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Gender Differences in Self-Reported Anxiety in Rural Youth

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Abstract

An anxiety disorder affects 13 out of every 100 children. The purpose of this paper is to determine if there are differences in self-reported anxiety between male and female rural adolescents. One hundred and ninety three students aged 14-17 years in three western Pennsylvania rural high schools, USA, were surveyed. The majority of participants were Caucasian (86.5%, $n = 167$), female (53.4%, $n = 103$), and aged 15.57 ($SD = .93$). Females' mean self-reported anxiety score was higher than the males' score ($p < 0.0001$). The females' mean score was 25.09 ($SD = 13.83$) (score ≥ 25 may indicate the need for further evaluation for the presence of a potential anxiety disorder) while the males' mean score ($n = 90$) was 16.88 ($SD = 10.81$). Of interest, all the five factors (specific types of anxiety) scores were significantly different between males and females at $p < .05$. Evidenced based implications for the mental health nurse's practice will be discussed. Anxiety screening is promoted to identify youth that may need mental health treatment and referrals, especially rural and female youth.

Keywords

adolescents; anxiety; mental health nursing; rural health

Introduction

Anxiety in children and adolescents

During childhood and adolescence, anxiety disorders are one of the most common behavioural or mental problems. Between 8% and 12% of children suffer from some type of anxiety disorder (Bernstein et al 1996 cited in Muris & Steerneman 2001). An anxiety disorder affects 13 out of every 100 children. Anxiety disorders often occur with physical and mental health co-morbidities. Approximately half of children and adolescents with an anxiety disorder suffer in combination with a second mental health or behavioural disorder (Substance Abuse and Mental Health Service Administration 2007). The high rate of co-occurrence of anxiety and depression in children and adolescence has been reviewed by Seligman and Ollendick (1998). Because of possible lack of behavioural problems or masking by other psychiatric disorders, anxiety disorders are often under diagnosed and under treated (Birmaher et al 1999). In a study of primary care settings, 3.3% of visits by paediatric patients (N = 20,861 visits) involved a diagnosis of a mood or anxiety syndrome. This syndrome occurred most commonly in those that had co-morbid behavioural syndromes (66% visits) (Wren et al 2003).

Children and adolescents can develop anxiety disorders at any age, although specific disorders are more common in certain age groups. It has been shown that children, with untreated anxiety disorders or delayed treatment, perform poorly in school, have less developed social skills, and are at higher risk for substance abuse problems (Anxiety Disorders Association of America n.d.; Birmaher et al 1999; SAMHSA 2007). These anxiety disorders may predispose the child to other psychiatric disorders that may continue into adulthood (Pine et al 1998 cited in Birmaher et al 1999) and also create problems in the treatment of associated disorders (Brent et al 1998; Clarke et al 1992; Sanford et al 1995 cited in Birmaher et al 1999).

Costello et al (2001) found a three-month prevalence of anxiety disorders from four predominantly rural counties, to be 6.7 percent in rural white children (n = 379) and 4.7 percent in rural black children (n = 541) aged 9-17. The Child and Adolescent Psychiatric Assessment interview obtained information about symptoms that were based on parents' observations and children's self-report. Another study found that 5.6 percent (n = 933) of rural white youth in Appalachia, aged 9, 11, and 13 years had an anxiety disorder, which was also measured by the Child and Adolescent Psychiatric Assessment (Costello et al 1997).

Purpose

The purpose of this research was to describe self-reported anxiety in male and female rural youth. The research questions were: (a) What are the anxiety scores in a sample of rural adolescents and (b) Are there gender differences in anxiety scores in a sample of rural adolescents? Applying this study's results to mental health nursing practice may help improve the promotion of mental health in this population.

Literature review

Gender differences in self-reported anxiety—The literature underscores the differences in anxiety disorders and self-reported anxiety between males and females. Anxiety disorders affect female youth more than male youth (SAMSHA, 2007). Deardorff et al (2007) conducted a study examining how gender and puberty interact to predict social anxiety in early adolescence as measured by The Multidimensional Anxiety Scale for Children. Their findings, based on 106 participants aged 9.5-11 years old, suggested that

gender is associated with anxiety symptomatology. Females were found to be more susceptible to anxiety than males.

Research in a USA primary care settings that provide services for children under 15 years, found predictors of higher anxiety scores to be the female gender in a sample aged 8 to less than 13 years ($N = 515$) (Wren et al 2007). Similar findings were obtained from a sample aged 8-12 years 11 months ($N = 236$) (Wren et al 2004). Both these studies used the 41-item Screen for Child Anxiety Related Emotional Disorder (SCARED) to measure anxiety.

In an USA Appalachia study of children aged 9, 11, and 13 years (Costello et al 1997) 6.7% of rural White females ($n = 411$) were found to have an anxiety disorder compared to 4.6 % of rural White males ($n = 522$). Puskar et al (2003) reported their sample of rural females ($n = 284$) had higher anxiety symptom scores than rural males ($n = 182$) using the 38-item SCARED instrument.

In summary, female adolescents tend to self-report anxiety at higher levels than males. This conclusion emphasizes the need for ongoing screening for anxiety in adolescents, particularly females.

Method

This cross-sectional study used a survey design to measure anxiety in adolescents in three rural western Pennsylvania high schools, USA. The school sites were located in areas defined as “rural” by the Pennsylvania Department Rural Health (Pennsylvania Office of Rural Health, 2004-2005).

Procedure and participants

Approval was received from each school board and the University of Pittsburgh, USA, Institutional Review Board to conduct this study. The research team described the project to the ninth, tenth, and eleventh grade students at each school in their auditoriums. Consents were distributed and reviewed with students. A question and answer period was provided. The questionnaires were made available to those who wished to review them and parents were encouraged to call the principal investigator with any questions before signing the consents. Only those students with consents completely signed and initialed by both student and parents were in the study. The measures included a demographic questionnaire and an instrument that screened for anxiety symptoms. They were administered in a group setting during school. The students were paid \$10 for completing the measures. Informed consent was provided and anonymity of the individual findings was preserved. The parents did not complete any questionnaires or other measures.

Sample and setting

The participants were females (53.4%, $n = 103$) and males (46.6%, $n = 90$) from three Western Pennsylvania, USA rural-area public high schools. The majority were in the ninth grade (57 %, $n = 110$), then tenth grade (26.4%, $n = 51$) and the smallest proportion was in the eleventh grade (16.6%, $n = 32$). The ability to read and write in English was part of the inclusion criteria. The participants have been previously described in other publications (Puskar et al. 2006; Puskar et al 2008).

Participants were predominantly Caucasian (86.5%, $n = 167$). The other races varied with 2.5% ($n = 5$) African American and 1% ($n = 2$) Native American as the next highest percentages. Their ages ranged from 14 to 18 years (mean = 15.57). Most were participating in academic programs (88.6%, $n = 171$) with the remainder in nonacademic programs including vocational (6.7%, $n = 13$), business (1.6%, $n = 3$) and remedial (1.0%, $n = 2$).

Over one fourth of the sample worked (28.5%, $n = 55$) with 14.1 hours per week group average.

The two highest levels of the father's education, according to the student, were high school (39.4%, $n = 76$) and bachelor's degree (9.8%, $n = 19$). The highest levels of the mother's education, as reported by the student, were high school (35.2%, $n = 68$) and bachelor's degree (17.1%, $n = 33$). "The specific jobs the father held varied widely, with mechanic being the most frequent (6.7%, $n = 13$). Other jobs reported were electrician/plumber, mill worker (3.6%, each $n = 7$); construction (3.1%, $n = 6$); dairy, executive, truck driver (2.6%, each $n = 5$) and manager, maintenance, welder, steel worker (2.1%, each $n = 4$). The most frequent job the mothers held was being a nurse (10.9%, $n = 21$); then secretary (5.2%, $n = 14$); teacher (5.2%, $n = 10$); sales (3.6%, $n = 7$); and waitress (3.1%, $n = 6$)" (Puskar et al., 2006, p. 14).

Measures

Anxiety symptoms were measured with the Self-Report for Child Anxiety Related Emotional Disorders (SCARED) questionnaire (Birmaher et al 1997; 1999; 1995; <http://www.wpic.pitt.edu/research/carenet/care-netproviders/pdfforms/scaredchild-final.pdf>). The measure contained 41 items and a Likert scale that the participant used to answer what best described themselves in the past three months. Scores of ≥ 25 have been used as a cutoff that may indicate the need for further evaluation of the presence of a possible anxiety disorder. Five factors included in the SCARED were 1) Panic Disorder/Significant Somatic Symptoms, 2) Generalized Anxiety Disorder, 3) Separation Anxiety Disorder, 4) Social Anxiety Disorder, and 5) Significant School Avoidance. A score equal or greater than seven for items in the factor of Panic Disorder/Significant Somatic Symptoms may indicate need for further evaluation. The other factor items that may indicate the need for further evaluation were as follows: nine or greater for Generalized Anxiety Disorder, five or greater for Separation Anxiety Disorder, eight or greater for Social Anxiety Disorder and three or greater for Significant School Avoidance (Table 1). The SCARED had good reliability and validity. Item coefficients was in the range of 0.34 to 0.67; the coefficient α values for the total score were approximately .90; and good internal consistency, with coefficient α values ranging between .78 and .87 was noted in each factor (Birmaher et al 1999).

Muris and Steerneman (2001) reported that SCARED was reliable in determining internal consistency in 48 children reporting anxiety and disruptive disorders. The 41-item SCARED scale used with the formal clinical interview in a clinical settings can identify anxiety disorders in children aged 9 to 18 (Birmaher et al 1997).

Results

The mean SCARED score for the entire sample ($N = 193$) was 21.24 ($SD = 13.13$) which is below the score of ≥ 25 that may indicate the need for further evaluation of a potential anxiety disorder. All five factors (Panic Disorder/ Significant Somatic Symptoms, Generalized Anxiety Disorder, Separation Anxiety Disorder, Social Anxiety Disorder, and Significant School Avoidance) of the SCARED measure had group mean scores that fell below the score for symptomology (Table 1).

There were 74 (38%) respondents who had total mean SCARED scores of ≥ 25 (mean = 34.21, $SD = 9.95$) which may indicate the need for further evaluation. All of the factors in these respondents, except Social Anxiety, reflected scores that may need further evaluation for the possible specific factor.

Gender findings

The mean total SCARED score for all males was 16.88 ($n = 90$, $SD = 10.81$) whereas the mean total SCARED score for all females was 25.09 ($n = 102$, $SD = 13.83$) which was slightly above the score that suggests a need for further evaluation. This difference was statistically significant ($t = 4.54$, $p = 0.0001$) (See Table 1). Gender analyses of the five factors of SCARED means were below the scores suggested for further evaluation. Again, significant differences were found between females and males on each of the factors. Females consistently reported more anxiety symptoms than males ($p < 0.02$) (Table 1, Figure 1).

Twenty seven percent of the ($n = 52$) female youth and 11 percent ($n = 22$) of the male youth had SCARED scores ≥ 25 which may indicate the need for further evaluation. The total SCARED mean score for females was 35 whereas for males the mean was 32. Thus, a higher percentage of females had higher anxiety scores compared to males ($\chi^2 = 14.21$, $p = 0.0002$).

Discussion

There are few rural adolescent studies related to screening for anxiety symptoms or anxiety disorders (Costello et al 2001; Costello et al 1997; Puskar et al 2003). Approximately 60% of rural America have been underserved for the past 40 years. More than 85% of USA federally designated shortage areas of mental health professionals was found to be rural. These shortages are even worse for youth's mental health. The implications for the mental health nurse are to help rural individuals overcome barriers so they can receive the mental health care they need. The barriers are accessibility, availability, and acceptability (The Annapolis Coalition on the Behavioral Health Workforce 2006). Mental health nurses can promote mental health by being accessible, available, while promoting acceptability of mental health support through screening.

The overall screening for the prevalence of anxiety symptoms for this rural sample fell below the SCARED score ≥ 25 . There are limited studies for comparison with our findings. Puskar et al (2003) used the 38-item SCARED and found a rural youth mean SCARED score of 10.24 compared to this mean SCARED score of 21.24. Puskar et al (2003) found 20% of their rural sample to have total anxiety scores over 25 whereas this study found 38% of the total group ($n = 179$; female 27%, $n = 52$; and male 11 %, $n = 22$) had SCARED scores equal to or above 25 therefore suggesting the need for further evaluation for a potential anxiety disorder. This is almost half as much as this study's finding of 38% using the 41-item scale.

The SCARED is highly correlated with the presence of anxiety disorders in general, as well as the specific anxiety factors (Birmaher et al 1999). For example, in our sample ($N = 193$), over one third (38%, $n = 74$) of the respondents had scores of ≥ 25 (mean = 34.21, $SD = 9.95$). Our screening results are difficult to compare to a 3 month prevalence of 6.7 percent of those with diagnosis of an anxiety disorder. This study was with rural white children ($n = 379$) (Costello 2001). Another study found 5.6 percent ($n = 933$) prevalence in a rural white youth (Costello, 1997) that used a complex screening and interviewing process. Our screening process detected a larger percent of self-reported anxiety, thereby supporting the necessity for screening with further evaluation to detect actual anxiety disorders.

When gender differences were examined in our study, the female youth consistently had higher anxiety scores than the male youth (Table 1). This finding was similar to other reports (Deardorff et al 2007; Puskar et al 2003; SAMSHA 2007; Wren et al 2007; Wren et al

2004). A rise in an anxiety score for a female does not necessarily mean that the female will develop a mental health problem or disorder.

The interventions implications for the mental health nurse are to primarily promote 1) screening for anxiety symptoms; 2) referral for follow-up; and 3) train other to be able to screen and refer. Five questions from the 41-item SCARED measures can be utilized for rapid screening and as a referral guide for assessing each factor (Table 2). Additional screening tools for anxiety are provided in Table 3. Screenings can be used as an opportunity to identify the presence of anxiety symptoms. Referrals to mental health specialists will be needed to properly diagnose and treat anxiety.

Limitations

Limitations to the present study include: 1) the use of a subjective self-report measure, 2) the sample was rural Caucasian adolescents, and 3) schools self-selected to participate. When administering measures, there are confounding variables inherent in most research that could affect test scores. The participant could have been affected by current events that are anxiety producing but not ongoing. For example, a student may have just failed an important test or received bad news about a break up in a relationship.

Conclusion

In conclusion, this study found that self-report of anxiety in rural adolescent females was higher than their male counterparts. Approximately one-third of the sample had anxiety scores that were scores of ≥ 25 which may indicate the need for further evaluation for the presence of a potential anxiety disorder. This study applied the SCARED instrument as a screening tool to measure anxiety symptoms. Screening for anxiety can be accomplished by nurses in a variety of settings including primary care office, school nurses' office, mental health clinics or other health care settings such as school health fairs. This approach is in keeping with the USA Institute of Medicine (IOM) (2006) that strives to improve the quality of health care for mental and substance use conditions. Recommendation 4-2 states that clinicians and organizations providing these types of services should increase their use of valid and reliable patient questionnaires to assess treatment outcomes then to continuously improve the quality of service based on these findings. Implications are to 1) screen adolescents, especially rural females and 2) train primary care clinicians to screen for anxiety. Those screened with scores of ≥ 25 and factor scores would be referred to mental health specialists for further evaluation and treatment, therefore meeting the IOM aims of timeliness and efficiency to identify patient centered needs.

Recommendations and future research

The implications of screening e.g. costs, staff time, access to young people, and possible reactions by young people, parents and schools are worth it for everyone's future (individual, family and community levels). The use of existing resources of school nurses, guidance counsellors, and liaisons with the existing community health agencies can be maximized in the school and community setting with improved communication especially with our high risk children. Professional continuing education requirements could be utilized in learning how to target and recognize anxiety symptoms that would necessitate mental health referrals and intervention. Mental health nurses could be instrumental in these training classes.

Recommendations for future research include longitudinal studies for evidenced based nursing interventions. Measuring the outcomes of screening and treatment of anxiety could provide data in regard to the common sense belief of the value of early screening, referral, and treatment. Puskar and Bernardo (2007) advocate the importance of mental health in relation to academic achievement. Anxiety levels seem worthy of pursuit to improve coping

ability of kids in schools and later in life, since it is unknown at this point what percentage of those who have a high SCARED score will result in needing intervention. School screening using the tool in a longitudinal study and then tracking the students over a five year period may confirm some of the above hypotheses.

Future research in regard to the psychopathology of anxiety and treatment strategies are needed. To understand the rural environment and gender issues in adolescents, Nes et al (2007) conducted a study of 4,393 Norwegian twins, looking at the different reasons adolescents become anxious. Results of a self-administered screening instrument designed for nonpsychiatric settings and for detecting psychological problems, indicated that anxiety symptoms in some cases can be sex-specific. Also, environmental factors can change the symptoms of anxiety, and can often outweigh genetic aspects. A better understanding of the psychopathology of anxiety is important in order to address anxiety symptoms (Nes et al 2007). Bernstein et al (2005) studied group interventions with 61 anxious children aged 9-11 and found that both cognitive behavioural group therapy with and without parental involvement were more effective than no treatment.

A central focus of primary care for paediatric patients in the next decade is predicted to be mood and anxiety disorders (Wren et al 2003). Psychiatric mental health nurses can be instrumental in screening, client health promotion teaching, consulting, providing continuing education to enhance the skills of others (screening, referring and treatment) in regard to anxiety. The mental health nurse can provide health promotion teaching youth individually or in groups so they can learn to manage their feeling of anxiety throughout their life, especially rural and female youth.

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Figure 1.
Gender differences in SCARED total anxiety score

Table 1
SCARED total anxiety scores and factor scores by gender

Gender		Male youth			Female youth			
SCARED measure	†	N	Mean	SD	N	Mean	SD	p-value
Total score: Anxiety Disorder	≥25	90	16.88	10.81	102	25.09‡	13.83	<0.0001
§ Factor scores:								
1. Panic/Somatic	≥7	89	3.7	3.3	102	5.8	5.2	<0.0001
2. Generalized	≥9	90	5.1	3.5	102	7.6	4.5	<0.0001
3. Separation	≥5	90	2.1	2.3	103	3.6	3.1	<0.0001
4. Social	≥8	90	4.5	3.6	103	5.9	2.2	<0.007
5. Significant School Avoidance	≥3	90	1.6	1.5	103	2.2	1.9	0.022

[‡] Score may indicate need for further evaluation of a potential anxiety disorder

[‡] A total score of equal to or greater than 25 may indicate the need for further evaluation for presence of an Anxiety Disorder. "Scores higher than 30 more specific". Birmaher et al 1995
www.wpic-pitt.edu/research/carenet/care-netproviders/pdf/forms/scaredchild-final.pdf

[§] Factors full titles: 1) Panic Disorder/Significant Somatic Symptoms, 2) Generalized Anxiety Disorder, 3) Separation Anxiety Disorder, 4) Social Anxiety Disorder, and 5) Significant School Avoidance

Table 2
Child 5-Item Abbreviated Screen for Child Anxiety Related Emotional Disorders (SCARED) Scale (One Item per Factor)

1	I get really frightened for no reason at all (Panic Disorder/Significant Somatic Symptoms)
2	People tell me that I worry too much (Generalized Anxiety Disorder)
3	I am afraid to be alone in the house (Separation Anxiety Disorder)
4	I am shy (Social Anxiety Disorder)
5	I am scared to go to school (Significant School Avoidance)

Note: The scale is scored on a scale from 0 to 2;

0 = not true or hardly ever true,

1 = somewhat true or sometimes true, and

2 = very true or often true. Adapted from Birmaher, B., Brent, D., Chiappetta, L., Bridge, J., Monga, S., & Baugher, M. (1999). Psychometric Properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): A Replication Study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(10), p. 1231.

Table 3
Adolescent Anxiety Scales

Instrument & Website
Revised Children's Manifest Anxiety Scale (RCMAS) http://portal.wpspublish.com/portal/page?_pageid=53,69357&_dad=portal&_schema=PORTAL
Depression and Anxiety in Youth Scales (DAYS) http://www.stoeltingco.com/tests/store/ViewLevel3.asp?keyword3=958
Beck Anxiety Inventory (BAI) http://harcourtassessment.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8018-400&Mode=summary
Multidimensional Anxiety Scale for Children (MASC) https://www.mhs.com/ecom/(zi4csp555zb4pk45e1caeg45)/product.aspx?RptGrpID=MAS
Anxiety Disorders in Adolescents: A Self-Test http://www.adaa.org/GettingHelp/SelfHelpTests/selftest_GAD.asp

Note: Adapted from Massachusetts General Hospital. (2006). *Anxiety Disorders Detail*.
http://www.massgeneral.org/schoolpsychiatry/screening_anxiety.asp#spence Accessed: 9 April 2008.