

**Depressive Symptoms and Trust of Healthcare Provider in Rural Adolescents:
Relationships and Predictors**

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Abstract

The purpose of this study was to evaluate associations among depressive symptoms, trust of healthcare provider, and health behavior in adolescents who live in a rural area. Two-hundred and twenty-four adolescents aged 14-19 years old attending public high school in the Midwestern United States were surveyed. Results showed a diagnosis of depression, trust of healthcare provider, health awareness, and stress management predicted depressive symptoms in adolescents living in a rural area. Healthcare providers should take extra care to promote trust in the healthcare provider-patient relationship with adolescents and to follow guidelines for annual screening of adolescents for depressive symptoms. Nursing implications include adolescent psychoeducation to improve health awareness and stress management.

Keywords: adolescent, trust, delivery of healthcare, depression, rural health

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Introduction

In 2015, more than 3 million American adolescents met the diagnostic criteria for depression, with rates of depression diagnosis on the rise (Mojtabai et al., 2016; Twenge et al., 2018).

Depressive symptoms are subjective indicators of depression, including how an individual feels, thinks, and manages daily activities, which can vary from mild to severe (National Institute of Mental Health, 2016). Depressive symptoms place youth at risk for multiple comorbidities, such as injuries, pain disorders, and substance abuse, as well as an increased risk for suicide (Blue Cross Blue Shield, 2018). Depression and depressive symptoms in adolescents also affect a range of social, mental health, and physical health consequences, such as a lack of social support, depression recurrence, and poor self-rated health (Naicker et al., 2013).

Approximately 11% of adolescents in the United States have been diagnosed with depression, a rate that is consistent nationally and in rural areas (Avenevoli, et al., 2015). However, rural-dwelling adolescents are twice as likely to die by suicide as their urban counterparts (Fontanella et al., 2015), suggesting depressive symptoms are particularly problematic in this group. Unfortunately, little is known about depression and depressive symptoms in rural adolescents. The purpose of this study was to evaluate associations among depressive symptoms, trust of HCPs, and health behaviors in adolescents living in a rural area. The Behavioral Model of Health Service Use (referred to hereafter as the Behavioral Model) was adapted as a theoretical framework for the study. The Behavioral Model includes four categories of variables: contextual characteristics, individual characteristics, health behaviors, and health outcomes. The three individual-level categories (individual characteristics, health behaviors, health outcomes) informed variable selection for the study (Andersen, 1995).

Individual Characteristics

Individual characteristics are variables that measure an individual's predisposition for health conditions and predisposition toward health behaviors (Andersen, 1995). Rural adolescents may be at risk for depressive symptoms due to a variety of factors. A few studies have found that depressive symptoms are more common in rural youth who are girls or who live in low-income households (Meit et al, 2014; Smokowski et al., 2014). Other variables commonly assessed with the Behavioral Model include usual source of healthcare, self-rated health, unmet health need, and diagnosed conditions (Andersen, 1995).

According to the Behavioral Model, individual characteristics include beliefs an individual has about health and health care that influence their perception of need for and use of health care (Andersen, 1995). Evidence suggests depressive symptoms are more common in adolescents who have problems in their social relationships (Shore et al., 2018). Trust of HCP is an example of a health belief affecting adolescent health behaviors and health outcomes (Authors, 2018). Trust is a patient's recognition of a need that cannot be met without the help of the HCP, in combination with the patient's willingness to make themselves vulnerable to the HCP to meet that need (Hupcey et al., 2001). Evidence suggests adolescents' trust of HCP influences help-seeking for mental health concerns (Majumder et al., 2015; Saftner et al., 2014).

Trust of a HCP is also associated with health behavior (Birkhäuer et al., 2017). Patients who have low levels of trust in their HCPs are less likely to adhere to treatment recommendations, such as counseling or medication adherence (Bauer et al., 2014). In focus group studies, adolescents have expressed a lack of trust for healthcare providers (HCPs) as a reason for not using health care, especially for mental health concerns (Majumder, et al., 2015;

Saftner et al., 2014), which would prevent the assessment of and treatment for depressive symptoms in youth.

Health Behavior

Within the Behavioral Model, health behavior includes personal health practices that influence health outcomes (Andersen, 1995). Evidence suggests depressive symptoms are more common in adolescents who abuse substances (Shore et al., 2018) and depressive symptoms are less common in youth that engage in stress management, physical activity and health awareness behaviors (Bailey et al., 2018; Beable et al., 2017; Erbe & Lohrmann, 2015).

Health Outcome

In the adapted Behavioral Model, health outcomes are the result of individual characteristics and health behavior and include patient-perceived health status, such as symptoms (Andersen, 1995). The health outcome of interest in this study is depressive symptoms in rural-dwelling adolescents. Overall, 8.1% of youth (4.5% of boys, 12% of girls) ages 12-17 years living in the United States reported depressive symptoms lasting at least 2 weeks in the past year. Similarly, among youth living in rural communities located in the Midwestern United States, 7.2% of youth (3.6% of boys, 10.7% of girls) reported depressive symptoms (Meit et al., 2014).

Evidence suggests that a lack of trust is associated with depressive symptoms in adolescents (Venta et al., 2017) and that adolescents' trust of HCPs can influence health behavior (Authors, 2018). However, it is unknown if or how trust of HCP is associated with depressive symptoms in adolescents. This is important, because trust of HCP may be a modifiable factor in adolescent help-seeking for depressive symptoms. The purpose of this study was to evaluate associations among depressive symptoms, trust of HCP, and health behaviors in adolescents living in a rural area. This study builds upon the literature examining the importance of social

interactions, specifically with HCPs, in shaping adolescent health behaviors and health outcomes. Due to the dearth of literature on the relationship between trust of HCPs and depressive symptoms among adolescents, this study sought to address this gap, with a focus on rural-dwelling adolescents. Research questions included: (1) Do depressive symptoms vary by age or sex in adolescents living in rural areas, and (2) How are trust of HCP and health behaviors associated with depressive symptoms in adolescents living in rural areas?

Methods

Study Sample

The parent study of this analysis was a cross-sectional, descriptive study with 224 adolescents aged 14-19 years old (Authors, 2018). A power analysis suggested a minimum sample size of 123 participants (Cohen, 1988). School administrators requested that participation be offered in the study to all students in 9th grade- and 12th grade-required courses in order to maintain the lesson plan across sections of the courses, which resulted in oversampling. Demographic characteristics of the sample are found in Table 1.

Participant Recruitment

University institutional review board (IRB) approval was obtained (University of Louisville #12.0290). Inclusion criteria for the survey were that the adolescent was 14-19 years old; able to read, speak, and understand the English language; able to complete a self-administered survey; and a student enrolled at the public high school. Exclusion criteria were that the adolescent was unwilling to participate and/or the parent of an adolescent minor refused consent. In order to reduce participant and school burden, school administrators requested a survey designed with passive consent/assent. The survey questionnaires were approved by school administrators and a community advisory committee.

Following university IRB approval, school administrator approval, community advisory committee approval, and one week prior to data collection, the investigator provided the school with study advertisements and passive consent letters addressed to the parents of potential participants. The study advertisements were displayed in classrooms and the passive consent letters to parents were distributed to parents of potential participants. The passive consent letters included information about the study and an opportunity to decline participation. The informed assent/consent approach indicated that the adolescent participant was the primary focus of the research participation discussion and decision. Parental consent was assumed in the absence of dissent.

The investigator explained the study's purpose, the anonymity guaranteed to study participants, and study procedures to the potential participants prior to data collection. The investigator discussed the definition of HCP with the youths in each class. In this study, HCP was defined as the physician, nurse practitioner, or physician assistant that the adolescent participant regularly visited for health concerns, sick visits, and checkups. Study participants included both minors (aged 14-17) and emerging adults (aged 18-19). Participants were given an opportunity to ask questions about the study before data collection began.

Data collection took place in a classroom setting at a public high school in the rural Midwestern United States. The definition of rural used in this study is from the Office of Rural Health Policy and identifies rural as "... an incorporated population of less than 50,000 with core census blocks of fewer than 1,000 people per square mile and surrounding census blocks with an overall density of fewer than 500 people per square mile" (Health Resources and Services Administration, 2018). These data were collected in an incorporated community in the Midwestern United States with a population of approximately 6,000 individuals. Paper surveys

were distributed to all 9th and 12th graders during class time in the specified required courses at the school. A healthy snack was provided as an incentive for participation. Participants were given approximately 30 minutes to complete the surveys. The instructors remained present in the classroom, but were advised to avoid positioning themselves in a way that would allow viewing participants' surveys. Participants were given a cover sheet to maintain privacy of survey responses. Any adolescents who refused consent/assent were given a seek-and-find word puzzle as an alternative activity to complete during the data collection period. Individuals who chose to anonymously decline taking part in the study were instructed to return the blank survey packet at the end of data collection. The survey packets were collected from each participant after completion of the questionnaire. Two hundred and twenty-seven students were approached for participation. Three individuals declined participation and no students were ineligible for participation.

Measures

The Behavioral Model was adapted in the study and informed variable selection. The study model included three categories of variables: individual characteristics, health behaviors, and health outcomes. Each model category and the associated variables are described below.

Individual Characteristics. Individual characteristics measured in this study were age, sex, race, ethnicity, trust of healthcare provider, household income, usual source of health care, self-rated health, unmet health need, and HCP-diagnosed depression. Household income was measured with a proxy variable that indicated participation in the National School Lunch Program (Do you receive free or reduced lunch at school? Free lunch/reduced lunch/pays for lunch). Responses were recoded to a dichotomous variable (yes/no) indicating participation in the program, with affirmative responses serving as a proxy variable for low household income.

Usual source of health care was measured as a categorical variable (doctor's office, clinic, urgent care clinic, emergency department, "don't know", none), which was recoded to a dichotomous variable (yes/no) indicating whether the adolescent's usual source of health care was at a doctor's office/health clinic or other (urgent care clinic/emergency department/don't know/none). Self-rated health was determined using a single item measured on a 5-point scale from excellent to poor ($\alpha = .92$) (Manning et al., 1982), which was recoded to a dichotomous variable (yes/no) indicating excellent or very good self-rated health, rather than good, fair or poor self-rated health. The variables, unmet health need ("In the past year, have you needed health care, but did not receive health care for that need?") (Elliott & Larson, 2004) and HCP-diagnosed depression ("Has a healthcare provider diagnosed you with depression?") were measured dichotomously with a "yes" or "no" response options.

Trust of Healthcare Provider. In this study, trust of HCP was a belief measured as a continuous variable using the Wake Forest Physician Trust Scale. This measure, developed to assess a patient's trust of his/her primary HCP, contains 10 items measured on a 5-point Likert scale (Hall et al., 2002). The Wake Forest Physician Trust Scale has demonstrated good reliability in this sample ($\alpha = .90$; Authors, 2018) and among adults ($\alpha = .93$; Hall et al., 2002). Examples of Wake Forest Physician Trust Scale items on this scale are "Your doctor only thinks about what is best for you," and "Your doctor will do whatever it takes to get you all the care you need." Although the name of this scale suggests it measures only trust in physicians, the scale was developed with all HCPs in mind, and has been tested for use with a variety of HCPs, including nurse practitioners and nurses.

Health Behaviors. Health behaviors were measured as a continuous variable using the Adolescent Lifestyle Questionnaire (ALQ). The ALQ is a 43-item, 5-point Likert scale

comprised of seven subscales to measure determinants of a healthy lifestyle among adolescents (Gillis, 1997). This analysis made use of five of the health behavior subscales (nutrition, safety, health awareness, stress management, physical activity; $\alpha = .70-.91$). In the ALQ, nutrition includes food choices and eating patterns; safety is health protection using seatbelts, safer sex, and avoidance of substances (tobacco, alcohol, drugs); health awareness involves health education and health consultation; stress management contains strategies for coping with stress; and physical activity comprises active participation in sports, exercise, or physical activity (Gillis, 1997).

Health Outcome. In this study, depressive symptoms were the health outcome assessed. Data on depressive symptoms from this study's sample were collected using three mood-related items from the ALQ identity awareness subscale. Depressive symptoms were obtained by reverse-coding three items measuring positive affect (I like who I am; I am happy and content; I believe my life has purpose) and summing the scores. An examination of this depressive symptoms measure in this sample found good internal consistency ($\alpha = .83$) and a moderate correlation with self-reported depression diagnosis by an HCP ($r = .41, p \leq .01$).

Statistical Analyses

SPSS Statistics Version 26 software (IBM, 2018) was used to analyze the data. Frequencies and descriptive statistics were used to describe the sample. The relationships among depressive symptoms and study variables were evaluated using correlations. Two-tailed independent t-tests and chi-square for independence tests evaluated associations between study variables, and age and sex. The assumptions of normality (normal distribution, multicollinearity, homoscedasticity) were tested. Hierarchical multiple regression evaluated predictors of adolescents' depressive symptoms.

Results

Participants in the study consisted of predominantly non-Hispanic white females. Consistent with the inclusion of youths in 9th and 12th grade courses, participant ages were bimodally distributed, with dual modes of 15 and 18 years. Most of the youths reported an HCP or health clinic as the usual source of health care, rather than an urgent care clinic or the emergency department. A depression diagnosis by an HCP was reported in approximately 12% of participants. Chi-square tests for independence evaluated differences between groups in self-reported HCP-diagnosed depression. More girls than boys ($\chi^2 [1, n = 216] = 4.05, p = .04, phi = .15$) reported HCP-diagnosed depression, but no significant association between HCP-diagnosed depression and age was found ($\chi^2 [1, n = 217] = 0.42, p = .52, phi = -.06$).

Descriptive statistics including ranges, means, and standard deviations for study variables (trust of HCP, nutrition, safety, health awareness, stress management, physical activity, depressive symptoms) are reported in Table 2. Independent *t*-tests (two-tailed) were conducted to compare mean depressive symptoms scores by age and sex. There were no significant differences in mean depressive symptoms scores by age ($t [220] = .16, p = .87$) or by sex ($t [220] = -1.28, p = .20$).

Pearson-product moment correlations were used to assess the relationships among depressive symptoms, HCP-diagnosed depression, and study variables. Depressive symptoms had a positive association with HCP-diagnosed depression and unmet health need and inverse associations with nutrition, safety, health awareness, and physical activity. Both depressive symptoms and HCP-diagnosed depression had inverse associations with self-rated health, trust of HCP, and stress management. See Table 3 for correlations among study variables.

A hierarchical multiple regression was calculated to predict depressive symptoms in adolescents based on variables with a correlation of $r = \pm .15$, $p \leq .05$ or greater, which included HCP-diagnosed depression, self-rated health, unmet health need, trust of HCP and health behaviors (nutrition, safety, health awareness, stress management, physical activity). A significant regression equation was found ($F [9, 178] = 15.05$, $p < .001$) and explained 33% of the variance in depressive symptoms (See Table 4). Healthcare provider-diagnosed depression, lower trust of HCP, lower health awareness, and poorer stress management, predicted higher levels of depressive symptoms in adolescents.

Discussion

This study showed three important findings: (1) girls and boys had similar levels of depressive symptoms; (2) however, girls were more likely to report HCP-diagnosed depression than boys reported; and (3) trust of HCP and health behaviors predicted depressive symptoms in rural-dwelling adolescents, even when controlling for self-reported depression diagnosis.

Individual Characteristics

There were no differences in depressive symptoms scores in rural adolescents by age or sex. This finding diverges from studies that describe adolescent girls as having greater depressive symptoms than adolescent boys (Burdzovic-Andreas & Brunborg, 2017; Dardas et al., 2017; Lewis et al., 2020). The measure of depressive symptoms used in this study may not have had the sensitivity to detect differences in depressive symptoms between boys and girls.

Overall, 12% of adolescents reported HCP-diagnosed depression, which is similar to rates of adolescent depression diagnosis (11%) in the United States (Avenevoli et al., 2015). Although there were no differences in depressive symptoms scores in adolescents by age and sex, girls were nearly three times more likely to report a diagnosis of depression by an HCP than

boys. These results suggest that while depressive symptoms in rural-dwelling girls and boys are similar, girls are more likely to receive a depression diagnosis by an HCP—and possible treatment—than boys. This is especially concerning with the high rates of “successful” suicidal behavior in boys as compared to girls (Shain, 2016), particularly among boys residing in rural areas (Alston, 2012; Creighton et al., 2017). In general, studies from around the world have reported that adolescent girls have greater depressive symptoms than adolescent boys (Burdzovic-Andreas & Brunborg, 2017; Dardas et al., 2017; Lewis et al., 2020). The findings from this study, coupled with other research that supports or complicates these findings, emphasizes that further research is needed to evaluate sex differences in depressive symptoms and rates of depression diagnosis in rural-dwelling adolescents.

The relationship between trust of HCPs and depressive symptoms may be influenced by several other factors. Studies have suggested considerations that may influence trust of HCPs in adolescents with depressive symptoms include (1) mental health stigma, (2) a lack of a relationship with the HCP, and (3) perception that primary care providers do not provide mental health care (Authors, 2018). Most of the youths in this study indicated having an HCP as the usual source of health care, and having a usual source of health care was not associated with depressive symptoms or HCP-diagnosed depression. However, this study did not measure mental health stigma or perceptions of mental health care provided by primary healthcare providers. More research is needed to evaluate the factors that influence the association between trust of HCPs and depressive symptoms, particularly among rural-dwelling youth.

One explanation for the influence of adolescents’ trust of HCPs on depressive symptoms is that a lack of trust may be an indicator of the social withdrawal syndrome, a combination of low trust, low disclosure of personal information, and high loneliness (Rotenberg et al., 2017).

The social withdrawal syndrome hypothesis proposes that low trust of others leads to low levels of personal disclosures, which results in a high degree of loneliness and an unwillingness to seek out help. Depressive symptoms are associated with social withdrawal, in general (Porcelli et al., 2019). The social withdrawal syndrome has been noted in adolescents who are underweight, obese, and bulimic (Rotenberg et al., 2013; Rotenberg et al., 2017; Rotenberg & Sangha, 2015), but has not been studied in adolescents with depressive symptoms or depression. Our findings, coupled with this previous literature, suggests that adolescents with depressive symptoms may be particularly susceptible to weakened social relationship factors and, therefore, it may be necessary for HCPs to make additional efforts to build trust with these adolescents.

Health Behavior

The second key finding in this study was that health behaviors, including lower health awareness and poorer stress management, predicted higher levels of depressive symptoms in this sample of rural-dwelling adolescents. Health awareness and stress management are modifiable behaviors, which have also been shown to influence depressive symptoms in other studies among youth. Levels of stress and stress management behaviors both influence depressive symptoms in youths and are common targets in interventions through the promotion of stress reduction skills and strategies (Shapiro et al., 2016; Stavrou et al., 2016). Increasing health awareness (e.g. depression awareness) is also associated with reduced depressive symptoms (Beable et al., 2017; Beaudry et al., 2019; Lindow et al., 2020).

Future Research

This study highlights important areas for future research. Specifically, future studies should examine whether (1) the associations found in this study can be replicated with other diverse groups of girls and boys, (2) efforts to improve adolescents' trusting relationships with

HCPs may affect depressive symptoms, and (3) efforts to improve adolescents' trusting relationships with HCPs may affect adherence to HCP-recommended health behaviors (health awareness, stress management). This sample of adolescents included mostly White, non-Hispanic American adolescents. It is unknown if the relationship between trust of HCP and depressive symptoms exists in other samples. Further, since trust of HCPs is known to influence adherence to medical recommendations (Rotenberg & Petrocchi, 2018) and other health behaviors (Birkhäuser et al., 2017; Authors, 2018), future studies may evaluate efforts to improve trusting relationships with HCPs and its effect on a range of health behaviors.

Limitations

There are several limitations in the research design and methods used in this study, such as a cross-sectional study design, a non-random sample of homogenous research participants, and self-reported data. The use of a cross-sectional design prevents the identification of causal relationships within this study. Future studies should make use of causal study designs and assess the social withdrawal syndrome hypothesis. The predominantly non-Hispanic white convenience sample may limit study generalizability.

The use of three mood-related items, rather than a validated depressive symptoms scale, limits the reliability of our results. Support for the measure of depressive symptoms used in this study included (1) good internal reliability; (2) a moderate correlation between depressive symptoms and HCP-diagnosed depression, (3) similar correlations between study variables and both depressive symptoms and HCP-diagnosed depression; and (4) HCP-diagnosed depression was a predictor of depressive symptoms. However, the three item measure of depressive symptoms used in this study may have lacked the sensitivity necessary to identify sex differences typically found in studies of depressive symptoms. Future research should use a depressive

symptoms scale appropriate for adolescents, such as the Center for Epidemiological Studies-Depression Scale for pediatrics (CES-D Peds) (Faulstich et al., 1986; Lu et al., 2017) or the Patient Health Questionnaire—Adolescent (PHQ-Adolescent) (Allgaier et al., 2012; Burdzovic-Andreas & Brunborg, 2017; Johnson, et al., 2002).

Implications

Nurse practitioner and nurse approaches to adolescents with depressive symptoms can influence both adolescent trust of the HCP and adolescent health outcomes. Evidence suggests that depression in adolescents is underdiagnosed and undertreated (Lu, 2019), and evidence in this study suggests that may be especially true in rural adolescent boys. Current recommendations state that HCPs should screen adolescents age 12 years and older annually for depression using valid and reliable scales, in addition to adolescent and caregiver interviews (Zuckerbrot et al., 2018). Nurses and nurse practitioners should provide adolescents with depression or depressive symptoms with psychoeducation to increase health awareness and stress management.

Psychoeducation to improve health awareness related to depressive symptoms may include increasing adolescent and parent knowledge about depression, identification of depressive symptoms, available medical treatments (medication, cognitive behavioral therapy) and encouragement to communicate the need for emotional support to social supports, such as friends, parents, and HCPs (Jones et al., 2018). Stress management psychoeducation may include a variety of coping strategies effective in adolescents such as deep breathing, yoga, or meditation (Rew et al., 2014). HCPs must be careful to promote trusting relationships with adolescents who have depressive symptoms. HCPs should use behaviors that promote adolescent-HCP trust (Hall et al., 2002; Rotenberg, 2010), which include discussing confidentiality and privacy before

eliciting sensitive information, speaking directly to the adolescent, and making a genuine effort to listen to the adolescent's opinion and to show empathy (Authors, 2018).

Conclusion

This study showed important relationships among trust of HCPs, health behaviors, depressive symptoms, and HCP-diagnosed depression in rural adolescents. Relationships among these variables may be linked to the social withdrawal syndrome. Results of this study suggest HCPs should take care to promote and protect trust in the HCP-patient relationship with adolescents showing depressive symptoms. In addition, HCPs should follow guidelines for annual screening of adolescents for depressive symptoms. Future research should seek to replicate the relationship between trust of HCPs and depressive symptoms in adolescents from diverse groups.

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Table 1. Demographic characteristics ($N = 224$)

Characteristic	n (%) or M (SD)
<i>Age</i>	16.4 (1.47)
<i>Sex</i>	
Male	100 (44.6%)
Female	121 (54.0%)
Not reported	3 (1.3%)
<i>Race/Ethnicity</i>	
White	210 (95.0%)
Native American	8 (3.6%)
Asian	7 (3.2%)
Black	5 (2.3%)
Hispanic	13 (5.8%)
Multiracial	7 (3.2%)
Missing	3 (1.3%)
<i>Household income</i>	
Low income	82 (36.6%)
Not low income	140 (62.5%)
<i>Usual source of health care</i>	
HCP or clinic	180 (80.4%)
Emergency room/urgent care	29 (12.9%)
None/don't know	15 (6.7%)
<i>Self-rated health</i>	
Excellent, very good	114 (50.9%)
Good, fair, poor	109 (48.7%)
<i>Unmet health need</i>	
Yes	39 (17.4%)
No	185 (82.6%)
<i>HCP-diagnosed depression</i>	27 (12.1%)
Males	7 (6.9%)
Females	20 (16.5%)

Note. M = mean, SD = standard deviation. Some participants reported multiple racial/ethnic groups. Totals and percentages reflect participant responses, and therefore may not equal 100%.

Table 2. Descriptive statistics for study variables ($N = 224$)

	<i>n</i>	Range	<i>M</i>	<i>SD</i>
Trust of HCP	211	17-50	38.68	7.5
Nutrition	213	8-40	22.23	7.58
Safety behaviors	215	9-35	29.10	6.43
Health awareness	221	4-20	10.97	3.69
Stress management	214	4-20	12.95	3.58
Physical activity	220	4-20	14.78	4.75
Depressive symptoms	224	3-15	5.66	2.7
Girls	121	3-15	5.83	2.81
Boys	101	3-14	5.38	2.45

Note. Missing data contributed to differences in sample size for each variable. *M* = mean, *SD* = standard deviation.

Table 3. Correlations between depressive symptoms, HCP-diagnosed depression, and study variables in rural-dwelling adolescents

	HCP-diagnosed depression	Sex	Household income	Usual source of health care	Self-rated health	Unmet health need	Trust of HCP	Nutrition	Safety	Health awareness	Stress management	Physical activity
Depressive symptoms	0.41**	0.09	-0.11	.05	-0.36**	0.23**	-0.39**	-0.17*	-0.22**	-0.39**	-0.45**	-0.29**
HCP-diagnosed depression	—	0.15*	-0.18**	.07	-0.18**	0.05	-0.20**	-0.02	-0.13	-0.13	-0.14*	-0.10

Note. * $p \leq .05$, ** $p \leq .01$; HCP = healthcare provider, usual source of healthcare = doctor's office or health clinic; self-rated health = excellent or very good self-rated health

Table 4. Hierarchical Multiple Regression Model for Depressive Symptoms in Adolescents

	Depressive Symptoms
R ²	.33
F for R ² change	9.36**
HCP-diagnosed depression	2.16**
Trust of HCP	-.08**
Health awareness	-.14**
Stress management	-.17**

Note: **p < .01