Depressive symptoms, anxiety and academic motivation in youth: Do schools and families make a difference?

Student: Andrea Elmelid
Supervisor: Vladislav Ruchkin

2014-05-09

Table of contents

Abstract	3
Introduction	4
Method	6
<i>Participants</i>	<i>6</i>
<i>Procedure</i>	<i>7</i>
<i>Instruments</i>	<i>7</i>
<i>Data analysis</i>	<i>9</i>
Results	10
Discussion	10
Clinical implications	11
Limitations	12
References	13
Appendix	19
<i>Table 1.</i>	<i>19</i>
<i>Table 2.</i>	<i>20</i>
<i>Table 3.</i>	<i>21</i>

Abstract

The aim of this longitudinal study was to examine how depressive and anxiety symptoms affect academic motivation in children, and whether school and family factors could impact academic motivation in spite of the presence of such symptoms. Included in our study were predominantly economically disadvantaged youths aged 13-15 years in a Northeastern US urban public school system. A survey was constructed from several well-known estimating scales where The Social and Health Assessment (SAHA) served as the basis for the survey. Only those students who completed the survey both 2003 and 2004 were included (N=644). The results demonstrated that depressive symptoms have negative, while anxiety has positive impact on children's academic motivation. Teacher support, school attachment and parental involvement can decrease the negative impact of depressive symptoms on academic motivation.

Introduction

Education is regarded as an essential tool to achieve a better future. Academic failure has both individual and societal costs. Unemployment rates for individuals who have not graduated from high school are considerably higher than for high school graduates or those people with a Bachelor's degree or higher. There is also a significant wage difference between high school dropouts and high school graduates (U.S. Bureau of Labor Statistics, 2012). Indeed, both school failure (low grades) and dropout have been linked to a range of negative outcomes in adulthood including the use of illicit drugs (Gauffin, Vinnerljung, Fridell, Hesse, & Hjern, 2013), alcohol dependence (Grant, Stinson, & Harford, 2001), and even suicide (Björkenstam et al., 2011). In 2001, half of all welfare recipients and prison inmates in the United States had not completed high school (Alexander, Entwisle, & Kabbani, 2001).

Symptoms that are typical of anxiety and depression, such as decreased interest, loss of energy, insomnia, diminished ability to think and concentrate (American Psychiatric Association, American Psychiatric Association, & DSM-5 Task Force, 2013) would theoretically have at least some impact on the individual's motivation and ability to learn and perform in school. Accordingly, several studies have indicated that internalizing symptoms impair academic achievement (Brackney & Karabenick, 1995; Fröjd et al., 2008; Malinauskiene, Vosylis, & Zukauskiene, 2011; Pekrun, Goetz, Titz, & Perry, 2002; Roeser, Eccles, & Sameroff, 1998; Tesiny, Lefkowitz, & Gordon, 1980; Thornberry, Ireland, & Smith, 2001; Woodward & Fergusson, 2001). In contrast, other reports have suggested that there is no direct relationship between internalizing problems and academic performance (Barriga et al., 2002; Strauss, Lahey, & Jacobsen, 1982) and that psychopathology influences academic achievement only indirectly, through its determinants, such as motivation, self-efficacy and resource-management (Brackney et al., 1995). Along the same line, some reports have similarly found a negative relationship between test anxiety and academic motivation (Fischer, Schult, & Hell, 2013; Núñez-Peña, Suárez-Pellicioni, & Bono, 2013), while others suggested the opposite (Ergene, 2011; Pouratashi, Zhub, Mohammadi, Rezvanfara, & Hosseini, 2013). Eysenck, Derakshan, Santos, & Calvo (2007) suggested that anxiety may not necessarily impair cognitive performance, since high-anxious individuals can use additional compensatory mechanisms, such as enhanced effort, in order to succeed academically.

It is also possible that the association between children's mental health and academic success is bidirectional. Specifically, Kellam et al. (1994) indicated that school success might be beneficial for mental well-being. Similarly, a more recent study suggested that academic achievement, as well as school connectedness, may serve as protective factors against the development of depressive symptoms (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007).

Several studies with students from the general population have suggested a number of school and family related factors, such as high quality teacher-student relationships, characterized by high levels of closeness and low levels of conflict, that may impact positively on children's academic motivation (Hamre & Pianta, 2001; O'Connor & McCartney, 2007; Pianta & Stuhlman, 2004; Rudasill, 2011). Academic motivation and achievement is also affected by perceived teacher support (Baeten et al. (2013)), teacher attachment (Learner & Kruger (1997)) and the perceived classroom environment (Christle et al. (2007)). A positive relationship has also been observed between school attachment/sense of belonging to school and academic motivation (Goodenow, 1993; Hagborg, 1998; Neel & Fuligni, 2013; Sánchez, Colón, & Esparza, 2005). As regards the family, Kuperminc et al. (2008) demonstrated that parental involvement may contribute to a child's sense of school belonging, suggesting that parents may also influence students' attachment to school. Bean et al. (2006) and Henry et al. (2011) found that parental monitoring and parental warmth may also serve as independent predictors on youths' academic outcomes. More recently, Lowe & Dotterer (2013) found that parental warmth may moderate the relationships between parental monitoring and school engagement and academic motivation.

The positive impact of the family and school factors on academic achievement can be diminished however, by the presence of psychological problems, where negative emotions such as boredom, anxiety and anger for example, may impact negatively on students' perception of teacher instructions (Frenzel et al., 2007). Maurizi et al. (2013) have also demonstrated the potential complexity of these relations by showing how the connection between depression and poor academic achievement can itself be moderated by the relationships in the family, school and peer context.

What remains unclear is whether school and family factors may still have a positive effect on academic motivation in children even in the presence of depressive and anxiety symptoms. Given this, the current study aimed to investigate the relationship between depressive and anxiety symptoms on one hand, and

academic motivation on the other hand, in predominantly minority, low socio-economic status inner-city students, controlling for age, gender, ethnicity, low socio-economic status and family structure, and whether perceived teacher support, school attachment and parental involvement would affect academic motivation in children, even in the presence of depressive and anxiety symptoms. Based on previous research we expected to find a negative relationship between depressive and anxiety symptoms and academic motivation, but that this relation might be moderated by perceived teacher support, school attachment and parental involvement.

Method

Participants

This study used data from a project assessing risk and protective factors for adolescent adjustment in the United States. In 2003, a survey was administered to all 8th grade students in a Northeastern US urban public school system, including students in alternative programs and bilingual classes. A total of 1282 students completed the survey. The survey was administered again to the same group one year later. Only students who participated in the survey in both 2003 and 2004 were included in the present study ($n=771$). In order to examine race/ethnic background as a variable in these analyses, the sample was restricted to those subjects with an African-American, Hispanic, and Caucasian racial/ethnic background, which resulted in the exclusion of 15 (2.3%) subjects, while another 113 cases were excluded due to missing data and other reporting problems. This left a final sample of 644 students. Comparisons between this study group and those students excluded from the original sample due to attrition and for other reasons ($n=638$) revealed that youth in the excluded group were slightly older than those with longitudinal data, $M (SD) = 13.85$ years (.85) vs. 13.64 (.74), $t = 4.80$, $p < .001$, and had a lower academic motivation $M (SD) = 18.83$ (3.95) vs. 19.44 (3.83), $t = 2.97$, $p < .001$. Youth from the excluded group were also more likely to be male (56.0% vs. 45.5%, $\chi^2 (1) = 14.03$, $p < .001$), and Hispanic than African-American or Caucasian (61.6% vs. 58.6%, and 12.3% vs. 9.1%, respectively; $\chi^2 (2) = 11.78$, $p < .05$). Apart from this, the groups did not differ on any other variables of interest.

Participants ranged in age from 13 to 15 years old. The composition of the sample was 54.5% female ($n = 351$) and predominantly non-Caucasian: 61.6% African-American ($n = 397$), 23.9% Hispanic ($n = 154$), and 14.5% Caucasian ($n = 93$). Forty-eight percent of the participants came from two-parent families ($n = 278$), 11.9% ($n = 73$) had divorced parents, another 11.1% ($n = 68$) had separated parents, 24.4% ($n =$

157) had never-married parents, while a small percentage reported “other” marital status (3.3%). Seventy-six percent of the students were eligible for free lunch or lunch at a reduced cost, indicating that the sample consisted predominantly of economically disadvantaged youth.

Procedure

Data were collected by the school district in collaboration with university researchers to monitor the emotional and behavioural well-being of the district’s middle and high school students and to develop curricula to meet the needs of the students. Parents were informed of the survey at the time of school registration, received a letter about the survey two weeks prior to the administration of the questionnaires, and were offered the opportunity to decline participation. The passive informed consent procedure was approved by the university’s IRB and considered as an appropriate ethical procedure by the legislation of the State of Connecticut. Prior to survey administration, students were read a detailed assent form outlining their participation with assurances of confidentiality, and were asked to sign it to indicate assent (parent and child refusals were less than 1%). Students completed the survey in a classroom setting during one class period during a regular school day. Trained administrators read all questions aloud while students followed along with their copies of the survey, reading the questions themselves and circling responses in the booklet. A second administrator was available, providing help to individual students upon request. The teacher was also present in the class, which minimized any problems related to classroom management. Surveys were administered in English. Make-up administrations were performed at each school within one month of the initial administration for those who had been absent.

Instruments

The Social and Health Assessment (SAHA), developed by Weissberg and colleagues (Weissberg, Voyce, Kaspro, Arthur, & Shriver, 1991) and modified by Schwab-Stone and colleagues (Schwab-Stone et al., 1999; Schwab-Stone et al., 1995) served as the basis for the study. This survey included both new scales developed specifically for this survey and scales available from the literature that have been used with similar populations.

The Academic Motivation Scale included six items describing the perceived importance of academic achievements and academic motivation (it is important to me to get at least a B average this year; it is important to me to be considered a bright student by my teachers; it is important to me to be thought of as a good student by the other students; I try hard at school; education is so important that it’s worth it to put

up with things I don't like; I can't wait to quit school [reversed] that were adapted from Jessor, Donovan, & Costa (1989) and Hawkins, Catalano, & Miller (1992). The respondents were asked to report on a four-point scale how true for them each of the statements were (ranging from definitely not true to definitely true). Cronbach's α was 0.86.

Depressive Symptoms were assessed using an adaptation of the *Center for Epidemiological Studies-Depression Scale* (Radloff, 1977). Both the CES-D (e.g. Roberts, Lewinsohn, & Seeley, 1991) and several modified/shortened versions of the scale (Carpenter et al., 1998) have demonstrated excellent psychometric properties with adolescent populations. The scale consisted of ten negative statements (e.g. "I felt I could not shake off my sad feelings even with help from my family or friends"; "I felt really down"). Respondents reported on the presence of depressive symptoms during the past month using a three-point scale ("Not true"; "Somewhat true"; or "Certainly true"). Cronbach's α was 0.83.

Anxiety Symptoms were assessed by using a 13-item scale describing worrisome, preoccupying thoughts or unpleasant feelings about oneself or external stimuli (e.g. "I worry about other people liking me"; "I worry about being as good as other kids"), that has a strong positive correlation (.64) with the BASC Anxiety scale (Reynolds & Kamphaus, 1992). Students reported on the presence of anxiety symptoms on a three-point scale ("Not true"; "Somewhat true"; or "Certainly true"). Cronbach's α was 0.87.

Perceived Teacher Support in school was assessed by eight items (e.g. "Teachers are willing to help students"; "Most of my teachers notice when I am doing a good job and let me know about it") that were adapted from Hawkins et al. (1992), and developed by the creators of the original survey (Weissberg et al., 1991). The respondents were asked to report on a four-point scale how true for them each of the statements were (ranging from definitely not true to definitely true). Cronbach's α was 0.78.

The Attachment to School Scale consisted of five items developed by Weissberg et al. (1991), later modified by Schwab-Stone et al. (1999), (e.g., I like school; most mornings I look forward to going to school; when I am at school, I would rather be someplace else [reversed]). The respondents were asked to report on a four-point scale how true for them each of the statements were (ranging from definitely not true to definitely true). Cronbach's α was 0.71.

Parental Involvement was assessed by six items, assessing youth perceptions of the degree to which their parents and/or primary guardians are involved and interested in their lives (e.g., parent asks about her/his life, encourages interest in different things, gives good advice, spends free time with her/him, is interested in her/his friends, and spends time on activities at school). Responses were on a four-point scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often). Cronbach's α was 0.80.

Socioeconomic Status (SES)

Eligibility for free or reduced cost lunch was used as an index of SES and was coded as 1/0. Students were eligible if their family's income was less than 1.85% of the federal poverty threshold.

Family structure (as described in the Participants' section above) was recoded for the analyses into a binary variable based on student reports of either coming or not coming from a two-parent family (1 vs. 0).

Data analysis

Cronbach's alphas were used to determine the internal consistency of the scales included in the survey. Independent samples t-tests and chi-square tests were used to examine differences in the model variables between participants and non-included students, as well as for comparisons by gender (Tables 1 and 2). Hierarchical multiple regression analyses using ordinary least squares were used to examine the direct effects of the potential confounding variables (age, gender, ethnic minority status, low SES, family structure), risk factors (internalizing problems), as well as potential protective factors (parental involvement, attachment to school and teacher support), on the level of academic motivation (Table 3). These analyses were used to examine (1) the direct association between internalizing problems in both years and the levels of academic motivation (controlling for minority status, SES, and family structure); (2) the unique associations between teacher support, attachment to school and parental involvement on the one side and academic motivation on the other side, controlling for the above-mentioned confounding factors.

Variables were entered into the regression analyses in the following order: At Step 1, age, gender (male=1), African American vs. non-, Hispanic vs. non-, SES, and family structure; At Step 2, the levels of anxiety and depressive symptoms in the previous year; Step 3, anxiety and depressive symptoms in year 2; Step 4, teacher support; Step 5, attachment to school; Step 6, parental involvement.

Results

Tables 1 and 2 present comparisons by gender. Boys were slightly older than girls. They also reported significantly lower levels on all variables of interest, inclusive internalizing problems and school and family factors.

The final equation for the model predicting academic motivation was significant, $F(13, 643) = 33.66$, $p < .001$, $R^2 = .41$. The variables added to the model at each step accounted for significant additional variance in academic motivation (Table 3). Academic motivation was associated with higher anxiety symptoms and lower depressive symptoms scores in both years. Greater levels of teacher support, attachment to school and parental involvement were associated with higher levels of academic motivation in the same year. When all protective variables were added into the regression analysis, depressive symptoms were no longer significantly associated with academic motivation.

Discussion

The present study found a negative relationship between depressive symptoms and academic motivation, and a positive relationship between anxiety and academic motivation in children. The study has also suggested that teacher support, school attachment and parental involvement may still have a positive effect on academic motivation in children even in the presence of depressive and anxiety symptoms, and may even potentially decrease the negative impact of depressive symptoms on academic motivation.

Previous research has demonstrated negative effects of depressive and anxiety symptoms on overall child functioning and adjustment, and has emphasized the role of mental health problems in academic and personal achievement. In the present study, depressive symptoms were also negatively related to academic motivation. One way in which depression might lead to lower motivation is by reducing perceived levels of energy and by increasing susceptibility to fatigue as well as by reducing the capacity to think or concentrate (Thapar, Collishaw, Pine, & Thapar, 2012) all of which could be damaging for school achievement and subsequent motivation.

There was an interesting tendency of anxiety being related to greater academic motivation, which perhaps may be explained by the following: highly motivated children may experience higher levels of anxiety because they believe it is important to perform well. It seems logical to believe that a person with low academic motivation would find it less anxiety evoking to fail in an exam, compared to a person with

highly set goals. However, it is important to emphasize that we looked at isolated anxiety symptoms and not anxiety as a psychiatric diagnosis, which is a more complex condition. Previous research has been consistent in asserting a negative relationship between anxiety and academic performance (Rapport, Denney, Chung, & Hustace, 2001; Weems et al., 2013) and our findings do not challenge this.

Clinical implications

The point prevalence of major depression among adolescents in the US is estimated at 5.7%, with a higher prevalence among girls (Costello, Erkanli, & Angold, 2006), whereas the lifetime risk for developing depression by late adolescence can be as high as 25% (Kessler, Avenevoli, & Merikangas, 2001). This further emphasizes the importance of early recognition, where screening for major depression in adolescents can be one of the important measures (US Preventive Services Task Force, 2009).

The present study provides some insight in efforts for children with depressive symptoms and those at-risk for academic failure. First of all, depressive symptoms in school children should be carefully identified and treated. In addition to general improvement in child functioning and adjustment, decrease in depressive symptoms may potentially lead to an increase in academic motivation. As demonstrated by previous research, both parents and teachers are only moderately successful in recognizing internalizing symptoms in children and depressive symptoms are largely undertreated (Cicchetti & Toth, 1998; Clark, Jansen, & Cloy, 2012; Herman, 2009; Leaf et al., 1996; Saluja et al., 2004). These symptoms, however, may be crucial for the student's inability to reach its full potential in school and to achieve the success it deserves. Mental health professionals and school personnel should give more attention to the recognition of depressive symptoms that can be damaging for the child's future academic success. School psychologists can play an especially important role in this difficult process. Considering that effects of depressive symptoms on a child's academic motivation are non-specific by race and SES, timely recognition and treatment of depression acquires a special meaning and a large applicability.

In accordance with other recent research from the United States (Wentzel, Battle, Russell, & Looney, 2010), our data clearly demonstrate that teacher support to the child produces a significant effect on adolescent academic motivation. Educating teachers in how to be more supportive and involved with a child may potentially lead to a better academic success in the future. Interventions that use teachers as a tool for improvement should take into consideration the role of perceived teacher support. Such

interventions would seem to be urgently needed given that recent research has indicated that many teachers in the US may lack sufficient knowledge concerning how to motivate students effectively (Hardré & Hennessey, 2013).

In addition, since the study demonstrated protective effects of teacher support, school attachment and parental involvement against the negative impact from depressive symptoms on academic motivation, it implicates the importance of teachers, parents and the society as a whole to make an effort in improving the school environment for children. As teachers (Ward, Sylva, & Gresham, 2010) and parents are both in an ideal position to identify adolescent problems, they should be educated in identifying and handling depressive symptoms and other psychopathology, and health professionals, especially primary care providers, should be observant to perceived school problems and psychopathology among their patients.

Limitations

A number of limitations have to be mentioned in this study. First of all, since the present study uses a self-report questionnaire to assess information about academic motivation and symptoms of internalizing problems it does not allow for clinical diagnoses, and no verification was done to verify the accuracy of the reports. Perhaps more credible data on academic motivation could be found in official data instead of in self-reports. Secondly, a number of participants were not possible to follow longitudinally because of school drop-outs, and those participants were excluded from the study. However, other longitudinal studies in similar populations have shown that high attrition rates are common among urban and ethnic minority adolescents with low SES (Seidman et al., 1994; Gonzales et al., 1996), and therefore also expected in our study. To minimize missing data, follow-up administrations were made one month after the initial administration to reach those students that were absent the first time. When comparing the students that were excluded from the study because of school drop-outs, to those included in the study, the groups did not present any significant differences, except that the excluded students were a little bit older. Finally, no causation can be claimed in this study, but surely this kind of longitudinal research makes it somewhat easier to understand relationships between internalizing problems and academic motivation.

References

- Alexander, K. L., Entwisle, D. R., & Kabbani, N. S. (2001). The dropout process in life course perspective: Early risk factors at home and school. *Teachers College Record*, 103(5), 760–822. doi:10.1111/0161-4681.00134
- American Psychiatric Association, American Psychiatric Association, & DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Arlington, Va.: American Psychiatric Association.
- Baeten, M., Dochy, F., & Struyven, K. (2013). The effects of different learning environments on students' motivation for learning and their achievement. *The British journal of educational psychology*, 83(Pt 3), 484–501. doi:10.1111/j.2044-8279.2012.02076.x
- Barriga, A. Q., Doran, J. W., Newell, S. B., Morrison, E. M., Barbetti, V., & Robbins, B. D. (2002). Relationships between problem behaviors and academic achievement in adolescents. *Journal of Emotional and Behavioral Disorders*, 10(4), 233–240. doi:10.1177/10634266020100040501
- Bean, Barber, & Crane. (2006). Parental support, behavioral control, and psychological control among African American youth: The relationships to academic grades, delinquency, and depression. *Journal of Family Issues*, 27(10), 1335–1355.
- Hjerns A, Nordström P, Hallqvist J, & Ljung R. (2011). School grades, parental education and suicide--a national register-based cohort study. *Journal of Epidemiology and Community Health*, 65, 993-998.
- Brackney, B. E., & Karabenick, S. A. (1995). Psychopathology and Academic Performance: The Role of Motivation and Learning Strategies. *Journal of Counseling Psychology*, 42(4), 456–465.
- Carpenter, J. S., Andrykowski, M. A., Wilson, J., Hall, L. A., Rayens, M. K., Sachs, B., & Cunningham, L. L. (1998). Psychometrics for two short forms of the Center for Epidemiologic Studies-Depression Scale. *Issues in mental health nursing*, 19(5), 481–494.
- Christle, C. A., Jolivette, K., & Michael Nelson, C. (2007). School characteristics related to high school dropout rates. *Remedial and Special Education*, 28(6), 325–339. doi:10.1177/07419325070280060201
- Cicchetti, D., & Toth, S. L. (1998). The development of depression in children and adolescents. *The American psychologist*, 53(2), 221–241.
- Clark, M. S., Jansen, K. L., & Cloy, J. A. (2012). Treatment of childhood and adolescent depression. *American family physician*, 86(5), 442–448.
- Ergene, T. (2011). The relationships among test anxiety, study habits, achievement, motivation, and academic performance among turkish high school students. *Egitim ve Bilim*, 36(160), 320–330.

- Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion (Washington, D.C.)*, 7(2), 336–353. doi:10.1037/1528-3542.7.2.336
- Fischer, F., Schult, J., & B. Hell. (2013). Sex differences in secondary school success: why female students perform better. *European Journal of Psychology of Education*, 28(2), 529–543.
- Frenzel, A. C., Pekrun, R., & Goetz, T. (2007). Perceived learning environment and students' emotional experiences: A multilevel analysis of mathematics classrooms. *Learning and Instruction*, 17(5), 478–493. doi:10.1016/j.learninstruc.2007.09.001
- Fröjd, Nissinen, Pelkonen, Marttunen, Koivisto, & Kaltiala-Heino. (2008). Depression and school performance in middle adolescent boys and girls. *Journal of Adolescence*, (31), 485–498.
- Gauffin K, Vinnerljung B, Fridell M, Hesse M, & Hjern A. (2013). Childhood socio-economic status, school failure and drug abuse: a Swedish national cohort study. *Addiction*, 108, 1441-1449.
- Gonzales NA, Cauce AM, Friedman RJ, Mason CA (1996) Family, peer, and neighborhood influences on academic achievement among African-American adolescents: one-year prospective effects. *Am J Community Psychol* 24:365–387
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79–90. doi:10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X
- Grant BF, Stinson FS, & Harford TC. (2001). Age at onset of alcohol use and DSM-IV alcohol abuse and dependence: a 12-year follow-up. *Journal of Substance Abuse*, 13(4), 493-504.
- Hagborg, W. J. (1998). An investigation of a brief measure of school membership. *Adolescence*, 33(130), 461–468.
- Hall-Lande, J. A., Eisenberg, M. E., Christenson, S. L., & Neumark-Sztainer, D. (2007). Social isolation, psychological health, and protective factors in adolescence. *Adolescence*, 42(166), 265–286.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child development*, 72(2), 625–638.
- Hardré, P. L., Hennessey, M. N. (2013). What they think, what they know, what they do: rural secondary teachers' motivational beliefs and strategies. *Learning Environments Research*, 16, 411-436.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychological bulletin*, 112(1), 64–105.
- Henry, Plunkett, & Sands. (2011). Family structure, parental involvement, and academic motivation in

- Latino adolescents. *Journal of Divorce and Remarriage*, 52(6), 370–390.
- Herman, K. C. (2009). Childhood depression: Rethinking the role of the school. *Psychology in the Schools*, 46, 433–446. doi:10.1002/pits.20388
- Jane Costello, E., Erkanli, A., & Angold, A. (2006). Is there an epidemic of child or adolescent depression? *Journal of child psychology and psychiatry, and allied disciplines*, 47(12), 1263–1271. doi:10.1111/j.1469-7610.2006.01682.x
- Jessor, R., Donovan, J. E., & Costa, F. M. (1989). School Health Study. *Institute of Behavioral Science, University of Colorado, Boulder (CO)*.
- Kellam, S. G., Rebok, G. W., Mayer, L. S., Ialongo, N., & Kalodner, C. R. (1994). Depressive symptoms over first grade and their response to a developmental epidemiologically based preventive trial aimed at improving achievement. *Development and Psychopathology*, 6(03), 463–481. doi:10.1017/S0954579400006052
- Kessler, R. C., Avenevoli, S., & Merikangas, K. R. (2001). Mood disorders in children and adolescents: An epidemiologic perspective. *Biology Psychiatry*, 49, 1002–1014.
- Kuperminc, G. P., Darnell, A. J., & Alvarez-Jimenez, A. (2008). Parent involvement in the academic adjustment of Latino middle and high school youth: teacher expectations and school belonging as mediators. *Journal of adolescence*, 31(4), 469–483. doi:10.1016/j.adolescence.2007.09.003
- Leaf, P. J., Alegria, M., Cohen, P., Goodman, S. H., Horwitz, S. M., Hoven, C. W., Narrow, W. E., et al. (1996). Mental health service use in the community and schools: results from the four-community MECA Study. Methods for the Epidemiology of Child and Adolescent Mental Disorders Study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(7), 889–897.
- Lerner, D. G., & Kruger, L. J. (1997). Attachment, self-concept, and academic motivation in high-school students. *The American journal of orthopsychiatry*, 67(3), 485–492.
- Lowe, K., & Dotterer, A. M. (2013). Parental monitoring, parental warmth, and minority youths' academic outcomes: exploring the integrative model of parenting. *Journal of youth and adolescence*, 42(9), 1413–1425. doi:10.1007/s10964-013-9934-4
- M. Pouratashi, C. Zhub, Mohammadi, H. M., Rezvanfara, A., & Hosseinia, S. M. (2013). Effects of agricultural students' self-efficacy beliefs and test anxiety on their achievement motivation and academic performance. *New Educational Review*, 34(4), 85–98.
- Malinauskiene, O., Vosylis, R., & Zukauskiene, R. (2011). Longitudinal examination of relationships between problem behaviors and academic achievement in young adolescents. *Procedia Social and*

Behavioral Sciences, 15, 3415–3421.

Maurizi, L. K., Grogan-Kaylor, A., Granillo, M. T., & Delva, J. (2013). The Role of Social Relationships in the Association between Adolescents' Depressive Symptoms and Academic Achievement. *Children and youth services review*, 35(4), 618–625. doi:10.1016/j.childyouth.2013.01.006

Miller, D. N., & Jome, L. M. (2010). School psychologists and the secret illness: perceived knowledge, role preferences, and training needs regarding the prevention and treatment of internalizing disorders. *School Psychology International*, 31, 509–520.

Neel, C. G.-O., & Fuligni, A. (2013). A longitudinal study of school belonging and academic motivation across high school. *Child development*, 84(2), 678–692. doi:10.1111/j.1467-8624.2012.01862.x

Núñez-Peña, M. I., Suárez-Pellicioni, M., & Bono, R. (2013). Effects of math anxiety on student success in higher education. *International Journal of Educational Research*, 58, 36–43.

O'Connor, & McCartney. (2007). Examining student–teacher relationship and achievement as part of an ecological model of development. *American Educational Research Journal*, 44, 340–369.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic Emotions in Students' Self-Regulated Learning and Achievement: A Program of Qualitative and Quantitative Research. *Educational Psychologist*, 37(2), 91–106.

Pianta, R. C., & Stuhlman, M. W. (2004). Teacher–child relationships and children's success in the first years of school. *School Psychology Review*, 33, 444–458.

Radloff, L. S. (1977). The CES-D Scale A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, 1(3), 385–401.

Rapport, M. D., Denney, C. B., Chung, K. M., & Hustace, K. (2001). Internalizing behavior problems and scholastic achievement in children: cognitive and behavioral pathways as mediators of outcome. *Journal of clinical child psychology*, 30(4), 536–551. doi:10.1207/S15374424JCCP3004_10

Reynolds, C. R., & Kamphaus, R. W. (1992). Behavior Assessment System for Children (BASC). *American Guidance Service, Circle Pines (MN)*.

Roberts, R. E., Lewinsohn, P. M., & Seeley, J. R. (1991). Screening for adolescent depression: a comparison of depression scales. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30(1), 58–66. doi:10.1097/00004583-199101000-00009

Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (1998). Academic and emotional functioning in early adolescence: longitudinal relations, patterns, and prediction by experience in middle school. *Development and psychopathology*, 10(2), 321–352.

- Rudasill, K. M. (2011). Child temperament, teacher–child interactions, and teacher–child relationships: A longitudinal investigation from first to third grade. *Early Childhood Research Quarterly*, 26(2), 147–156.
- Saluja, G., Iachan, R., Scheidt, P. C., Overpeck, M. D., Sun, W., & Giedd, J. N. (2004). Prevalence of and risk factors for depressive symptoms among young adolescents. *Archives of pediatrics & adolescent medicine*, 158(8), 760–765. doi:10.1001/archpedi.158.8.760
- Sánchez, B., Colón, Y., & Esparza, P. (2005). The role of sense of school belonging and gender in the academic adjustment of Latino adolescents. *Journal of Youth and Adolescence*, 34(6), 619–628.
- Schwab-Stone, M., Chen, C., Greenberger, E., Silver, D., Lichtman, J., & Voyce, C. (1999). No safe haven. II: The effects of violence exposure on urban youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(4), 359–367. doi:10.1097/00004583-199904000-00007
- Schwab-Stone, M. E., Ayers, T. S., Kaspro, W., Voyce, C., Barone, C., Shriver, T., & Weissberg, R. P. (1995). No safe haven: a study of violence exposure in an urban community. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34(10), 1343–1352. doi:10.1097/00004583-199510000-00020
- Seidman E, Allen L, Aber JL, Mitchell C, Feinman J (1994) The impact of school transitions in early adolescence on the self-system and social context of poor urban youth. *Child Dev* 65:507-522.
- Strauss, C. C., Lahey, B. B., & Jacobsen, R. H. (1982). The relationship of three measures of childhood depression to academic underachievement. *Journal of Applied Developmental Psychology*, 3(4), 375–380.
- Tesiny, E. P., Lefkowitz, M. M., & Gordon, N. H. (1980). Childhood depression, locus of control, and school achievement. *Journal of educational psychology*, 72(4), 506–510.
- Thornberry, T. P., Ireland, T. O., & Smith, C. A. (2001). The importance of timing: the varying impact of childhood and adolescent maltreatment on multiple problem outcomes. *Development and psychopathology*, 13(4), 957–979.
- Thapar, A., Collishaw, S., Pine, D. S., Thapar, A. K. (2012). Depression in adolescence. *Lancet*, 379, 1056-1067.
- U.S. Bureau Labour of Statistics. (2012).http://www.bls.gov/emp/ep_chart_001.htm.
- US Preventive Services Task Force. (2009). Screening and treatment for major depressive disorder in children and adolescents: US Preventive Services Task Force Recommendation Statement. *Pediatrics*, 123(4), 1223–1228. doi:10.1542/peds.2008-2381
- Ward, S., Sylva, J., & Gresham, F. M. (2010). School-based predictors of early adolescent depression. *School Mental Health*, 2, 125-131.

- Weems, C. F., Scott, B. G., Taylor, L. K., Cannon, M. F., Romano, D. M., & Perry, A. M. (2013). A theoretical model of continuity in anxiety and links to academic achievement in disaster-exposed school children. *Development and psychopathology*, 25(3), 729–737. doi:10.1017/S0954579413000138
- Weissberg, R. P., Voyce, C. K., Kaspro, W. J., Arthur, M. W., & Shriver, T. P. (1991). The Social and Health Assessment. *Authors, Chicago (IL)*.
- Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, 35, 193-202.
- Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(9), 1086–1093. doi:10.1097/00004583-200109000-00018

Table 1. Demographic characteristics of the study sample ^a

Variable	Total Sample (N = 644)	Boys (45.5%)	Girls (54.5%)	Statistic
<i>Age (Mean (SD))</i>	<i>13.7 (1.2)</i>	<i>13.7 (.82)</i>	<i>13.6 (.66)</i>	<i>t = 2.46; p = .014</i>
<i>Ethnicity</i>				
African-American	61.6	60.4	62.7	$\chi^2 = 8.93; p = .063$
Hispanic	23.9	23.5	24.2	
White	12.3	12.3	12.3	
Asians	1.1	2.4	0.0	
Others	1.1	1.4	0.9	
Single parent family status	49.4	47.8	50.7	$\chi^2 = .549; p = .459$
<i>Mother's Education</i> (% High school or higher)	73.9	76.5	71.8	$\chi^2 = 1.80; p = .180$
<i>Father's Education</i> (% High school or higher)	63.7	67.6	60.4	$\chi^2 = 3.55; p = .059$
<i>Free Lunch Status</i>	75.5	74.4	76.4	$\chi^2 = 2.93; p = .232$

Note: ^a Expressed as % within variable level, unless noted otherwise

Table 2. Comparisons of the variables of interest by gender (M (SD))

	Boys	Girls	Statistics
Depressive symptoms	3.02 (3.75)	5.72 (5.21)	$t = 7.42, p < .001$
Anxiety symptoms	9.14 (5.67)	11.52 (5.56)	$t = 5.37, p < .001$
Academic Motivation	18.87 (3.66)	19.92 (3.12)	$t = 3.94, p < .001$
School Attachment	12.40 (4.06)	13.35 (3.72)	$t = 3.09, p < .01$
Parental Involvement	16.56 (4.24)	17.81 (4.09)	$t = 3.80, p < .001$
Teacher Support	21.22 (4.94)	22.54 (4.69)	$t = 3.45, p < .001$

Table 3. Hierarchical Regression Analysis Predicting Academic Motivation (n = 644)

Step	Variable	β at entry	R^2	$R^2\Delta$	Final β
1	Age	-.096*	.049	.049***	-.063*
	Gender	-.184***			-.091**
	African American vs. Non	.028			-.018
	Hispanic vs. Non	-.017			-.008
	Low SES	.009			-.031
	Family Structure	-.021			-.040
2	Depressive symptoms, yr 1	-.211***	.126	.077***	-.068
	Anxiety symptoms, yr 1	.297***			.115**
3	Depressive symptoms, yr 2	-.114*	.148	.022***	-.027
	Anxiety symptoms, yr 2	.170***			.081
4	Teacher Support	.432***	.314	.166***	.254***
5	School Attachment	.314***	.383	.069***	.273***
6	Parental Involvement	.182***	.410	.027***	.182***

Note: $p < .001$ ***, $p < .01$ **, $p < .05$. Teacher support, school attachment and parental involvement year 2. Academic motivation year 2 as the dependent variable.