-Perception, Profile for Children; YSR: Youth Self-Report.

Table 4. Study Characteristics.

Item	Characteristic	n (%)
Program	Beyondblue	1 (9)
	CB & IPT-AST	1 (9)
	CB based on Dodge's model	1 (9)
	Friends for life program	1 (9)
	LISA	1 (9)
	MoodGYM	1 (9)
	PRP & PEP	1 (9)
	PSFL	1 (9)
	RAP	2 (18)
	TKC	1 (9)
Study design	Random control trial	9 (81)
	Nonrandom control trial	1 (9)
	Correlation/observational	1 (9)
Method	Quantitative	10 (91)
	Mixed	1 (9)
Data collection	One instrument	1 (9)
	2 or more instruments	10 (91)
	Included questionnaires	5 (46)
Depression instrument	BDI	1 (9)
	BHS	1 (9)
	CES-D	4 (36)
	CDI	5 (46)
	CDRS-R	1 (9)
	RADS	3 (27)
Data collection points	3-4	7 (64)
	5+	4 (36)
Number of participants	1-150	2 (18)
	151-500	6 (55)
	501-1,500	3 (27)
	1,501-6,000	1 (9)
Duration of program	1-5 weeks	2 (18)
	6-10 weeks	5 (46)
	11-13	4 (36)

Note. BDI = Beck Depression Inventory; BHS = Beck Hopelessness Scale; BJL = Bremen Youth's Event List; CDRS-R = Children's Depression Rating Scale; CES-D = Children's Epidemiological Studies-Depression Scale; CDI = Children's Depression Inventory; RADS = Reynolds Adolescent Depression Scale; PRP = the Pen Resiliency Program; PSFL = Problem Solving for Life; RAP = the Resourceful-Adolescent Program; TKC = the Teaching Kids to Cope.

bullying (Bhatia & Bhatia, 2007; Crowe et al., 2006; Lenz et al., 2009). The criteria for depression are met when the adolescent exhibits five or more of the symptoms occurring most of the day and nearly every day in the previous 2 weeks, causing disruption of normal childhood growth, socialization, and development (Bhatia & Bhatia, 2007).

Depression can cause a multitude of problems for the adolescent that effect social, academics, home life, and physical health (Cook et al., 2009). Socially the adolescent may withdraw from friends and family, communicate negative self-feelings, neglect hygiene, dress inappropriately, or become aggressive, which causes others to withdraw, or may exhibit fatigue, which precludes the adolescent from joining in on activities (Lenz et al., 2009). Academically, the depressed student can have difficulty maintaining attention

or focusing on work causing grades to drop dramatically; become easily frustrated with staff, school work, or peers; or have problems with truancy (Abela & Hankin, 2008). The effects on adolescent home life can be equally problematic as evidenced by withdrawal as well as irritability, fighting with siblings and parents, substance abuse, and committing delinquent acts. Depression symptoms also have significant effects on the adolescent's physical health. Many adolescents report somatic complaints such as headache, stomach pain, and insomnia, with no definable cause (Hamrin & Magomo, 2010). Perhaps the most concerning consequence of adolescent depression is the increased risk for suicide. Nearly 60% of adolescents diagnosed with depression also have suicidal ideation, with half of those attempting suicide at some point if left untreated (Lenz et al., 2009). Unfortunately, over 70% of all adolescents with depression are not identified or adequately treated. Clearly, a serious problem of depression in American adolescents exists (Bhatia & Bhatia, 2007).

Recently the IOM and the U.S. Preventive Services Task Force (USPSTF) have recommended primary care providers screen adolescents for depressive symptoms (National Institute for Health Care Management [NIHCM], 2010). While this is an admirable endeavor, it can be problematic for health care providers with limited time for interaction and assessment on well visits (Chisolm, Klima, Gardner, & Kelleher, 2009; Cronholm et al., 2010). Other barriers to this type of screening include general access to students at high risk. Many adolescents do not readily admit to emotional or behavioral manifestations, fearing the stigma of being labeled (Cook et al., 2009). Although it is true that some adolescents who have depression exhibit more somatic complaints and seek medical attention, many more adolescents lack social or financial resources for routine health care provider visits (Chisolm et al., 2009). Therefore, screening for adolescent depression may need to be completed by those who have ready access to this population. School personnel, especially school nurses, are in an optimal position to screen for adolescent depression, but many schools lack the necessary staffing, instruments, support, and/or resources (Guttu, Engelke, & Swanson, 2004). These barriers make screening for depression in schools episodic, targeted, or nonexistent. Notably, since universal screening for depression is not a routine practice, many symptoms that may indicate a risk for major depressive episodes in children are not identified (Scott et al., 2009). It is estimated as many as 30% of adolescents have symptoms that place them at risk for a major depressive episode, however; they are below diagnostic threshold and often go unrecognized (Cuijpers, Boluijt, & van Straten, 2008; NIHCM, 2010). Even when screened, only an estimated 18-20% of adolescents who are found positive will seek treatment (Chisolm et al., 2009; Scott et al., 2009). Thus screening alone does not decrease the number of depressive symptoms or improve treatment seeking in adolescents.

Another, perhaps more effective, intervention is the adoption of a depression education and prevention strategy for use in schools provided by school nurses. There are three main types of prevention strategies: indicated, selective, and universal (Abela & Hankin, 2008). Indicated strategies involve detecting signs and symptoms of the disorder in a population, such as by screening, and then directing the intervention to the targeted sample. Selective prevention strategies involve identifying a group of children at risk who have known factors that increase susceptibility but who have not developed the disorder. Both interventions require screening and targeting specific populations, while effective this also increases the risk for labeling and stigma. On the other hand, universal intervention strategies are provided to the entire population without targeting subgroups, therefore eliminating the possibility of labeling. School personnel and in particular school nurses have the unique ability to affect a change in a child's mental health because of the role they play in a child's life, second to families (O'Connell et al., 2009). This makes the school environment the perfect venue for preventative services, and school nurses the most accessible health care professionals to deliver health education and disease prevention strategies including intervention programs.

While there is a wealth of strategies or interventions for the prevention of depression in children, many of them are tailored specifically to adolescents identified by screening or targeted as having depressive symptoms. Very few of these interventions are general enough to encompass adolescents with below threshold symptoms. However, the use of universal cognitive-behavioral therapy (CBT) found in a universal prevention program do contain interventions that are general enough to capture both subthreshold and targeted populations. These interventions are geared toward providing all students with an understanding of depression, teaching students successful coping strategies to deal with life's problems, and supporting as well as empowering students (Abela & Hankin, 2008; Shochet et al., 2001). What is not known is whether these universal prevention programs can be implemented easily in the school setting and are easy enough for established school nurses to administer.

Conceptual Framework

This review was guided by the RE-AIM framework. The RE-AIM model was developed by Glasgow, Vogt, and Boles in 1999 to assist in translating research into practice (Glasgow, Klesges, Dziewaltowski, Estabrooks, & Vogt, 2006). This framework has been especially useful in the selection of a health promotion evidence-based program or when evaluating alternative programs (Glasgow, Klesges, Dziewaltowski, Bull, & Estabrooks, 2004). The framework contains five steps in the translation of pertinent research into practice: reach, effectiveness, adoption, implementation, and maintenance (Glasgow et al., 2006). In order for

a program or intervention to be effective, it must perform well in each of the identified areas.

Aim

The aim of this article is to systematically review previously implemented adolescent depression prevention program studies that can be administered by school nurses in the school setting utilizing the RE-AIM framework and published in a national database from 2001 to 2010 to identify. The following questions will then be answered through the review process: What type of interventions do these programs involve? What impact does the program have on the individuals and the organization? What are the barriers and facilitators of these programs to translation by the school nurse into the real-world (school) setting? The findings of this review will assist school nurses to plan, develop, and implement future adolescent depression prevention programs that translate easily to the school environment. See table 3.

Literature Search Methods

A systematic review allows a comprehensive portrayal of relevant research reviews on current depression prevention programs to improve evidence-based clinical practice initiatives. In this article, this will be achieved by utilizing the RE-AIM conceptual framework. This particular method serves to inform clinical practice by identifying, collecting, analyzing, and evaluating research evidence from sources related to depression prevention programs for adolescents (Whittemore & Knafl, 2005). Conducting a review using a systematic method through the guiding framework of the RE-AIM model will provide a focus on factors of implementation and therefore translation into practice of potential programs by school nurses (Kirkevold, 1997; Whittemore & Knafl, 2005).

Database Searches

The search for previously implemented programs to decrease depression symptoms in adolescents was conducted in May and June 2010 utilizing keywords: *adolescent depression, childhood, depression, prevention programs, health promotion, school-based, interventions, and school nurses*. An electronic search including the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsychINFO, PubMed, Ovid, the Education Resource Center (ERIC), and Proquest was completed utilizing search criteria for articles dating from 2000 to 2010.

Inclusion and Exclusion Criteria

Studies were initially included if they (a) were used to prevent or decrease depressive symptoms in children, (b) involved only school-based program delivery, (c) examined psychometric properties of interventions or program, (d) were specifically tailored/adapted for adolescents, and

(e) utilized a universal prevention intervention. Programs were excluded if they (a) were selected or indicated intervention studies, (b) did not measure adolescent depression pre- and postintervention, (c) do not include school-based delivery, and (d) did not evaluate psychometric properties. After inclusion and exclusion criteria were applied, 11 articles were accepted for final review and use.

Review Discussion

This systematic review utilized the guiding framework of the RE-AIM to discover the state of the science in adolescent prevention programs. By conducting the search in this method, the complexities of the review increase substantially. Those studies that achieved inclusion and exclusion criteria were critically appraised, reviewed for level of evidence, methodological quality, and analyzed for translational informational value (Whittemore & Knafl, 2005). On the levels of evidence hierarchy, 9 of the 11 articles ranked on the second level IIa (randomized control trials). Utilizing the critical appraisal skills program (CASP) that specifically examines a prevention strategy/program's ability to translate into practice, the studies did not fare as well. Only one study achieved a rating of 9, while most of the studies were rated a 7 ($n = 5$). Specifically, the articles were evaluated for their translation into the school environment as well as effectiveness and ease of implementation. See table 4.

Analysis Based on the RE-AIM Framework

Reach. Reach is the first of five steps through which the studies were compared for their ability to translate into real-world practice. Reach was identified in the studies as the individuals participating and their representativeness of the targeted population. Each of the studies performed fairly well in this category. Many of the studies described recruitment process of participants in detail, but only four delineated inclusion and exclusion criteria including three studies that did so by screening. Those obtaining the best results at recruitment did so through face-to-face contact with the potential participants (Possel, Baldus, Horn, Groen, & Hautzinger, 2005; Shochet et al., 2001). The reviewed studies did moderately well in obtaining a sample that was representative of the targeted population in age, diversity of ethnicity, and socioeconomic status. However, it should be noted that 6 of the 11 studies were completed in countries other than the United States, with 4 completed in Australia ($n = 4$), 1 in Germany ($n = 1$), and 1 in England ($n = 1$). Another aspect of the reach in dissemination of a potential prevention programs is the identification and reduction if possible of potential barriers to targeted sample participation. Because adolescents are still too young to provide consent to participate without a legal guardian, any prevention intervention needs to be universal and a part of the regular wellness curriculum. This type of intervention

provides some built in protective factors for adolescents including preventing social stigma, capture of the intended population, and increasing the knowledge of mental health issues. All of these studies were chosen on the basis of their universal interventions and potential for adaptability into the school setting.

Effectiveness. Effectiveness is the second step in assessing the reviewed programs for translation into the school environment. Effectiveness in the lens of RE-AIM is not just how well the program works in the setting but also what types of positive and negative outcomes result. The studies reviewed did a good job with identifying small to moderate positive outcomes as rated on the depression instruments; however, only three of the studies examined the satisfaction of participants with the prevention intervention program ($n = 3$). From these three studies, the interventions used were accepted by the sample and even demonstrated some immediate positive changes in health behavior, as evidenced by participants applying the concepts learned to everyday life. Another key effectiveness component is clarity of the prevention intervention program process. Several studies struggled with this component as the school environment demands flexibility and is not considered a controlled environment.

Adoption. Adoption in the lens of RE-AIM is delineated as the program uptake rate of settings and representatives within that setting. For this review, the school environment uptake rates of reviewed studies were difficult to assess as most of the studies did not report how many schools were initially contacted for potential participation. Of the 11 studies reviewed, only two studies reported refusal by participating schools ($n = 2$). Representatives within the school are a key component to the adoption phase of a prevention intervention program. These representatives, also known as stakeholders, within the school environment include school staff, school nurses, and administrative staff. Partnerships within the community must also be considered in this process such as public health clinics, health care providers, and other pertinent resources that may have a vested interest. Therefore, it is imperative that stakeholders are aware of the problem and form a favorable attitude toward implementing and adopting the program. One way to ensure stakeholders are part of the adoption process is to include them in the planning, development, and implementation of the prevention strategy. Of the studies reviewed, six involved the school staff in the prevention intervention dissemination process ($n = 6$; Calear, Christensen, Mackinnon, Griffiths, & O'Kearney, 2009; Gillham et al., 2007; Harnett & Dadds, 2004; Sawyer et al., 2010; Spence, Sheffield, & Donovan, 2003; Webster, Barrett, & Lock, 2001). Two studies that did not utilize school staff reported increased barriers such as a greater number of missing or incomplete data, difficulty in recruiting participants, and more issues with program

fidelity ($n = 2$; Possel et al., 2005; Shochet et al., 2001). Another factor in examining adoption potential is how favorable or unfavorable the attitudes of the stakeholders are toward the proposed prevention program. Three of the studies provided questionnaires to the teachers, nurses, and other school staff who assisted with the dissemination of the program and found favorable attitudes of staff when directly involved with providing interventions ($n = 3$; Harnett & Dadds, 2004; Spence et al., 2003; Webster et al., 2001). None of the studies reported trials of the program prior to full implementation, nor did they report collaboration between stakeholders and researchers prior to developing and planning prevention interventions. It is important to note that intervention programs relying on professionals or resources not naturally a part of the established setting are more difficult to perform in the real-world setting, do not often have support of stakeholders comparatively, and are less likely to be adopted by those organizations (Solberg et al., 2010).

Implementation. The fourth step of the RE-AIM framework directly relates to the prevention program's fidelity and consistency. This is the extent to which the program is delivered as designed to the participants. Fidelity is often used as a measure of soundness of outcome conclusions for a prevention program. If program fidelity is not maintained, then results either negative or positive can be weakened (Bellg et al., 2004). To optimize program fidelity, appropriate training as well as resources for reference must be provided to those who will be administering the intervention. Of the studies analyzed for this review, seven reported training for intervention providers ($n = 7$). By far the most common type of training was the provision of a manual and 1-day instruction ($n = 5$). Supervision is also important in maintaining intervention integrity and fidelity. Of the studies reviewed, three studies reported providing completion checklist with program modules and two reported audiotaping sessions with random audits for fidelity on teaching of key concepts (Puskar et al., 2006). Audiotaping, videotaping, and direct observation are seen as the "gold standard" in assessing fidelity in intervention provision (Bellg et al., 2004). Interestingly some school personnel were not receptive to these methods, and in two of the studies either administration prevented supervision activities or providers of the intervention themselves requested no observation ($n = 2$; Horowitz, Garber, Ciesla, Young, & Mufson, 2007; Shochet et al., 2001). Another good indicator of intervention fidelity is the proportion of modules of an intervention that was completed. Of the studies reviewed, only three reported average number of modules completed by intervention participants ($n = 3$; Callear et al., 2009; Harnett & Dadds, 2004; Puskar, Sereika, & Tusaie-Mumford, 2003; Quayle & Dziurawiec, 2001). These numbers ranged from slightly less than $\frac{1}{2}$ to $\frac{9}{10}$ ths of the modules delivered as recommended. Two of the studies reported changes in the school environment and school

attendance were the biggest barriers to presenting the modules as indicated (Callear et al., 2009; Gillham et al., 2007). The knowledge gained by the studies reporting such barriers is helpful in the planning of future interventions.

Maintenance. The final step in the RE-AIM framework is maintenance, which is seen at both the individual level and the organizational level. At the individual level, this specific step refers to the participant's long-term effects. In examining maintenance at the individual level, we analyzed the studies in relation to follow-up, data point collection, and resulting measurement of depressive symptoms. Follow-up periods ranged anywhere from 3 months to 3 years. Most of the studies conducted at least a short follow-up of 3 months to 1 year after the postintervention data collection point ($n = 8$). The recommended follow-up to estimate prevention intervention maintenance of effects is 2 years or more. Three of the studies met this objective as each followed the participants for greater than 2 years, and two studies followed the participants for 3 years ($n = 2$; Gillham et al., 2007; Harnett & Dadds, 2004). Outcome at the individual level for these participants during follow-up found that the intervention had shorter than 2-year positive outcomes. The two studies following participants for 3 years found positive effects started to fall between the 1-year mark and the 2-year mark (Gillham et al., 2007). While other reviewed studies found the effects were decreased as early as 6 months (Callear et al., 2009; Horowitz et al., 2007). These studies varied according to intervention program presented, with more positive long-term result of maintenance found with the Teaching Kids to Cope (TKC) program, Problem Solving for Life (PSFL) intervention, and the Resourceful-Adolescent Program (RAP), which reported continued decreased depressive symptoms up to 1 year (Puskar et al., 2003; Shochet et al., 2001; Spence et al., 2003). Maintenance is observed at the organizational level as the incorporation of the intervention program into routine practice as part of the school wellness curriculum. This is measured as adoption of the intervention past the initial implementation and research period of at least 2 years. Only three of the studies reported continued utilization of the prevention intervention programs ($n = 3$; Gillham et al., 2007; Quayle & Dziurawiec, 2001; Sawyer et al., 2010). Of those three, two of the programs, the Pen Resiliency Program (PRP) and Penn Enhancement Program (PEP), have been tested and used in the United States (PRP & PEP; Gillham et al., 2007).

One other factor to consider when evaluating the potential translation of prevention interventions is the cost-effectiveness of the program. While programs, training, and materials can be expensive, there are simple measures that can be used to decrease the cost. First, and perhaps most important, is the setting of the program. Considering that school is one of the places adolescents must go, this is an ideal environment for a prevention program. However, it is also a busy setting that can be unpredictable. Gaining the

collaboration of stakeholders (school staff and administration) in this setting is paramount to the success of a prevention program. Involvement of school staff should begin in the early planning stage and continue through to maintenance, and resources should be utilized within the school environment to contain unnecessary costs (Puskar et al., 2003).

Implications for Nursing Practice

As a setting, schools represent an important environment in the life of an adolescent and an effective avenue for the delivery of mental health promotion programs (Puskar & Bernardo, 2007). The need for these types of school-based mental health programs is critical and has been acknowledged on a national and global level (O'Connell et al., 2009). As part of the school staff, school nurses are seen as the health care representative in the school setting and are essential in the identifying, planning, and assisting in the delivery of health promotion programs. The National Association of School Nurses has identified the school nurse in the role of leadership for school health policies and programs, including school mental health programs as one of the 7 core roles (Magalnick & Mazyck, 2008). In assuming this role, the school nurse can assess not only students for risk factors of adolescent depression, but also the school environment to identify barriers and facilitators to the adoption and implementation of adolescent depression prevention programs.

School nurses enjoy high credibility not only with students and school staff but also with parents and guardians. This credibility could be used in promoting and advocating for adolescent depression prevention programs and providing basic mental health education to parents through parent-teacher organization (PTO) meetings or other school-related events such as health fairs and orientation sessions. The implication of this credibility in promoting school mental health policy development at the local, state, and national level is an untapped and valuable resource.

Review of Findings

With the increased focus on translational research on depression prevention programs for adolescents by the IOM, the aims of this review were to examine previous studies of prevention programs for their ability to translate and be of use into the school setting. Specifically this review intended to answer the questions presented by utilizing the RE-AIM model, which has proven effective in both tobacco and obesity prevention programs (Glanz & Bishop, 2010). Although these studies performed well on most of the individual level (reach and individual effectiveness) components of the RE-AIM, many neglected to report effectively on the setting (adoption, implementation, and maintenance) components. This, in particular, made determining their ability to translate into a real-world setting (the school

environment) difficult. It is of particular importance for translational studies to report these aspects so programs can be assessed by potential adopters; and in this case, school nurses for fit to setting and for developers of future programs to understand and reduce or eliminate potential barriers to utilization.

Conclusion

Depression is one of the most pervasive mental health problems among adolescents (Reynolds & Mazza, 1998; Woolley & Curtis, 2007). Given the implications for the future, it is also a problem that needs addressing in a timely manner. Although the idea of intervention programs to decrease or prevent adolescent depression is not a new one, there is still much work to be done in translating these programs into practice. School nurses can be a key in this if they are given the ability to assist in development or choosing of an appropriate program for their intended school. Universal adolescent depression prevention programs have the potential of preventing or reducing adolescent depressive symptoms if successfully implemented in the school environment by school nurses. Through utilizing the RE-AIM model in this review, knowledge has been gained as to how programs were previously implemented in the school environment, the identification of barriers, and facilitators to the process of translating these programs into the real-world setting, and recommendations on future research to assist in translating these programs into practice. This information can assist in understanding the current state in relation to the implementation of prevention programs for adolescent depression and can serve to inform future prevention program efforts. Further research is needed to examine the school nurse's role as a liaison in bridging the gap between research and translation of practices in the school environment.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- Abela, J. R. Z., & Hankin, B. L. (2008). Depression in children and adolescents: Causes, treatment, and prevention. In J. R. Z. Abela, & B. L. Hankin (Eds.), *Handbook of depression in children and adolescents* (pp. 3-5). New York, NY: Guilford Press.
- Asarnow, J. R., Jaycox, L. H., Tang, L., Duan, N., LaBorde, A. P., Zeledon, L. R., . . . Wells, K. B. (2009). Long-term benefits of short-term quality improvement interventions for depressed youths in primary care. *American Journal of Psychiatry*, *166*, 1002-1010.

- Bellg, A. J., Borrelli, B., Resnick, B., Hecht, J., Minicucci, D. S., Ory, M., . . . Czajkowski, S. (2004). Enhancing treatment fidelity in health behavior change studies: Best practices and recommendations from the NIH Behavior Change Consortium. *Health Psychology, 23*, 443–451. doi:10.1037/0278-6133.23.5.443
- Bhatia, S. K., & Bhatia, S. C. (2007). Childhood and adolescent depression. *Am Fam Physician, 75*, 73–80.
- Calear, A. L., Christensen, H., Mackinnon, A., Griffiths, K. M., & O'Kearney, R. (2009). The youth mood project: A cluster randomized controlled trial of an online cognitive behavioral program with adolescents. *J Consult Clin Psychol, 77*, 1021–1032. doi:2009-22711-002 [pii]10.1037/a0017391
- Chisolm, D. J., Klima, J., Gardner, W., & Kelleher, K. J. (2009). Adolescent behavioral risk screening and use of health services. *Adm Policy Ment Health, 36*, 374–380. doi:10.1007/s10488-009-0245-8
- Cook, N. M., Peterson, J., & Sheldon, C. (2009). Adolescent depression: An update and guide to clinical decision making. *Psychiatry, 6*(9), 17–31.
- Cronholm, P. F., Barg, F. K., Pailler, M. E., Wintersteen, M. B., Diamond, G. S., & Fein, J. A. (2010). Adolescent depression: Views of health care providers in a pediatric emergency department. *Pediatr Emerg Care, 26*, 111–117. doi: 10.1097/PEC.0b013e3181ce2f85
- Crowe, M., Ward, N., Dunnachie, B., & Roberts, M. (2006). Characteristics of adolescent depression. *Int J Ment Health Nurs, 15*, 10–18.
- Cuijpers, P., Boluijt, P., & van Straten, A. (2008). Screening of depression in adolescents through the Internet: Sensitivity and specificity of two screening questionnaires. *Eur Child Adolesc Psychiatry, 17*, 32–38.
- Foster, S., Rollefson, M., Doksum, T., Noonan, D., Robinson, G., & Teich, J. (2005). *School mental health services in the United States 2002-2003*. (DHHS Pub. No. (SMA) 05-4068). Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration.
- Gillham, J. E., Reivich, K. J., Freres, D. R., Chaplin, T. M., Shatté, A. J., Samuels, B., . . . Seligman, M. E. (2007). School-based prevention of depressive symptoms: A randomized controlled study of the effectiveness and specificity of the Penn Resiliency Program. *J Consult Clin Psychol, 75*, 9–19. doi:2007-00916-002 [pii]10.1037/0022-006X.75.1.9
- Glanz, K., & Bishop, D. B. (2010). Social theory in development and implementation of public health interventions. *Ann Rev Public Health*. Retrieved July 10, 2012, from <http://www.annualreviews.org/doi/pdf/10.1146/annurev.publhealth.012809.103604>
- Glasgow, R. E., Klesges, L. M., Dziewaltowski, D. A., Bull, S. S., & Estabrooks, P. (2004). The future of health behavior change research: What is needed to improve translation of research into health promotion practice? *Ann Behav Med, 27*, 3–12. doi:10.1207/s15324796abm2701_2
- Glasgow, R. E., Klesges, L. M., Dziewaltowski, D. A., Estabrooks, P. A., & Vogt, T. M. (2006). Evaluating the impact of health promotion programs: Using the RE-AIM framework to form summary measures for decision making involving complex issues. *Health Educ Res, 21*, 688–694.
- Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Health Promotion, 8*(9), 1322–1327.
- Guttu, M., Engelke, M. K., & Swanson, M. (2004). Does the school nurse-to-student ratio make a difference? *Journal of School Health, 74*, 6–9.
- Hamrin, V., & Magorno, M. (2010). Assessment of adolescents for depression in the pediatric primary care setting. *Pediatr Nurs, 36*, 103–111.
- Harnett, P., & Dadds, M. R. (2004). Training school personnel to implement a universal school-based prevention of depression program under real-world conditions. *Journal of School Psychology, 42*, 343–357.
- Horowitz, J. L., Garber, J., Ciesia, J. A., Young, J. F., & Mufson, L. (2007). Prevention of depressive symptoms in adolescents: A randomized trial of cognitive-behavioral and interpersonal prevention programs. *J Consult Clin Psychol, 75*, 693–706. doi: 2007-13640-003 [pii]10.1037/0022-006X.75.5.693
- Institute of Medicine (US). (2001). Committee on health and behavior: Research, practice, and policy. *Health and behavior: The interplay of biological, behavioral, and societal influences*. Washington, DC: National Academies Press. Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK43743/>
- Kirkevoid, M. (1997). Integrative nursing research - an important strategy to further the development of nursing science and nursing practice. *Journal of Advanced Nursing, 25*, 977–984.
- Kovacs, M., & Lopez-Duran, N. (2010). Prodromal symptoms and atypical affectivity as predictors of major depression in juveniles: Implications for prevention. *J Child Psychol Psychiatry, 51*, 472–496. doi:JCPP2230 [pii]10.1111/j.1469-7610.2010.02230.x
- Lenz, K., Coderre, K., & Watanabe, M. D. (2009). Overview of depression and its management in children and adolescents. *Formulary, 44*, 172–180.
- Lynch, F. L., & Clarke, G. N. (2006). Estimating the economic burden of depression in children and adolescents. *American Journal of Preventive Medicine, 31*, S143–S151. doi:S0749-3797(06)00242-X [pii]10.1016/j.amepre.2006.07.001
- Magalnick, H., & Mazyck, D. (2008). Role of the school nurse in providing school health services. *Pediatrics, 121*, 1052–1056. doi:121/5/1052 [pii]10.1542/peds.2008-0382
- National Institute for Health Care Management. (2010). *Improving early identification & treatment of adolescent depression: Considerations & strategies for health plans NIHCM Foundation Issue Brief*. National Institute for Health Care Management Foundation. Retrieved from http://nihcm.org/pdf/Adol_MH_Issue_Brief_FINAL.pdf Is the location for this brief.
- O'Connell, M. E., Boat, T., & Warner, K. E. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. Washington, DC: National Academies Press.

- Possel, P., Baldus, C., Horn, A. B., Groen, G., & Hautzinger, M. (2005). Influence of general self-efficacy on the effects of a school-based universal primary prevention program of depressive symptoms in adolescents: A randomized and controlled follow-up study. *J Child Psychol Psychiatry, 46*, 982-994. doi:JCPP395 [pii]10.1111/j.1469-7610.2004.00395.x
- Puskar, K. R., & Bernardo, L. M. (2007). Mental health and academic achievement: Role of school nurses. *J Spec Pediatr Nurs, 12*, 215-223. doi:JSPN117 [pii]10.1111/j.1744-6155.2007.00117.x
- Puskar, K., Sereika, S., & Tusaie-Mumford, K. (2003). Effects of the Teaching Kids to Cope (TKC) program on outcomes of depression and coping among rural adolescents. *Journal of Child Adolescent Psychiatric Nursing, 16*, 71-80.
- Puskar, K. R., Stark, K. H., Fertman, C. I., Bernardo, L. M., Engberg, R. A., & Barton, R. S. (2006). School based mental health promotion: Nursing interventions for depressive symptoms in rural adolescents. *Californian J Health Promot, 4*, 13-20. doi:10.1901/jaba.2006.4-13
- Quayle, D., & Dziurawiec, S. (2001). The effect of an optimism and lifeskills program on depressive symptoms in preadolescents. *Behaviour Change, 18*, 194-204.
- Reynolds, W. M., & Mazza, J. J. (1998). Reliability and validity of the Reynolds adolescent depression scale with young adolescents. *Journal of School Psychology, 36*, 295-312.
- Sawyer, M. G., Pfeiffer, S., Spence, S. H., Bond, L., Graetz, B., Kay, D., . . . Sheffield, J. (2010). School-based prevention of depression: A randomised controlled study of the beyondblue schools research initiative. *Journal of Child Psychology Psychiatry, 51*, 199-209. doi:JCPP2136 [pii]10.1111/j.1469-7610.2009.02136.x
- Scott, M. A., Wilcox, H. C., Schonfeld, I. S., Davies, M., Hicks, R. C., Turner, J. B., & Shaffer, D. (2009). School-based screening to identify at-risk students not already known to school professionals: The Columbia suicide screen. *Am J Public Health, 99*, 334-339. doi:AJPH.2007.127928 [pii]10.2105/AJPH.2007.127928
- Shochet, I. M., Dadds, M. R., Holland, D., Whitefield, K., Harnett, P. H., & Osgarby, S. M. (2001). The efficacy of a universal school-based program to prevent adolescent depression. *Journal of Clinical Child Psychology, 30*, 303-315.
- Sihvola, E., Keski-Rahkonen, A., Dick, D. M., Pulkkinen, L., Rose, R. J., Marttunen, M., & Kaprio, J. (2007). Minor depression in adolescence: phenomenology and clinical correlates. *Journal of Affective Disorders, 97*, 211-218.
- Solberg, L. I., Glasgow, R. E., Unützer, J., Jaeckels, N., Ofstedahl, G., Beck, A., . . . Crain, A. L. (2010). Partnership research: A practical trial design for evaluation of a natural experiment to improve depression care. *Medical Care, 48*, 576-582.
- Spence, S. H., Sheffield, J. K., & Donovan, C. L. (2003). Preventing adolescent depression: An evaluation of the problem solving for life program. *Journal of Consulting and Clinical Psychology, 71*, 3-13.
- U.S. Department of Health and Human Services. (2011). Annual Report on Health Status and Service Needs of America's Children: *Child Health USA 2011: Health Status Adolescent*. Retrieved from <http://mchb.hrsa.gov/publications/child-healthusa.html>
- Webster, H. M., Barrett, P., & Lock, S. (2001). A universal prevention trial of Anxiety symptomology during childhood: Results at 1-year follow-up. *Behavior Change, 20*, 25-42.
- Whittemore, R., & Knaf, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing, 52*, 546-553.
- World Health Organization. (Ed.) (2003). *Caring for children and adolescents with mental disorders: Setting WHO directions*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (Ed.) (2007). *Child and adolescent mental health initiatives of the department of mental health and substance abuse*. Geneva, Switzerland: World Health Organization.
- Williamson, D. E., Birmaher, B., Axelson, D. A., Ryan, N. D., & Dahl, R. E. (2004). First episode of depression in children at low and high familial risk for depression. *Journal of the American Academy of Child Psychiatry, 43*, 291-297. doi:S0890-8567(09)66047-0 [pii]10.1097/00004583-200403000-00010
- Wintersteen, M. B. (2010). Standardized screening for suicidal adolescents in primary care. *Pediatrics, 125*, 938-944. doi:peds.2009-2458 [pii]10.1542/peds.2009-2458
- Woolley, M. E., & Curtis, H. W. (2007). Assessing depression in latency-age children: A guide for school social workers. *Children & Schools, 29*, 209-218.

Author Biography

Teresa D. Carnevale, MSN, RN, Medical University of South Carolina, Charleston, SC, USA, is an instructor at Appalachian State University.

Adolescent Depression Education Program for Middle School Nurses: A Feasibility Study

Abstract

Background. The rates and consequences of reoccurring depression in later adolescence and young adulthood are significant. Child mental health professionals agree depression can result in devastating consequences if not identified or treated early.

Objectives. To determine the feasibility of providing online education about adolescent depression to middle school nurses to increase early identification, referral and treatment of adolescents.

Methods. A sample of 17 school nurses in western North Carolina employed by two state health departments participated in an online education program on adolescent depression and the use of an adolescent depression screening instrument. The numbers from aggregate agency tracking logs provided by the school nurse on the follow up survey were utilized in data collection. Also participants were surveyed both pre and post educational program intervention using the Depression Attitude Questionnaire (DAQ) and the Quick Identification of Depression Screening – Clinician (QIDS-C) instrument. The school nurses were followed for 3 months post educational intervention to determine if the intervention 1) increased their ability to identify depressed adolescents, 2) increased their percentage use of the QIDS-C to screen identified children, and 3) increased the number of children referred for follow-up evaluation after a positive identification

Results. Findings show that after participating in the online educational program, school nurses increased their number of students seen only slightly from the previous year; most school nurses demonstrated a higher level of knowledge of depression and a higher level of professional ease with more positive attitudes toward the origin of depression and the treatment designed to make a change in depressive symptoms; some but not all nurses used the QIDS-C screening instrument and the number of referrals remained low.

Conclusions. Initial response to the online educational program was favorable; only one of the invited 18 school nurses did not respond. Responses about the study were positive, indicating school nurses are in a prime position to identify adolescent depression symptoms and make a difference in the lives of those touched by the disease. However, further development is needed in the provision of education and behavior change strategies with school nurses.

Adolescent Depression Education Program for Middle School Nurses:

A Feasibility Study

Adolescence is a time of growth and transition for a child. It is often characterized by the media as an intensely emotional period fueled by hormones. In popular western culture, teenagers are expected to be moody and have periods of what is referred to as “teenage angst.” While it is true that the teenage years are a time of physical and psychological growth, episodes of long-lasting depressive symptoms are not considered a part of normal adolescence and should not be perceived as such.

Adolescent depression is a serious, potentially chronic problem affecting as many as 25% of American youth with the first episode of depression often occurring between the ages of 11-15 (Gladstone, Beardslee, & O'Connor, 2011; Naicker, Galambos, Zeng, Senthilselvan, & Colman, 2013). Estimates of the incidence of adolescent depression vary greatly according to the reporting agency or entity, ranging from a modest 5% to a staggering 25%. This wide range suggests that the true incidence is not known and reflects the nations’ ‘head-in-the-sand’ approach to identifying adolescents with mental illness. To encourage better practices, the United States Preventive Services Task Force (USPSTF) has directed that adolescents who have depressive symptoms be evaluated and treated as soon as possible. In addition, a primary care directive has called for the early identification and treatment of children with mental health issues. However, despite these recent attempts to address depression in adolescents, a few notable barriers remain.

First, even though there is a primary care directive for the early identification and treatment of children with mental health issues, primary healthcare providers may not feel qualified to diagnose mental health issues in children (NIHCM, 2010). These primary healthcare providers also may hesitate to diagnose adolescents with a mental health illness like depression, knowing that once a stigma is attached to a child it could potentially follow the child throughout the remainder of his or her life. Finally, in many rural settings there is a distinct lack of qualified mental healthcare providers to whom primary care providers can refer adolescents for treatment, so providers may forego the screening process, feeling they have no recourse if depression is identified.

In 2010, the National Institute for Health Care Management (NIHCM) called for primary healthcare providers to help fill the gap left by the void of mental healthcare providers (Santoro & Murphy, 2010). As a result, primary healthcare providers are now beginning to screen adolescents during routine and preventive office visits. However, many adolescents do not seek yearly preventive care or have routine healthcare opportunities to take advantage of screenings. These adolescents must be identified through other means. The middle school nurse is in a key position to identify and screen adolescents with depressive symptoms, and refer those who have a positive screen to a primary healthcare provider.

The role of the school nurse is and has always been the promotion of health and prevention of disease in school-aged children. School nurses have the distinct role of being in the school environment with access to children of all ages and social class, and they routinely provide screenings for various problems and disorders including: weight, height, body mass index (BMI), vision, and dental. Screening for depression, however, is

not a required measurement in most schools. And, like other primary care providers, school nurses in general may feel inadequate in screening for depression in adolescent children (Guttu, Engelke, & Swanson, 2004).

The purpose of this study is to determine if the use of an online educational program for the dissemination of adolescent depression information is feasible. In particular, the study was designed to determine if: 1) school nurses who have participated in an online depression educational program on adolescent depression will demonstrate a change in their ability to identify signs and symptoms of depression in middle school adolescents; 2) school nurses who have participated in the online depression education program will show a proficiency in using the QIDS-C screening instrument; and 3) school nurses who have participated in the online depression education program will demonstrate a change in the number of adolescents referred for depression.

Theoretical Framework

The Active Change Model (ACM) served as the theoretical framework for this study. The ACM was developed by Quade & Brown in 2001 to identify the conscious progression of steps taken related directly to changing behavior or a practice (K. Quade & Brown, 2001). The ACM identifies six steps which include *Perceive, Describe, Accept, Question, Act and Change*. According to this model, the steps begin when an individual gains information about a topic. Next, the individual gains the ability to fully describe the topic, accepts the information as accurate regardless of personal feelings, determines any questions left to be answered, seeks answers to the questions, and identifies a change is indicated. This identification causes the individual to question his or her own practice, decide if the new information is valid, and incorporate the change into practice. If the

individual feels this change is needed and valid, she or he will act, and this action will lead to a permanent change in practice. The ACM was applied to this research study in the following manner: Nurses were provided the information from the online educational program, which is intended to create a change in the school nurse's personal practice by helping the nurse identify and refer students with depressive symptoms.

Methods

Design

The study employed a descriptive, quasi-experimental pre - post design: 1) historical data collected from school nurses answering REDCap surveys on numbers of students seen from the agency logs 1 year prior to the study to determine the incidence of past numbers of mental health cases and 2) data collected from the nurses and their school agency logs using the REDCap surveys after application of the educational program. The previous year's data served as a control for the study. Measures were collected at 1 month, 2 months and 3 months post-intervention.

Purpose, Research Questions & Aims

The purpose of this feasibility study was to train school nurses to use a screening instrument, increase knowledge of signs and symptoms present in children with depression, and improve the identification and referral process via an online educational training program.

The specific aims of this study were to:

Aim 1: Provide online education to teach school nurses to recognize the signs and symptoms of adolescent depression.

- Administer an online educational and training program to train school nurses to recognize normal versus abnormal psychosocial development and the signs and symptoms of adolescent depression.
- Examine the effectiveness of the online educational program.

Aim 2: Train school nurses to utilize the Quick Inventory of Depression

Screening – Clinician (QIDS-C) instrument to screen for depression in adolescents.

- Develop and conduct an online program to train school nurses to use the QIDS-C.
- Examine the effectiveness of the online training program.

Aim 3: Develop and implement a referral process for adolescent children who score positively for depression.

- Develop a training manual and a policy for screening and referral resource handouts for school nurses, and a handout for parents on referral sources.
- Train school nurses on the referral process.
- Examine the effectiveness of the referral process.

Null Hypothesis:

Hypothesis 1: School nurses who have participated in an online depression educational program on adolescent depression will demonstrate no change in the ability to identify signs and symptoms of depression in middle-school adolescents.

Hypothesis 2: School nurses who have participated in the online depression education program will show no increase in proficiency in using the QIDS-C screening instrument.

Hypothesis 3: School nurses who have participated in the online depression education program will demonstrate no change in the number of adolescents referred for depression.

Setting

The questionnaire surveys and the educational intervention utilized in this study were conducted in an online environment, thus the participants completed the intervention in the school in which they were employed. The program consisted of a three-part educational module presented on a Moodle private platform hosted by Key to School (KTS) a VidyaMantra company. The Moodle platform was only accessible via a link provided to research participants. The questionnaire surveys also were delivered in an online format through Research Electronic Data Capture (REDCap) database, a web-based survey system sponsored by the South Carolina Clinical and Translational Research Institute (SCTR)(Harris et al., 2009). The study was reviewed by the Institutional Review Board (IRB) of the Medical University of South Carolina prior to recruitment or marketing of the educational program and distribution of the emails with the study link or questionnaire survey links. Letters of approval were sought and provided in support of the study from the public health departments where participants were employed. Institutional Review Board (IRB) approval was sought and obtained from both the PI's work place, and the Medical University of South Carolina.

Sample

In North Carolina, school nurses can be employed or funded through several different means, including but not limited to; the school system, the public health department, private organizations, or community hospitals. The study sample included

school nurses from two different counties and four different school systems in western North Carolina employed through the public health department in their respective counties. In the two participating health departments there are 32 school nurses. Of the 32 school nurses, only 18 were eligible to participate in this study. Of those participating in the research study, individuals ranged in age between 31 and 60 and had worked as a school nurse an average of 6 years.

Inclusion criteria: 1) willing to consent, 2) worked with adolescent children in the capacity of a school nurse in the current facility for a minimum of 6 months prior to the beginning of the research study, 3) worked with middle-school children (age 11-15) at least 25% time of their current position as a school nurse. 4) had access to the Internet and 5) was able to read and write in English.

Exclusion criteria: 1) had not worked in the current facility 1 year prior to the beginning of the research study, 2) worked as a middle-school nurse less than 25% of time, (3) planned to move out of the study area within the 6 months preceding the expected end of the feasibility study, 4) did not have Internet access, and 5) was a certified mental health nurse.

Purposeful, convenient sampling was used as participation was sought through a marketing email sent to school nurse supervisors in the approved and participating health departments. The school nurse supervisors then forwarded the email to all school nurses that included a "Statement of Research" reminding potential participants of the intention of the study and the inclusion/exclusion criteria. The PI evaluated if inclusion/exclusion criteria were met through answers on the follow-up questionnaires, and only those

participant questionnaires that met inclusion/exclusion criteria were included in data collection.

Study feasibility. Based on estimates from similar studies on school nurses and on the favorable response from the school nurse supervisor liaison, the PI hypothesized that recruitment for this feasibility study would be completed in 1 month. However, a delay occurred when the Institutional Review Board (IRB) required the PI to seek approval from administrative staff in the school systems, as well as the approval from the health departments where participants were employed. This delay affected recruitment of two additional agencies and potentially 11 additional study participants. In one case, the school nurse supervisor had resigned during the wait for approval from the school district administrative staff. The individual replacing the school nurse supervisor declined the invitation to participate in the study. In the other incidence, the school nurse supervisor elected to wait until IRB approval was obtained and then eventually declined to participate, stating that the school year would end prior to the end of the study.

Ultimately, out of 18 potential participants, 17 participated in some portion of the study.

Table 1: Numbers of School Nurses Completing Each Measurement Instrument

Measure	Number of School Nurses Completing	Percentage of School Nurses Completing out of 17	Number of School Nurses Completing but not included	Percentage of SN Completing but not included in the study
DAQ Pretest	16	94.1%	1	5%
DAQ Posttest	12	71%	1	5%
QIDS Pretest	15	88.2%	0	0.0%
QIDS Posttest	15	88.2%	0	0.0%
Follow-up Month 1	13	76.4%	3	17.6%
Follow-up Month 2	12	71%	0	0.0%
Follow-up Month 3	13	76.4%	2	12%

Procedures

Participants were recruited using email marketing flyers the PI sent to the school health supervisor to be forwarded to all school nurses in the participating agencies. Within the email was an attached “Statement of Research” outlining the study, rules of participation, and remuneration for participation statement. The potential participant was directed to read the statement of research and proceed to the online educational site by clicking an embedded link within the email. This link took the participant to the online adolescent depression educational site. The participant was then directed to begin by opening the PowerPoint educational unit. The first online page of the educational module was a repeat of the “Statement of Research” detailing the aims of the online program, stating that the program would take approximately 50-60 minutes to complete, and informing the participant that continuing with the educational program would imply consent to participate in the research study. At this stage, the participant had the following options: 1) not participate by closing the online window, 2) seek further information from the PI, or 3) continue with the educational program. If a participant needed to complete the educational program in stages, the educational program stayed open and available to participants for 3 additional weeks. A participant was able to visit the site as often as she or he wished, but was instructed to complete and submit only one pretest and posttest of the DAQ and QIDS instruments.

One month post the initiation of the study, the study participants were sent an email forwarded through the school nurse supervisor, which included an attached

“statement of research” for consultation and an embedded link to the follow-up questionnaire. This same email was sent in month two and month three. (See appendix F).

During the follow-up survey period, participants of the study were asked to use the QIDS-C screening instrument if they suspected depression in a student and report the numbers of students seen for mental health issues. In addition, school nurse participants were asked to report numbers of students who were referred with mental health issues and report numbers of students who procured care after referral. These results were collected via REDCap Survey.

Data were analyzed using nonparametric testing of the hypothesis. For hypothesis 1, the numbers of students seen in the health office from current month and past year’s log, were compared using a paired samples t-test. To calculate the differences among the three components of the DAQ, a paired samples t-test also was utilized. For hypothesis 2, statistics were calculated using averages to assess the QIDS-C pretest and posttest differences. Follow-up questionnaire data were analyzed using non-parametric Wilcoxon sign-rank tests. For hypothesis 3, the numbers of actual referrals were insufficient for hypothesis testing.

Intervention

The online education program was developed by the investigator. It consisted of three modules that took a total of 50-60 minutes to complete. It contained a PowerPoint presentation, brochures for referral, handouts for parents, and links to other educational websites, as well as a link to the free screening instrument for participant use. The content covered in the three modules included:

1. The definition of adolescent depression
2. Significance and incidence of depression in adolescent children
3. Early and late signs and symptoms of adolescent depression
4. Introduction to the Quick Inventory of Depression Screening - Clinician rate (QIDS-C)
5. Instruction on how to screen using the QIDS-C
6. Suggested techniques of alerting parents/guardians and school staff regarding students with a positive screen or with signs and symptoms of adolescent depression who need additional follow-up
7. Positive scores versus negative scores,
8. Identification of potential referral resources,
9. Referral process
10. Link to QIDS-C: <http://www.ids-qids.org/index2.html>

Data Collection

Two levels were used for data collection: 1) de-identified, aggregate historical data were used to identify the past numbers of mental health cases identified, referral rates, and resources used for referral before the educational program implementation, and 2) current aggregate data after implementation of the program was used to identify the same items. The historical data from the previous year acted as a baseline for the study, and post-program measures were collected at 1-month, 2-month and 3-month intervals for comparison after the full program had been administered.

The information was collected through REDCap survey. The PI asked the participating school nurse to provide the number of students seen for mental health issues in the current month and provide the number from the nurse log from the previous year of the same month. The study also sought numbers of students sent for referral and those that procured care in the current month, as well as the number from the nurse log from the previous year of the same month. The previous year's information is kept as a part of routine documentation at the agency, and all school nurses have access to their individual school agency logs as needed.

Other data collected included a pretest and posttest of the Depression Awareness Questionnaire (DAQ) and the Quick Inventory of Depressive Symptomology Clinician rated instrument (QIDS-C). This data were also collected through the use of REDCap survey.

Depression Attitude Questionnaire (DAQ). On clicking forward after the statement of research in the educational PowerPoint, the study participant was directed to take the Depression Attitude Questionnaire (DAQ) and on the last screen of the educational PowerPoint the participant was asked again to complete the DAQ. The DAQ was originally developed to measure general practitioners' attitudes toward depression and treatment of depression but was adapted for use with nurses in another study that measured attitudes toward depression and treatment of school nurses (Haddad, Butler, & Tylee, 2010). The adapted instrument has been used recently in studies and was found to have a modest internal consistency and an acceptable internal reliability of 0.70 (Haddad et al., 2010). The original authors of the DAQ identified four characteristics under consideration within the DAQ: professional ease, treatment attitude, depression

malleability, and depression management by specialist. These four components were recently reduced to three and explored at length to identify and strengthen internal consistency. For this study the PI chose to keep three of the four components, as these matched more closely to the area under study for school nurses. The three DAQ factors under study included: *professional ease*, *negative attitude toward depression treatment*, and *specialist referral tendency*. (see Table 5: DAQ Factors Percentage of Change).

Quick Inventory of Depression Symptomology-Clinician (QIDS-C). Study participants were also asked to complete a Participant Knowledge instrument on the QIDS-C after taking the DAQ and before completing the PowerPoint portion of the educational program. After the PowerPoint and post DAQ instrument were completed, the participant was asked to complete a Participant Knowledge instrument posttest on the Quick Inventory of Depressive Symptomology-Clinician rated instrument (QIDS-C). The pre and posttest on the QIDS-C were used to measure the amount of learning about the screening instrument the nurse received through the educational program. This pre and posttest included five questions pertaining to administering and scoring the QIDS-C instrument (see Appendix C: QIDS-C Pre-posttest).

Follow-up data collection questionnaire. The PI also created a follow-up questionnaire. At the end of the first, second, and third month after program completion, an email was sent to all school nurses through the school nurse supervisors. Attached to these emails was the “Statement of Research” PDF, so that the participating school nurse was able to revisit the aims and information for the study which included PI contact information. Within each of the emails, a link to an anonymous REDCap survey was

embedded to collect research data from those who participated in the educational program. The school nurse supervisor was instrumental in forwarding the emails to all school nurses.

Through this anonymous REDCap survey, the PI gathered historical as well as current data about the numbers of students seen in the school health office for mental health issues. These numbers are available to school nurses in agency tracking logs kept as part of routine documentation and care. The agency tracking logs do not contain any identifiable student information. By filling out the survey, school nurses provided quantitative de-identified information from their log from the past month of the current year, as well as the same month from the previous year to use as a control. The participants also were asked if they used the QIDS-C in their practice, if referrals were made for those students, and if the students procured care after the referral. Reminder emails were sent through the school nurse supervisor 1 week after the initial email (see Appendix F)

Background characteristics of the participants included: birth year and number of years as a school nurse. These characteristics were obtained on each of the follow-up questionnaire surveys. Each of the respondents were also asked to give themselves a nickname and remember the nickname for each of the successive follow-up surveys in order for his or her information to be linked but still anonymous to the PI.

Data Analysis

Information was gathered through the REDCap database. This database was developed by Vanderbilt University and includes data management features such as data

storage, audit trail creation, and the ability to export directly into IBM SPSS Statistics (SPSS) software. SPSS was used for all data analysis. Data were cleaned and checked for accuracy and reviewed for outliers and missing data. For the DAQ, a paired samples t-test was used to calculate the differences among the three components of the DAQ. Non-parametric statistics were calculated to assess the QIDS-C pretest and posttest differences. Follow-up questionnaires data were analyzed using non-parametric Wilcoxon sign-rank tests.

Results

Demographics and characteristics. All 17 participating school nurses, were female, with a mean age of 46 years, the youngest being 34 and the oldest being 60. The number of years worked as a school nurse varied with a mean of 6 years ranging from 6 months to 11 years as a school nurse. None of the participants had formal training as a mental health nurse, and no one was certified in mental health nursing or had specialized training in mental health disorders. Ten out of the 17 participating school nurses completed all items of the study.

Aim 1: Gain knowledge about depression.

For aim 1, the number of students seen for mental health issues in each month of the survey was compared to the number of students seen in the health office according to the school nurse log from the same month in the previous year. Data was collected for each of the 3 months following the intervention. Captured numbers of adolescents seen by the school nurse during the month this year and for the same month the preceding year were compared using a related samples Wilcoxon Signed rank test, t-tailed, Bonferroni

correction, with $\alpha < 0.05$. The change in average numbers of students seen this year compared to last year is statistically significantly greater one month following the educational intervention. However, we are unable to detect a change in the numbers of students seen that is statistically different at the end of either two or three months for these data. (See Table 2 below).

Table 2: Number of students seen in the health office, captured by follow-up questionnaire using a Wilcoxon Signed rank test with Bonferroni correction

	Mean (Std)	Median (Range)	p-value
Time Frame			
Month 1 Follow-up Survey (n=15)	1.25 (1.356)	1.356 (-1, 4)	0.03*
Month 2 Follow-up Survey (n=12)	0.75 (2.137)	2.137 (-2, 4)	0.98
Month 3 Follow-up Survey (n=13)	0.62 (1.121)	1.121 (0, 4)	0.10

* Significance level is 0.05

School nurse participant effectiveness was measured by follow-up surveys as seen above and by comparing the pre and post DAQ scores.

DAQ attitude factors. The DAQ was analyzed using a 2-tailed, paired t-test, to examine the three factors addressed by the DAQ. Scores were converted to a 0-100 scale per scoring manual.

Factor 1- *Professional ease* refers to the study participant's, in this case school nurse's, sense of her ability to identify depression and work with depressed patients.

The mean professional ease post-intervention survey score ($m=66.7$, $STD=10.73$) was greater than the pre-intervention survey score. A 2-tailed, paired t-test showed statistical significance at the $\alpha=0.05$ level ($p<0.05$). The 95% confidence interval on

the difference was [2.55, 15.78], which does not include the value of zero specified by the null hypothesis. We conclude that school nurses had increased positive feelings in their ability to identify depression when working with depressed patients.

Factor 2 - *Negative attitude toward depression* refers to the study participant's attitude toward the diagnosis of depression and the potential to manage depression with medication or psychotherapy.

The mean negative attitude toward depression post-intervention survey score (m=44.17, STD=11.25) was not shown to be significantly lower than the pre-intervention survey score for these data (p=.788). The 95% confidence interval on the difference was [-8.72, 11.22], which includes the value of zero specified by the null hypothesis. We are unable to conclude there was a decrease in negative attitude toward the diagnosis of depression among school nurses for these data.

Factor 3 - *Specialist referral tendency* refers to the study participant's belief that psychotherapy and the supervision of mental health professionals are appropriate ways to manage a diagnosis of depression in adolescents.

The mean specialist referral tendency post-intervention survey score (m=65.25, STD=13.224) was not shown to be significantly lower than the pre-intervention survey score for these data (p=0.661). The 95% confidence interval on the difference was [-8.05, 12.20], which includes the value of zero specified by the null hypothesis. We are unable to conclude that there was an increase in specialist referral tendency among school nurses for these data. These results are summarized in Table 3

Table 3: Change in DAQ Factors Results Pre – Post Education (N=12)

Variable	Mean ± SD (Range) (n = 12)	95% Confidence Interval (n = 12)	p Value (n = 12)
Professional ease	66.7 (10.73) 50.2 – 64.7	2.55; 15.78	.011
Negative attitude	44.17 (11.25) 27.9 - 57.9	-8.72; 11.22	.788
Specialist referral tendency	65.25 (13.22) 47.1 – 79.3	-8.05; 12.20	.661

* Significance level 0.05

Overall, school nurses did demonstrate an increase in the numbers of students seen in the school health office, and DAQ factors indicate that school nurses feel depression is a condition that can be recognized by the school nurse. Aim 1 was supported.

Aim 2: Screening for depression in adolescent; QIDS-C proficiency.

For hypothesis 2, the pretest and posttest of participant’s knowledge of the QIDS-C instrument were compared, as were the number of uses of the QIDS-C to screen students for depression. Results of the QIDS-C Participant Knowledge instrument indicate that study participants’ knowledge about the selected items improved, in four out of five items, with the question about assessment of severity symptoms in a patient showing no change.

In examining the follow-up survey results, 5 out of the 13 school nurses used the QIDS-C to screen students with depressive symptoms. It is unknown why the other 8 study participants did not use the screening instrument. Overall, only 5 of the 17 school nurse study participants utilized the QIDS-C, although study participants demonstrated increased knowledge regarding the QIDS-C screening instrument; therefore, aim 2 was not supported (See Table 4 below)

Table 4: QIDS-C rated Participant Knowledge Instrument (N=15)

Question	Pretest Correct	Posttest Correct
1. The Quick Inventory of Depression Symptomology for Clinicians (QIDS-C) is designed to: Assess the severity of depressive symptoms in a patient	80%	94%
2. The QIDS-C seeks assessment information from the patient in which of the following time frames? In the past 7 days	53%	80%
3. The QIDS-C is useful for clinicians because it is sensitive to which of the following? Change with medication, psychotherapy, & somatic treatments	20%	27%
4. Each item on the QIDS-C is rated as: 0-3	20%	53%
5. When there are multiple scores in each MDD symptom domain, the rater will: Take the highest score on any one of the items.	20%	67%

* N = 15

Aim 3: School nurses will refer students who are seen with depressive symptoms.

For hypothesis 3, the number of students screened was compared to the number of students referred. Of those participating in the study, 41% (n=5) of the school nurses utilized the QIDS-C 17% to 25% of the time. Of the 41% of school nurses, only one school nurse consistently screened using the QIDS-C instrument and referred from those screening results. Twenty-five percent (n=3) of the school nurses who used the screening

instrument referred students and were able to report procurement of care. One of the school nurses screened but did not refer. Reasons for non-referral include non-positive score on the QIDS-C; however, the actual number of referrals could not be confirmed due to the anonymity of research participants and the omission of a question asking reasons for non-referral. Aim 3 is not supported, but there is a trend suggesting that some nurses found it useful.

Discussion

Research shows that with intervention, symptoms characteristic of depression are lessened and the risk of reoccurrence is decreased (Kuo, Vander Stoep, Herting, Grupp, & McCauley, 2013). Mental health professionals and school nurses need cost-effective solutions for early identification, screening, and referral of adolescents with depressive symptoms. Unfortunately, research in this area is sparse, and much of the research has been conducted in areas outside the United States (Haddad et al., 2010; Prymachuk, Graham, Haddad, & Tylee, 2012). United States studies have focused on generalized programs to teach adolescents coping mechanisms or record reviews conducted to identify and screen students with characteristics of depressive disorders (Haddad et al., 2010; Kuo et al., 2013; Manning, 2009; McCarty, Violette, Duong, Cruz, & McCauley, 2013). While both types of studies are worthwhile endeavors, the issue remains that school nurses are busy individuals who often have as many as 1900 students to follow at any in a month. These school nurses often have to deal with educational system employees more concerned with national testing scores than providing universal coping techniques. In cases such as these, school nurses may not be able to procure time in the

daily schedule to educate students about coping strategies or time to peruse academic records to identify potential candidates to screen for depression. Even if they had the time, school nurses may not feel educationally prepared to identify or screen for adolescent depression. The purpose of this feasibility study was to provide education on signs and symptoms of depression, information on the definition and origin of depression in adolescents, instruction about how to use a free screening instrument, and resources to use as a referral that can be easily addressed and at minimal to no cost.

Main Findings

The initial response rate of the invited 18 study participants was positive, with 17 out of the 18 nurses completing the initial educational program that consisted of the Moodle learning module and pre and post DAQ and QIDS- C participant knowledge measures. This response suggests not only that school nurses find the education about depression important, but also that mental health education can be implemented successfully online. This study also investigated the ability of the school nurses to take the information learned in the educational module and put this knowledge to use by identifying students who come into the school nurse office, presenting with depressive symptoms. A significant increase ($p=.03$) was seen in the numbers of students being identified with depressive symptoms in the school health offices, especially the first month after the education intervention. However, in subsequent months, while still surpassing the number seen in the previous year, the data did not demonstrate a significance change at the significance at $\alpha <.05$ level.

This study made evident that even with education provided to school nurse participants, some (n=7) of the participants did not change their practice and continued to refer students with mental health issues without using a screening instrument. A change was noted as there were five study participants who chose to use the provided screening instrument and all participants increased their knowledge as rated by the QIDS-C Participant Knowledge instrument increased scores.

The referral and procurement rates were also examined; however the amount of data collected was too small to identify significant differences. Preliminary results demonstrate slightly positive results in the numbers of students referred and procured care compared to the numbers from the previous year.

Strengths

The design of this study with school nurses was innovative, in that school nurses assumed responsibility for completing the educational module and then using that information to make a behavioral change in nursing practice regarding screening students with depressive symptoms. A review of the literature identifies limited studies with school nurse's identification practices of adolescents who present with depressive symptoms, and no studies were found relating to training school nurses via an online education program on screening for adolescent depression with a depression instrument that could be used in the school environment. Although screening practices have been studied in the United Kingdom and United States with primary care physicians, this is the first feasibility study in the United States to target school nurses to improve identification

ability by completing an online educational program on adolescent depression and use of a screening instrument.

Barriers to the feasibility study. This feasibility study involved children under the age of 18 with a mental health problem, which is considered a double vulnerable population. Projections for the IRB approval for this feasibility study took 7 months longer than first hypothesized. The extended length of time was necessary because North Carolina's school nurses are not employed by one agency such as the school system. In this study, all of the school nurses worked for public health departments in those respective counties. The IRB approval committee in South Carolina was concerned that permission should be obtained from all agencies and organization where the participants worked either in an official capacity as an employee or in cooperation. Additionally, the IRB review board requested that school administration be alerted to this feasibility study, although information obtained in this study included no identified school or student information. A significant delay occurred when attempting to locate the individual responsible for determining research endeavors within the school system; the PI was referred back multiple times to the individual agencies that employed the school nurses.

Feasibility of sample recruitment and retention. For this feasibility study, recruitment was completed in 2 months. There was an IRB-related delay for a portion of the study participants. One county in which participants resided and worked was late in submitting their letter of support. This delay put those affected participants 1 month behind the initial study participants. Of the potential 18 participants for this study, only one did not participate in at least some portion of the study. Of the 17 participants who completed the educational program, only 12 completed the full study requirements. This

is a 29% attrition rate, which falls within the normal limits found in studies involving healthcare professionals working with adolescent children with mental health problems. Of that attrition rate, the participants varied in what stage of the study they dropped out. Seventeen completed the initial DAQ and pretest for the QIDS. Of the initial 17, only 15 (88%) completed the post QIDS, and 13 (76%) completed the post DAQ. Twelve (70%) participants completed the study program including all three follow-up surveys. Wal-Mart gift cards were offered for the completion of the educational program including the pre and post DAQ and the pretest and posttest on the QIDS-C participation knowledge instrument, and a gift card was offered for completion of each of the follow-up surveys to increase the likelihood of survey response. Repeat emails were sent to the school nurse supervisors approximately 1 week after the initial follow-up reminder.

Feasibility related to the DAQ attitude measurement factors. Despite the limitations of the sample size of this feasibility study, the DAQ results provided useful insight into attitudes of school nurses toward adolescent depression. The DAQ has been studied to validate the factors examined within this study. This study demonstrates similar findings to other studies performed utilizing the DAQ as a measurement instrument. These results cannot be generalized due to sample size, but indicate that school nurses are receptive to working with adolescents with depression and feel that intervention can change the course of depression. Studies that employed the DAQ showed similar results related to nurses' attitudes in general to depression (Haddad et al., 2010). This information is particularly useful in supporting the design of educational programs to increase the awareness, identification, screening, and referral of adolescent students with depressive symptoms. To substantiate these findings and to identify if

durability of school nurses' attitudes to depression lessens over time, longitudinal research is required.

Study Limitations

A number of limitations to this feasibility study need to be taken into consideration when interpreting the results. First, the sample was a convenience sample that yielded a small number of completed respondents (n=12); therefore, the results cannot be generalized to the population of school nurses at large. This limited the types of analysis that could be performed on gathered data as well as muddied the process of data interpretation. Another limitation of this study was the DAQ as a measurement instrument. The DAQ instrument measures attitude, which is an inherently complex element influenced by emotion, knowledge, and culture, that may change over time. This study was also short in duration (Frazier, Fristad, & Arnold, 2012). The study was completed in a 7-month period at the end of 1 school year and the beginning of another. The end of the school year can be a very busy time for the school nurse, as he or she completes health records and directs health fairs. The beginning of the year can be equally busy in managing new students, monitoring for immunizations, and educating new staff. This study would be more informative if the school nurses could be followed for the whole school year.

Conclusion

The study highlights the role of the school nurse as an active participant in the early identification of adolescent depression. School nurses are in a logical position to identify adolescents who have depressive symptoms, screen those adolescents who

present with symptoms, and refer positive-scored screened individuals for follow-up with an appropriate referral source. The study also supports research that has shown school nurses are receptive to adolescents who have mental health problems and consider this an important school nurse role (Haddad et al., 2010). Additionally, this study received positive comments from school nurses regarding the educational format of an online environment. The online environment is a sensible learning environment through which school nurses can obtain education regarding mental health issues such as depression, especially since many of the school nurses do not maintain offices with other school nurses.

This feasibility study is helpful in providing information on depression education, the use of a free screening instrument, and the use of the DAQ as an instrument to measure school nurses' attitudes toward depression. However, the pretest and posttest QIDS-C will need some modifications to improve readability and clarify of the QIDS-C Knowledge Participants Instrument questions, and more research will be needed to examine what steps are required to maintain the use of screening instruments and increase the number of school nurses who feel prepared to screen students who present to the school-health office with depressive symptoms. In particular, this feasibility study lays the groundwork for a larger, longitudinal study to be performed.

Summary

A comprehensive review of the published literature on the role of the school nurse in identifying, screening, and referral of adolescents for depression demonstrates significant research gaps. Of the published articles reviewed, few of the studies explored school nurse attitudes toward adolescent depression, and even fewer examined school nurses' preparedness for screening and referral of adolescents with depressive symptoms (Haddad et al., 2010; Naicker et al., 2013).

While there has been a recent push toward mental health awareness for primary caregivers, little research effort has investigated providing this needed mental health education to school nurses. This dissertation study was designed to fill this gap. This study was conducted using a select convenience sample of rural school nurses who were educated about adolescent depression using an online educational program. The findings from this feasibility study will allow the PI to fine tune and expand this study to a more generalizable school nurse sample.

This dissertation work culminated in an examination of screening instruments available to school nurses and an exploration of the issue of screening in the school environment. Through the initial examination, it became clear that screening was not mandated in schools and that even though there was a directive from government agencies and others interested in child health, no clear guidelines on how to identify adolescents for early intervention and treatment had been established. This examination also revealed that school nurses could play an important role in this identification, screening, and referral process of students with depressive symptoms. Since screening all

students for adolescent depression was not recommended if there were not adequate resources for treatment and follow-up, the next step was to explore universal interventions that could reduce the incidence of adolescent depression. This exploration of the literature indicated that students could benefit from programs that provided adolescents with coping strategies when there were no other sources of intervention. However, the literature also indicated that adolescents with symptoms of depression would benefit further by being identified and then receiving a more directive therapy (Elmquist, Melton, Croarkin, & McClintock, 2010). Finally since it was not feasible or advisable to screen all adolescents between the ages of 11-15, a targeted screening could be more beneficial as long as school nurses and other staff, such as teachers and counselors, were aware of the signs and symptoms of adolescent depression (Gladstone et al., 2011). This last study within the dissertation was directed toward initiating an educational program for school nurses on signs and symptoms of adolescent depression, using and scoring a free adolescent depression screening instrument, and finding appropriate referral resources for further evaluation and follow-up care of adolescents who screened positive on the screening instrument. Through this feasibility study, it became apparent that an online educational program holds much promise for the early identification, screening, and referral of adolescents with depressive symptoms.

Limitations of Dissertation Research

The feasibility study was conducted using four school districts in western North Carolina, which limits the generalizability of the data results. In addition, this study had a small number of participants (n=12), and data were garnered from a convenience

sample which further limits the generalizability of the findings. However, the study did provide some helpful information on negotiating the IRB system when dealing with vulnerable populations and in the recruitment and retention of the study sample.

Limitations are detailed in each of the provided manuscripts (T. Carnevale, 2011; T. D. Carnevale, 2013)

Research Trajectory

Further research is warranted with the school nurse population. This exploratory feasibility study was conducted using a small convenience sample and limited to one specific region of the United State. A larger, longitudinal study is warranted with a greater sample size, a wider range of school nurses, and more than one type of school. This research was conducted with school nurses working in the middle-school population, but the published literature makes evident that the range should extend into early high school years. This extension would mean a greater number of school nurses could participate. Also, during the feasibility study the numbers of students seen by school nurses did not increase as expected; some thought this finding indicated that staff at the school, including teachers and counselors, could benefit from the educational portion of the online program and assist the school nurse in the early identification of adolescent depression, since a decrease in academic performance, abrupt character change, and a decrease in the level of involvement of activities are characteristics of adolescent depression and noticeable within the environment of the classroom. The findings from this study should lead to a much more defined, larger, and longer study that

would include not only school nurses but also those who have direct contact with adolescents within the school environment and may refer children to the school nurse.

Contribution of Research to Science and Nursing

This dissertation contributes to the science of nursing by identifying and addressing the gaps of the published literature on adolescent depression and the role of the school nurse. The findings from this feasibility study contribute to current nursing knowledge on the role of the school nurse in providing care to adolescents who present with depressive symptoms. The study findings indicate school nurses are amendable to gaining information on mental health subjects such as depression. Furthermore, it elevates nursing knowledge of the attitudes of school nurses toward the subject of depression.

Although this exploratory study is limited, it made apparent that school nurses are the professionals located most ideally to identify adolescents with depressive symptoms. Providing an online educational program for school nurses that can be used as an ongoing resource for established and new nurses in the school nurse role will elevate school nurses' ability to recognize and refer adolescents with depressive symptoms. When school nurses have a heightened awareness of mental health issues such as depression, they can potentially intervene with these students during the critical years of 11-15 when adolescents first have symptoms of depression. This early intervention can provide the crucial link to risk-reducing treatment. With treatment, adolescents have a much better chance of acquiring coping skills that may reduce the reoccurrence or severity of a depressive episode.

New initiatives in health care create a critical need to provide strategies for early identification of depression characteristics, appropriate screening, and accurate treatment in order to prevent occurrence or reoccurrence of illness. Providing school nurses with the education and instruments they need to identify those characteristics is as crucial first step.

Appendices

Table 5: DAQ Factors Percentages of Change

Participant	Factor 1	Factor 1	Factor 2	Factor 2	Factor 3	Factor 3
	Pre	Post	Pre	Post	Pre	Post
1	45	65	35	30	50	75
2	55	75	45	60	58.3	50
3	65	80	50	45	75	75
4	60	55	55	55	50	58.3
5	70	85	35	45	58.3	83.3
6	55	80	35	25	50	41.6
7	55	55	45	45	75	83.3
8	65	60	50	35	75	66.6
9	60	65	10	50	91.6	75
10	50	65	60	60	83.3	58.3
11	60	60	65	45	41.6	58.3
12	50	55	30	35	50	65.25
Total Change %		16%		3%		3%

Table 6: Demographic Information of Participants

Characteristics	<i>N(%) =16</i>	<i>Valid Percent</i>
Age (year)		
• 1953-1961	26.3%	31.3%
• 1962-1972	36.8%	43.8%
• 1973+	21.1%	25.0%
Gender		
• Female	100%	100%
• Male	0.0%	0.0%
Years as a school nurse		
• 0-2 years	5.3%	6.3%
• 3-5 years	21.1%	25.0%
• 6-10 years	36.8%	43.8%
• 11+ years	21.1%	25.0%

Appendices

Appendix A 1: DAQ Questionnaire

The responses to this brief survey will allow us to explore the range of school nurse attitudes on depression. This questionnaire contains statements that reflect different levels of attitude on depression in middle school students. Please indicate a point in each box that reflects your observance derived from day to day practice as a school nurse.

	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
1. During the last 5 years, I have seen an increase in the number of pupils presenting with depressive symptoms						
2. The majority of depression seen in schools originates from young peoples' recent misfortunes						
3. Most depressive disorders seen in school improve without treatment						
4. An underlying biochemical abnormality is at the basis of severe cases of depression						
5. It is difficult to differentiate whether pupils are presenting with unhappiness or a clinical depressive disorder that needs treatment						
6. It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms						
7. Becoming depressed is a way that young people with poor stamina deal with difficulties						
8. Depressed people are more likely to have experienced deprivation in early life than other people						
9. I feel comfortable dealing with depressed pupils' needs						
10. Depression reflects a characteristic response which is not amenable to change						
11. Becoming depressed is a natural part of adolescence						
12. The school nurse could be a useful person to support depressed pupils						
13. Working with depressed pupils is heavy going						
14. There is little to be offered to those young people with depression who do not respond to what the general practitioners do						
15. It is rewarding to spend time looking after young people who are depressed						
16. Psychotherapy tends to be unsuccessful with young people who are depressed						
17. If young people with depression need antidepressants, they are better off with a psychiatrist than with a general practitioner						
18. Antidepressants usually produce a satisfactory result in the treatment of young people with depression						
19. Psychotherapy for young people with depression should be left to a specialist						
20. If psychotherapy were freely available, this would be more beneficial than antidepressants, for most young people with depression						

Confidential

Month 1 Follow-up Survey

Please complete the survey below.

Thank you!

- 1) Please use your previous nickname when completing this survey. If you do not remember your previous nickname, then choose another nickname for use in completing the follow-up surveys. This nickname will enable the researcher to tie the data together without identifying personal information. Please do not use your real name.
- 2) In what year were you born?
- 3) The length of time I have worked as a school nurse is:
- 4) I work at least 1/4 time as a middle-school nurse:
- 5) I am a certified mental health nurse?
- 6) The approximate number of students enrolled in the school/s during the last month is:
- 7) In the previous month the number of students seen in the school health office for mental health issues is: (If none, please write none)
- 8) In this same month in 2012, the number of students seen in the school health office for mental health issues was: (If none, please write none)
- 9) The approximate number of students enrolled in the school/s during the previous year is:
- 10) Of the children seen in the school health office this month, the number of students screened using the QIDS-C is: (If the QIDS-C was not used, please write none.)
- 11) Of the students seen in the school health office this month for mental health issues, the number of students referred is: (If no students were referred, please write none.)
- 12) Of the students referred for follow-up care for mental health issues this month, the number of students that procured care is: (If no students were referred for care, write n/a, if students were referred but have not procured care, please write none.)

- 0-2 years
- 3-5 years
- 6-10 years
- 11+ years

- Yes
- No

- Yes
- No

Non-Participation Survey

Non-Participation Survey: School Nurse Study

Please choose a nickname when completing this survey. It assures the survey is not completed by the same person more than once.

In what year were you born?

The length of time you have worked as a school nurse is:

- 0-2 years
- 3-5 years
- 6-10 years
- 11+ years

Are you a certified mental health nurse?

- Yes
- No

If you qualified for the 'Depression Education Study' but did not choose to participate, which of the following most closely matches the reason for non-participation?

- Not enough time to participate (examples may include but are not limited to: too busy, employer does not allow time to complete surveys at work, school nurse shortage, etc.)
- Depression is not an issue for children in my school/schools
- Study incentive was inadequate for time spent
- I feel I already know what I need to know to screen children for depression
- Other

If you answered other in the previous question, please explain.

If you participated in the initial depression education, but did not complete one or more of the study follow-up/ups, which of the following most closely matches the reason for not completing the follow-up/ups?

- Not enough time to participate (examples may include but are not limited to: too busy, employer does not allow time to complete surveys at work, school nurse shortage, etc)
- Forgot about the study
- Follow-up incentive was inadequate for time spent
- Other

If you answered other in the previous question, please explain.

Thank you for your participation in this survey. As a way to say thank you for your participation today please email the primary investigator at carnevalett@appstate.edu and send your name and address for a 5.00 Walmart gift card. Your name and information will not be saved or used in any other way, with the exception of sending out remuneration.

Appendix A 4: QIDS-C Participant Knowledge Instrument

QUICK INVENTORY OF DEPRESSIVE SYMPTOMOLOGY – CLINICIAN rated (QIDS-C)
PRE-TEST/POST TEST

1. The Quick Inventory of Depression Symptomology for Clinicians (QIDS-C) is designed to:
 - a. **Assess the severity of depressive symptoms in a patient**
 - b. Be a definitive for evaluating depression in patients
 - c. Determine a course of treatment for patients
 - d. Act as a plan of treatment for patients with depression

2. The QIDS-C seeks assessment information from the patient in which of the following time frame?
 - a. Last 24 hours
 - b. Today
 - c. **In the past 7 days**
 - d. From the past month

3. The QIDS-C is useful for clinicians because it is sensitive to which of the following?
 - a. **Change with medications, psychotherapy, and somatic treatments**
 - b. Evaluation of melancholy or atypical depression
 - c. Measuring the depth of psychological issues
 - d. To identifying teenage angst

4. Each item on the QIDS-C is rated as:
 - a. 0-2
 - b. **0-3**
 - c. 1-3
 - d. 1-4

5. When there is multiple scores in each MDD symptom domain, the rater will:
 - a. Take the lowest score on any one of the items
 - b. Combine the item scores for the total for that domain
 - c. Count each score twice for a total in that domain
 - d. **Take the highest score on any one of the items**

Appendices B 1– Marketing Email 1

Dear School Nurse Supervisor,

Thank you again for allowing the school nurses to participate in the Identification of Depression Early in Adolescents (IDEA) online education program. Please forward this email to all school nurses within your facility.

Dear School Nurse,

Do you want to make a difference in the lives of the students you serve? Ever felt unprepared to identify children who may have signs of depression or discuss signs and symptoms of adolescent depression with your students, staff, or parents? Feel like you may need a little help in identifying students who could benefit from referral with their health care provider or a mental health provider on depression issues? Need a free instrument to assist in determining if referral is needed?

As a school nurse I struggled with these same issues. I made it my goal as a PhD student to pursue this topic as my research contribution to nursing. This research study is aimed at assisting school nurses with all of those concerns and provides resources to use in their everyday practice.

The research study is a 50 – 60 minute online educational program that will provide information on the impact of depression in children in middle school, identifying the signs and symptoms of depression in middle-school children, how to determine depression symptoms as opposed to teenage angst, and how to use a free screening tool to determine the need for referral and follow-up, as well as, how to identify mental health resources within your community and even addresses how to talk to parents about depression in their middle school children. The study also includes three nine-question-each follow-up surveys to identify if the educational program has made an impact on the participants practice.

Have I caught your attention? Are you interested in finding out more about this program and would like to participate in the research study? Attached is a ‘Statement of Research’ that outlines the program and participant responsibilities. Besides the valuable information you will receive on depression and free training on a free screening instrument, and there is payment for participating in this study. Please see the ‘Research Statement’ as attached in PDF format for inclusion criteria to participate and payment information. After you have read the ‘Research Statement’ and would like to participate in this study please click on the email link below, this will take you to the IDEA online educational program.

Thank you for your service as a school nurse and for your participation in this important school nurse study,

Teresa Carnevale, PhD (candidate), MSN, RN

Medical University of South Carolina student
Appalachian State University faculty

Email Link here: [Click here](#) to be taken to the IDEA online educational program.

Appendix B 2: Follow Up Survey Email

Dear School Nurse Supervisor,

Thank you again for allowing the school nurses to participate in the Identification of Depression Early in Adolescents (IDEA) online education program. It is now time for the one month follow-up survey. Please forward this email to all school nurses within your facility.

Dear School Nurse,

Thank you for participating in the Identification of Depression Early in Adolescents (IDEA) online education program. It is now time to complete a follow up survey. This survey consists of twelve questions and will take approximately 10 minutes to complete. You will be asked to choose a nickname on your first follow-up survey, this nickname is a way to link the surveys together, but maintain anonymity for the participant. Please write this nickname down somewhere in your personal keeping to use for the remaining follow-up surveys. On each survey it will ask you to put in your nickname.

You will be paid for your participation in this follow-up survey. Please see the attached PDF 'Statement of Research' under Payment to Participant section.

As a reminder, if you do not wish to continue your participation in this study, you may elect to withdraw at any time and for any reason. If you have any concerns or questions about this study, please feel free to contact the primary investigator. The contact information is contained on the attached 'Statement of Research' PDF.

Once again, thank you for your participation in this important school nurse study,

Teresa Carnevale, PhD (candidate), MSN, RN
Medical University of South Carolina Student
Appalachian State University Faculty

Please click here: [Email live link here for follow-up survey](#)

Appendix B 3: Non-Participation Email

Dear School Nurse Supervisor,

Thank you again for allowing the school nurses to participate in the Identification of Depression Early in Adolescents (IDEA) online education program. The original study is now closed.

As a mental health professional I feel education is an important step forward in reducing the incidence of depression among adolescent children. To better understand what barriers may prevent middle-school nurses from participating in an online educational program, I would ask that you forward the following email requesting those school nurses who were eligible to participate, but chose not to participate, to take a short survey to assist me in determining possible barriers to non-participation. This will assist me in developing a more streamlined and effective educational program which I hope to distribute nationally in the future.

Below you will find an email to those school nurses and an embedded link to the short survey on non-participation.

Thank you so very much for all your assistance with this study!

Dear School Nurse,

I want to take a moment to thank you for reading this email and also thank those of you who participated in the Identification of Depression Early in Adolescents online educational program. However, I am asking those of you who were eligible to participate in the program, but chose not to do so, to please take a moment to complete a non-participation survey. This is a short, eight question survey. This survey is only for those school nurses who did not participate in the original study or who chose to discontinue participation in the study. The original study portion is now closed and the only active survey is the non-participation survey.

You will be compensated for time spent on the survey in the form of a 5.00 Walmart gift card.

Attached is a 'Statement of Research' that outlines the original program and study procedures and now also outlines the non-participation survey. The changes in the statement of research are easily identified as those sections that are underlined. Benefits of participating in this short non-participation survey will assist me in identifying barriers or challenges faced by school nurses in using online educational programs. Please see the 'Statement of Research' attached to this email in PDF format, for complete information about this study. After you have read the 'Statement of Research' and would like to participate in this non-participation survey please click on the email link below, this will take you to the survey site.

Thank you for your service as a school nurse and for your participation in this important school nurse study,

Medical University of South Carolina

STATEMENT OF RESEARCH

Adolescent Depression Education for Middle-school Nurses: A Feasibility Study

A. PURPOSE AND BACKGROUND:

You are being asked to volunteer for a research study. This research is sponsored by Medical University of South Carolina. The purpose of this study is to examine if an online educational program on adolescent depression will increase the numbers of students with signs and symptoms of depression identified by the school nurse for screening and referral. You are being asked to participate in this study because you are a school nurse who works at least one quarter time in a western North Carolina middle-school. The investigator in charge of this study is Teresa Carnevale, MSN, RN. This study is being done in four school districts in Western North Carolina and will involve approximately 20 volunteer school nurses.

B. PROCEDURES:

The primary intent of this research study is to provide middle-school nurses with education in the identification of middle school children who present with the signs and symptoms of adolescent depression. The participant will be provided a link to an online educational module that contains the following content: Definition of adolescent depression, signs and symptoms of depression in adolescent children, how to use a depression screening instrument in children who present with signs and symptoms of depression and how to refer children identified for follow-up and/or referral.

This research will be completed in stages. After the research participant has completed the educational online module, they will receive a total of three emails one email each month that contains a link to a follow-up survey. These emails will be sent to the school nurse supervisor of the respective agency or school to forward to all school nurses within that agency. This allows for greater participant anonymity. In the above referenced email there will be a link embedded in the email to a short REDCap survey. Each survey will ask participants for two numbers. The first number is from the current end of the month tracking log of students seen in the school nurse health office for mental health issues. If the tracking has been separated out to specifically identify the number of cases of depression, then the participant will provide the number of students seen for depression. The survey will also ask for the number from last year's tracking log in the same month in order to compare these numbers for effectiveness of educational program. These numbers will not have any student or participant identifiers attached.

If you agree to be in this study, the following will happen:

1. You will complete in a 50-60 minute online educational module on depression.
2. Once a month for three consecutive months after the online education completion date, an email will be sent to you from the school nurse supervisor and in this email there will be a link for a short REDCap survey.

3. Each month for three consecutive months you will take a short anonymous survey to document the number of students seen in your office for mental health issues, or if specifically identified, the number of students seen specifically for depression, as well as the number of students seen with mental health issues from the same month of last year's log.
4. You will be given an option at the completion of the educational module and each of the follow-up surveys to send the investigator a completed form for payment of participation.
5. You may elect to withdraw from this study at any time and for any reason.
6. If you have questions or concerns regarding this research study you may contact the PI at the numbers or address listed below.

C. DURATION:

Participation in the study will take about 3 and one half months, or four online participation times. The first online participation time will take between 50-60 minutes to complete. The next three online participation times are anticipated to take roughly five minutes each. The total amount of time for participation is approximated to be between 65-90 minutes.

D. RISKS/DISCOMFORTS:

There are minimal risks or discomforts for participation in this research study as data is collected via RedCap survey anonymously.

1. There are minimal risks related to anonymity since the information will be gathered from schools in the North Western portion of North Carolina and the number of middle-school nurse working within this area are relatively small. However, school names will not be linked or identified with data provided and data is submitted by participants anonymously.
2. Minimal risk is also involved in relation to confidentiality at the completion of the survey when the participant sends in name and address to receive gift card compensation.
3. Unknown Risks: The online educational program may have unknown side effects. The researchers will let you know if at any time they learn anything that might make you change your mind about participating in the study.

E. BENEFITS:

The potential benefit to you is that the educational program will potentially increase knowledge on adolescent depression and provide the middle-school nurse with a free screening instrument.

Another potential benefit of this study is that the information gained from the study will help in the early identification and referral of students with signs and symptoms of adolescent depression.

F. COSTS:

There are no associated costs to the participant related to this research study.

G. PAYMENT TO PARTICIPANTS:

In return for your time and effort you will be paid in the form of gift cards for participation in this study. At the end of the educational model you will be prompted to complete a form to email to the researcher containing the participant's name and address to send a \$10 Walmart gift card for participation. At the end of each of the follow-up surveys you will be prompted to complete a form to email to the researcher containing the participant's name and address to receive a \$5 Walmart gift card for each completed survey. A research participant can anticipate at the successful completion of the research study to have been given a total of \$25 in Walmart gift cards.

H. PARTICIPATION and WITHDRAWAL

By continuing to the online educational module you, as the participant, indicate consent for participation in this research study.

At any time and for any reason you may elect to withdraw from this study without penalty and you will be paid for the sections of the study in which you participated. If you have questions, concerns, or comments about the study, please contact the primary investigator.

I. Primary Investigator Information:

Teresa Carnevale, MSN, RN

Office number: 828-262-8003 Cell number: 828-446-5890

Address: 730 Rivers St. Suite 318 Boone, NC 28608

Email: Carnevalett@appstate.edu

Appendix C 2: IRB Approval



Institutional Review Board for Human Research (IRB)

Office of Research Integrity (ORI)

Medical University of South Carolina

Harborview Office Tower

19 Hagood Ave., Suite 601, MSC857

Charleston, SC 29425-8570

Federal Wide Assurance # 1888

APPROVAL:

This is to certify that the research proposal **Pro00017883** entitled:

Adolescent Depression Education for Middle-school Nurses: A feasibility study

and submitted by: **Teresa Carnevale**

Department: **Medical University of South Carolina**

Protocol Version: **3**

Dated: **1/30/2013**

For consideration has been reviewed by **IRB-I - Medical University of South Carolina** and approved with respect to the study of human subjects as adequately protecting the rights and welfare of the individuals involved, employing adequately methods of securing informed consent from these individuals and not involving undue risk in the light of potential benefits to be derived therefrom. Additionally, the Institutional Review Board for Human Research (IRB) recommends approval of the investigator's request for Waiver of Signed Consent in accordance with 45 CFR 46.117(c)(1),(2) because the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality and/or because the research presents no more than minimal risk and involves no procedures for which written consent is normally required outside of the research context. No IRB member who has a conflicting interest was involved in the review or approval of this study, except to provide information as requested by the IRB.

Original Approval Date: **2/6/2013**

Approval Expiration: **2/5/2014**

Type: **Expedited**

Chairman, **IRB-I - Medical University of South Carolina**

Susan Newman*

Statement of Principal Investigator:

As previously signed and certified, I understand that approval of this research involving human subjects is contingent upon my agreement:

1. To report to the Institutional Review Board for Human Research (IRB) any adverse events or research related injuries which might occur in relation to the human research. I have read and will comply with IRB reporting requirements for adverse events.
2. To submit in writing for prior IRB approval any alterations to the plan of human research.
3. To submit timely continuing review reports of this research as requested by the IRB.
4. To maintain copies of all pertinent information related to the research activities in this project, including copies of informed consent agreements obtained from all participants.
5. To notify the IRB immediately upon the termination of this project, and/or the departure of the principal investigator from this Institution and the project.

** **Electronic Signature:** This document has been electronically signed by the IRB Chairman through the HSSC eIRB Submission System authorizing IRB approval for this study as described in this letter.*



Institutional Review Board for Human Research (IRB)

Office of Research Integrity (ORI)

Medical University of South Carolina

Harborview Office Tower

19 Hagood Ave., Suite 601, MSC857

Charleston, SC 29425-8570

Federal Wide Assurance # 1888

APPROVAL: Protocol: MS1_Pro00017883

MUSC Amendment #: Ame1_Pro00017883

Amendment Title: Amendment 1 for IRB Study #Pro00017883

This is to certify that the amendment to the research proposal entitled:

Adolescent Depression Education for Middle-school Nurses: A feasibility study

and submitted by: **Teresa Carnevale**

Department: **Medical University of South Carolina**

Sponsor:

for consideration has been reviewed by **IRB-I - Medical University of South Carolina** and approved with respect to the study of human subjects as adequately protecting the rights and welfare of individuals involved, employing adequate methods of securing informed consent from these individuals and not involving undue risk in the light of potential benefits to be derived therefrom. No IRB member who has a conflicting interest was involved in the review or approval of this amendment, except to provide information as requested by the IRB. If this amendment required a change in the currently approved Informed Consent, then all previous Informed Consent documents should be marked obsolete.

Approval Date: **3/15/2013**

Amendment Type: **Expedited**

Chair, **IRB-I - Medical University of South Carolina**

Susan Newman*

* *Electronic Signature: This document has been electronically signed by the IRB Chairman through the HSSC eIRB Submission System authorizing IRB approval for this study as described in this letter.*



Office of Research Integrity (ORI)
Medical University of South Carolina
Harborview Office Tower
19 Hagood Ave., Suite 601, MSC857
Charleston, SC 29425-8570
Federal Wide Assurance # 1888

APPROVAL: Protocol: MS2_Pro00017883

MUSC Amendment #: Ame2_Pro00017883

Amendment Title: Amendment 2 for IRB Study #Pro00017883

This is to certify that the amendment to the research proposal entitled:

Adolescent Depression Education for Middle-school Nurses: A feasibility study

and submitted by: **Teresa Carnevale**

Department: **Medical University of South Carolina**

Sponsor:

for consideration has been reviewed by **IRB-I - Medical University of South Carolina** and approved with respect to the study of human subjects as adequately protecting the rights and welfare of individuals involved, employing adequate methods of securing informed consent from these individuals and not involving undue risk in the light of potential benefits to be derived therefrom. No IRB member who has a conflicting interest was involved in the review or approval of this amendment, except to provide information as requested by the IRB. If this amendment required a change in the currently approved Informed Consent, then all previous Informed Consent documents should be marked obsolete.

Approval Date: **7/11/2013**

Amendment Type: **Expedited**

Chair, **IRB-I - Medical University of South Carolina**

Susan Newman*

** Electronic Signature: This document has been electronically signed by the IRB Chairman through the HSSC eIRB Submission System authorizing IRB approval for this study as described in this letter.*

**JOHN WILEY AND SONS LICENSE
TERMS AND CONDITIONS**

Feb 12, 2013

This is a License Agreement between Teresa D Carnevale ("You") and John Wiley and Sons ("John Wiley and Sons") provided by Copyright Clearance Center ("CCC"). The license consists of your order details, the terms and conditions provided by John Wiley and Sons, and the payment terms and conditions.

All payments must be made in full to CCC. For payment instructions, please see information listed at the bottom of this form.

License Number	3086541279507
License date	Feb 12, 2013
Licensed content publisher	John Wiley and Sons
Licensed content publication	Journal of Child and Adolescent Psychiatric Nursing
Licensed content title	An Integrative Review of Adolescent Depression Screening Instruments: Applicability for Use by School Nurses
Licensed copyright line	© 2010 Wiley Periodicals, Inc.
Licensed content author	Teresa Carnevale
Licensed content date	Dec 13, 2010
Start page	51
End page	57
Type of use	Dissertation/Thesis
Requestor type	Author of this Wiley article
Format	Print and electronic
Portion	Full article
Will you be translating?	No
Total	0.00 USD

THE JOURNAL OF SCHOOL NURSING

Julia Muennich Cowell, PhD, RNC, FAAN
Executive Editor

186 DeLaveaga Park Drive
Santa Cruz, CA 95065
Phone: (831) 454-8468
jcowell@nasn.org

February 9, 2013

To: Teresa Carnevale

From: Julia Muennich Cowell

Re: Permission to use manuscript published in the Journal of School Nursing

You have permission to use the manuscript you published in the Journal of School Nursing entitled *Universal Adolescent Depression Prevention Programs: A Review*. Craig Percy, the Executive Editor at SAGE has concurred with this permission.

At the best in your dissertation work.

Figure 1: Social Ecological Model: Levels of Influence (Stokols, 1996)

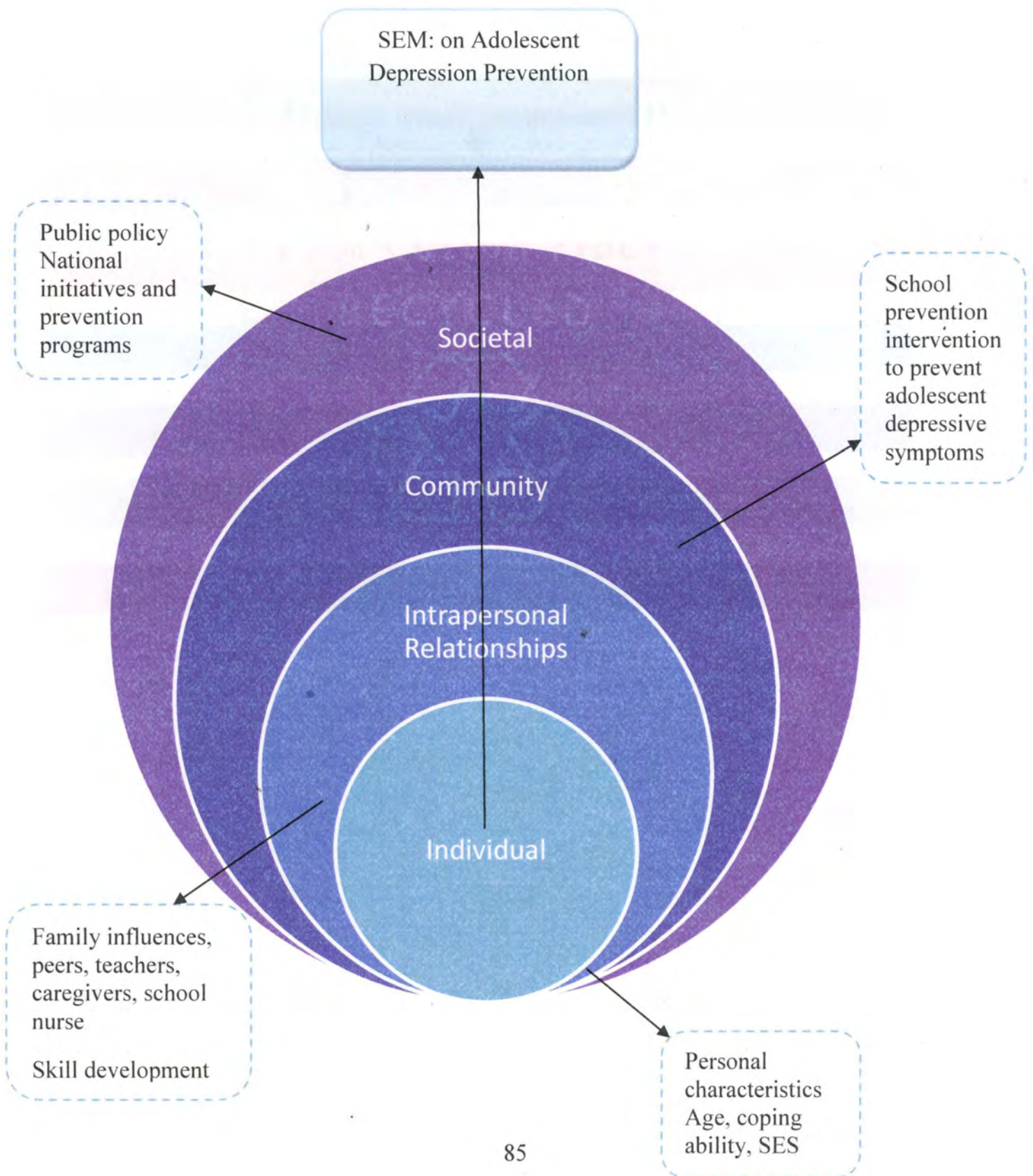
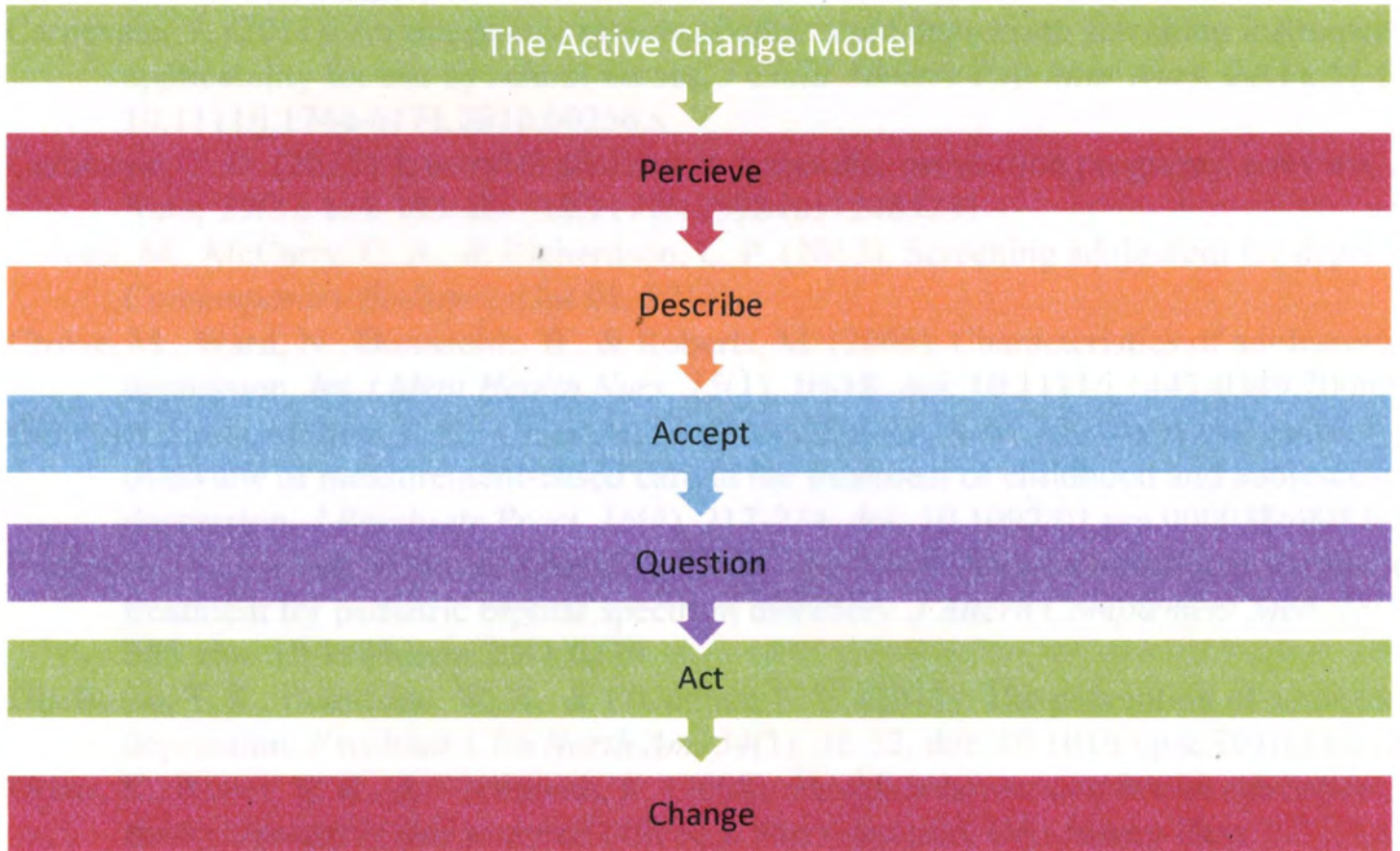


Figure 2: Active Change Model



References

- Botega, N., Mann, A., Blizard, R., & Wilkinson, G. (1992). General Practitioners and depression - first use of the Depression Attitude Questionnaire. *International Journal of Methods in Psychiatric Research*, 2, 169-180.
- Bardone, A. M., Moffitt, T. E., Caspi, A., Dickson, N., Stanton, W. R., & Silva, P. A. (1998). Adult physical health outcomes of adolescent girls with conduct disorder, depression, and anxiety. *J Am Acad Child Adolesc Psychiatry*, 37(6), 594-601. doi: 10.1097/00004583-199806000-00009
- Carnevale, T. (2011). An integrative review of adolescent depression screening instruments: applicability for use by school nurses. *J Child Adolesc Psychiatr Nurs*, 24(1), 51-57. doi: 10.1111/j.1744-6171.2010.00256.x
- Carnevale, T. D. (2013). Universal adolescent depression prevention programs: a review. *J Sch Nurs*, 29(3), 181-195. doi: 10.1177/1059840512469231
- Corona, M., McCarty, C. A., & Richardson, L. P. (2013). Screening adolescent for depression. *Contemporary Pediatrics*(Jul 01, 2013).
- Crowe, M., Ward, N., Dunnachie, B., & Roberts, M. (2006). Characteristics of adolescent depression. *Int J Ment Health Nurs*, 15(1), 10-18. doi: 10.1111/j.1447-0349.2006.00399.x
- Elmquist, J. M., Melton, T. K., Croarkin, P., & McClintock, S. M. (2010). A systematic overview of measurement-based care in the treatment of childhood and adolescent depression. *J Psychiatr Pract*, 16(4), 217-234. doi: 10.1097/01.pra.0000386908.07160.91
- Frazier, E. A., Fristad, M. A., & Arnold, L. E. (2012). Feasibility of a nutritional supplement as treatment for pediatric bipolar spectrum disorders. *J Altern Complement Med*, 18(7), 678-685. doi: 10.1089/acm.2011.0270
- Gladstone, T. R., Beardslee, W. R., & O'Connor, E. E. (2011). The prevention of adolescent depression. *Psychiatr Clin North Am*, 34(1), 35-52. doi: 10.1016/j.psc.2010.11.015
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education : theory, research, and practice* (4th ed.). San Francisco, CA: Jossey-Bass.
- Guttu, M., Engelke, M. K., & Swanson, M. (2004). Does the school nurse-to-student ratio make a difference? *J Sch Health*, 74(1), 6-9.
- Haddad, M., Butler, G. S., & Tylee, A. (2010). School nurses' involvement, attitudes and training needs for mental health work: a UK-wide cross-sectional study. *J Adv Nurs*, 66(11), 2471-2480. doi: 10.1111/j.1365-2648.2010.05432.x
- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)--a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*, 42(2), 377-381. doi: 10.1016/j.jbi.2008.08.010
- Hatch, S. L., & Wadsworth, M. E. (2008). Does Adolescent Affect Impact Adult Social Integration? Evidence from the British 1946 Birth Cohort. *Sociology*, 42(1), 155-177. doi: 10.1177/0038038507087358
- Kuo, E. S., Vander Stoep, A., Herting, J. R., Grupp, K., & McCauley, E. (2013). How to identify students for school-based depression intervention: can school record review be substituted for universal depression screening? *J Child Adolesc Psychiatr Nurs*, 26(1), 42-52. doi: 10.1111/jcap.12010

- Manning, A. R. (2009). Bridging the gap from availability to accessibility: providing health and mental health services in schools. *J Evid Based Soc Work*, 6(1), 40-57. doi: 10.1080/15433710802633411
- McCarty, C. A., Violette, H. D., Duong, M. T., Cruz, R. A., & McCauley, E. (2013). A randomized trial of the Positive Thoughts and Action program for depression among early adolescents. *J Clin Child Adolesc Psychol*, 42(4), 554-563. doi: 10.1080/15374416.2013.782817
- Naicker, K., Galambos, N. L., Zeng, Y., Senthilselvan, A., & Colman, I. (2013). Social, demographic, and health outcomes in the 10 years following adolescent depression. *J Adolesc Health*, 52(5), 533-538. doi: 10.1016/j.jadohealth.2012.12.016
- Pryjmachuk, S., Graham, T., Haddad, M., & Tylee, A. (2012). School nurses' perspectives on managing mental health problems in children and young people. *J Clin Nurs*, 21(5-6), 850-859. doi: 10.1111/j.1365-2702.2011.03838.x
- Quade, K., & Brown, R. (2001). *The conscious consultant: Mastering change from the inside out* (1st ed., pp. 272): Pfeiffer.
- Quade, K. B., R. (2001). *The Conscious Consultant* (1st ed.). San Francisco, CA: Jossey-Bass/Pfeiffer.
- Santoro, K. L., & Murphy, B. (2010). *Improving early identification & treatment of adolescent depression: Considerations & strategies for health plans*. Washington, DC: NIHCM Foundation Retrieved from <http://www.nihcm.org/publications/maternal-child-and-adolescent-health>.
- Scott, M. A., Wilcox, H. C., Schonfeld, I. S., Davies, M., Hicks, R. C., Turner, J. B., et al. (2009). School-based screening to identify at-risk students not already known to school professionals: the Columbia suicide screen. *Am J Public Health*, 99(2), 334-339. doi: AJP.2007.127928 [pii]10.2105/AJPH.2007.127928
- U.S. Department of Health and Human Services. (2011) Annual Report on Health Status and Service Needs of America's Children: *Child Health USA 2011: Health Status Adolescent*. Retrieved from <http://mchb.hrsa.gov/publications/child-healthusa.html>
- World Health Organization. (Ed.). (2003). *Caring for children and adolescents with mental disorders: Setting WHO directions*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (Ed.) (2007). *Child and adolescent mental health initiatives of the department of mental health and substance abuse*. Geneva, Switzerland: World Health Organization.