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Protective Factors as Barriers to Depression in Gifted and Nongifted Adolescents

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Despite continued efforts by researchers, a gap still exists in our understanding of the psychological, social, and emotional adjustment of gifted students. Historically, research and education of the gifted has focused on cognitive variables, with less attention given to the social and emotional needs of these students. The current study used data from the full Add Health data set to examine how protective factors moderated depression differently for gifted and nongifted adolescents. Results of the study indicate that gifted students are significantly less depressed than nongifted students, and all of the protective factors moderated depression for both groups. Future research should examine additional indicators of psychosocial well-being provide a more comprehensive framework for understanding the social and emotional development of gifted and nongifted adolescents.

Putting the Research to Use: Empirical research examining the unique social and emotional needs of gifted adolescents is at a critical juncture. Both educators and researchers have become increasingly aware that giftedness, in whatever form, has unique influences on the social and emotional development of gifted adolescents. In line with previous findings, results in the current study suggest that for both gifted and nongifted adolescents, social support at home and at school can play an important role in reducing problems (i.e. depression) and at the same time enhancing resiliency. It is time, as Ford (1994) has suggested, for educators and researchers to take substantial steps to strengthen the "family-school-community" link in order to provide adequate social support in the many contexts that both gifted and nongifted adolescents live (Bronfenbrenner, 1977).

Keywords: *gifted; depression; protective factors; psychosocial well-being; adolescents*

Despite continued efforts by researchers, a gap still exists in our understanding of the psychological, social, and emotional adjustment of gifted students. Historically, research and education of the gifted has focused on cognitive variables with less attention given to the social and emotional needs of these students. Over the past 25 years, however, research on the social and emotional needs of gifted students has increased dramatically (Versteynen, 2001). In 1981, a widely publicized case about the suicide of a gifted high school student, Dallas Egbert, raised public awareness about the unique vulnerabilities often faced by gifted students because of their advanced cognitive abilities. It was also during this time that the phrase, "social and emotional needs of the gifted" came into use, as researchers became increasingly interested in the impact of giftedness on adjustment and well-being (Neihart, 1999).

Two contrasting views emerged from this new line of research. First, some have suggested that gifted students are at increased risk for psychosocial adjustment problems because, among other things, they are overly perfectionistic (Nugent, 2000), are highly sensitive to interpersonal conflicts with family and peers, and are more socially isolated because of their advanced cognitive abilities (Neihart, 1999). Contrarily, others have believed that giftedness acts more as a protective factor, putting gifted students at reduced risk for problematic psychosocial adjustment. This later view was elaborated in two ways: (a) gifted students, because of their advanced cognitive abilities are better able to utilize resources available to them in a way that reduces their vulnerability to a variety of risk factors (Kitano & Lewis, 2005); and (b) characteristics of giftedness and

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resiliency overlap in many ways (Bland, Sowa, & Callahan, 1994).

Concurrently, depression became an area of particular concern for researchers interested in student well-being and adjustment, particularly among adolescents. Adolescents undergo marked psychological, social, and emotional changes during the transition to adult maturity. Adolescents may respond to these changes in maladaptive ways developing psychosocial adjustment problems, such as depression, in response to the increases in stress associated with the many developmental changes taking place during the transition (Meadows, Brown, & Elder, 2006). Depression is potentially damaging or destructive to adolescent development, with MacPhee and Andrews (2006) noting, "Depression is considered by some to be one of the most serious forms of childhood psychopathology due to the prevalence, chronicity, comorbidity, and pervasive consequences associated with this disorder" (p. 435). Prevalence among adolescents is estimated by the National Institute for Mental Health (2000) to range from 2.5% to 8.3%; others have put this figure at about 10% to 12% (Baker, 1995). Problems often associated with depression include low self-esteem, negative body image, and poor academic achievement (Lehtinen, Raikkonen, Heinonen, Raitakari, & Keltikangas-Jarvinen, 2006; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). In extreme cases, depression can lead to suicide, with Modroin-McCarthy and Dalton (1996) reporting that suicide is the third leading cause of death among 15- to 24-year-olds. Further, Kovacs (1989) noted, "By adolescence, depressive disorders and suicidal behavior generally go hand in hand" (p. 210). Despite increased understanding about many aspects of gifted student adjustment, there remains a paucity of research exploring depression in gifted populations (Baker, 1995).

Depression in Gifted Adolescents

Depression is usually characterized by persistent sadness or loss of interest or enjoyment in day-to-day activities (Baker, 1995; Kendall, Cantwell, & Kazdin, 1989). Some studies of gifted students report average or below average levels of depression among these individuals (Berndt, Kaiser, & Van Aalst, 1982; Kaiser & Berndt, 1985) although others have hypothesized that extreme levels of giftedness (i.e. IQ > 180) may put individuals at risk for asynchronous development with their academic and social environments (Hollingworth, 1942; Jackson & Peterson, 2003). For the most part, however, researchers have reached conclusions similar to Neihart (1999), "All empirical studies examining depression among gifted children have found gifted students to exhibit levels of depression similar to, or lower than their nongifted peers" (p. 12).

Whether giftedness improves resiliency or increases vulnerability is still to be determined. Although theoretical and empirical evidence support both views, perhaps the best way to "reconcile the paradox" (Neihart, 1999) is to examine social and emotional adjustment of gifted students in relation to a number of different factors. For example, several authors have suggested that psychosocial adjustment of the gifted is best studied as an interaction between many personal and environmental factors, rather than examining these relationships linearly or utilizing syllogistic reasoning (i.e. "a" leads to "b" leads to "c"; Neihart, 1999; Versteynen, 2001).

Risk and Protective Factors Associated With Adolescent Depression

In addition to the continued need for research documenting similarities and differences in prevalence rates of depression among gifted and nongifted students, there is also growing need to understand how risk and protective factors differentially impact depression for both groups (Reis, Colbert, & Hébert, 2005). Dole (2000) noted that further empirical studies were needed to enhance our understanding of these complex relationships because of the changing nature of both risk and protective factors. She cited the example of being raised in a single-parent home, generally considered to be a risk factor making individuals more susceptible to negative psychosocial outcomes. There are cases, however, where risk might be ameliorated by the presence of the strong mother figure in the home. Furthermore, Kitano and Lewis (2005) pointed out that intelligence is viewed by many as a fixed characteristic that does not fluctuate much over time; therefore, studies in which risk and protective factors are studied by making comparisons between gifted and nongifted students may yield a clearer picture of how these factors differentially influence depression levels over time. Because intelligence is relatively constant, comparisons made between the groups might also yield a clearer picture of environmental influences.

Risk Factors and Depression

Risk factors typically associated with depression include a combination of physiological and psychosocial

factors. Among some of the more significant predictors making adolescents more vulnerable to depression are violence or extreme conflict in the immediate family (Kessler & McGee, 1993); a combination of genetic (O'Connor, Niederhiser, Neiderheiser, Hetherington, & Plommin, 1998), hormonal (Nottelman et al., 1987), and cognitive factors (Seiffge-Krenke, 2002); and various other life stressors (Sandberg, McGuinness, Hillary, & Rutter, 1998). Williamson et al. (1998) found that adolescents diagnosed as depressed were also significantly more likely to have experienced two or more adverse events in the previous year compared to control groups. Examples of adverse events ranged from being a victim of a violent act, to getting into a fight at school, and to having been sexually harassed by a stranger.

Reasons given to explain why gifted students may be more at risk for negative psychosocial outcomes have included being overly perfectionistic (Nugent, 2000), being highly sensitive to interpersonal conflicts with family and peers (Neihart, 1999), and being more sensitive to stressors than their nongifted peers due to their heightened cognitive abilities (Neihart, 1999). As discussed previously, stress and alienation may be heightened in cases where there are extreme levels of giftedness (Hollingworth, 1942; Jackson & Peterson, 2003). Garland and Zigler (1999) suggested that advanced cognitive ability coupled with heightened sensitivity often work together to put gifted students at increased risk for negative psychosocial outcomes. And gifted students may evaluate their social skills negatively, which then may make them feel that peers have negative views of them as well (Dauber & Benbow, 1990). Jackson and Peterson (2003) and Versteynen (2001) have suggested that the level of mismatch between the individual and the environment, which may be caused by extreme levels of giftedness, may make it difficult for some gifted students to relate to family and peers. Although these findings raise awareness about how vulnerability is increased because of certain factors, there is additional value in conducting research that deepens understanding about how to enhance resiliency.

Protective Factors and Depression

"Resiliency" and "protective factor" are terms often used to describe conditions or processes that help reduce or attenuate the influence of risk factors when present (Carbonell et al., 2002; Richardson, 2002). Furthermore, these protective factors take different forms, and may interact differently with different individuals or groups (Dole, 2000). Several researchers have hypothesized that protective factors often fall into three broad categories: personality or individual (e.g. self-esteem; Carbonell et al., 2002), family cohesion (e.g. parent–family connectedness, Resnick et al., 1997), and environmental support (e.g. school belonging; Resnick et al., 1997).

Carbonnell et al. (2002) identified personality factors that may act as buffers against depression including self-esteem, self-mastery, and optimism. Others have found that characteristics such as an easy-going temperament and at least average levels of intelligence may serve to buffer adolescents from depression (Denny, Clark, Fleming, & Wall, 2004). Neihart (2001) listed, among other personality traits, advanced problem-solving ability, heightened intellectual curiosity and concern for moral issues, and self-efficacy as making gifted students more resilient. And, Kitano and Lewis (2005), citing several empirical studies, have suggested that level of intelligence may account for how and which coping strategies are utilized by gifted individuals in response to stressful situations.

Other researchers have found high levels of family cohesion and close family relations may act as buffers to depression for some adolescents, particularly females (Carbonell et al., 2002; Carbonell, Reinherz, & Geinconia, 1998; Ge, Lorenz, Conger, Elder, & Simons, 1994). Citing attachment theory as an explanation, Meadows et al. (2006) suggested quality of attachment to parents was also related to depression, especially when quality of the relationship was high with both parents (Sheeber, Davis, Leve, Hops, & Tildesley, 2007). On the overall importance of family support, Sheeber et al.(2007) noted, "The most widely reported finding with regard to family processes is that depression is inversely related to the level of support, attachment, and approval adolescents experience in the family environment" (p. 144).

Similar findings have also been found with respect to the role of school and other environmental supports. Masten (2001) and McLoyd (1998) both found that having a positive relationship with at least one adult (other than parents) makes individuals less vulnerable to environmental risk factors. This positive relationship can be with a teacher, coach, or some other individual who takes an active interest in the life of the adolescent. In essence, having a supportive adult during difficult times or when stress is at its worst seems to have a positive impact on how well certain adolescents are able to pull through those tough times. Lastly, Jacobson and Rowe (1999) note that adolescents are often active agents in their own social and academic environments, with gifted students possibly having an advantage because of their

increased capacity to utilize the resources available to them to deal effectively with various environmental stressors (Kitano & Lewis, 2005). Thus it may not only be the positive influence of the relationship that matters but also in how adolescents choose to utilize the benefits of the relationships to help them deal with the stresses that may be present in their lives.

Whatever the exact relationship between personal, family, and environmental factors acting as barriers to adolescent depression, it is evident that further empirical research is needed in this area (Baker, 1995; Neihart, 1999). Through our growing understanding of how certain factors influence the social and emotional adjustment of gifted students, we can better design intervention strategies aimed at helping these individuals to avoid risks and to reach their full potential.

Purpose of the Present Study

The purpose of the present study is to add to the literature examining depression in gifted students by exploring differences in prevalence as well as the ways in which different protective factors act to make both gifted and nongifted students more resilient to depression. Based on previous findings in this area, the author hypothesized that gifted students would exhibit similar or reduced levels of depression as compared to the nongifted group. Given the lack of previous empirical work on the subject, however, a priori assumptions were not made about specific relationships between the protective factors and depression for each group.

Method

Participants and Procedure

Participants for the present study were selected from the National Longitudinal Study of Adolescent Health (Add Health). Add Health collected both school-based and in-home data from 20,745 7th- through 12th-graders and their families. The purpose of Add Health was to explore the role of social contexts (e.g. family, school) on adolescent health and behavior. Data for Add Health were obtained through adolescent self-report using methods ensuring proper confidentiality and privacy of all participants. Further details about study design, sampling procedures, and methodology are available in other studies based on Add Health data (Resnick et al., 1997; Rushton, Forcier, & Schectman, 2002).

Data for the current study were selected from the first wave of Add Health data collection (1995). Gifted and nongifted students (N = 1524) were selected from the larger Add Health study (N = 20,745) utilizing specific selection criteria. Gifted students were identified as being in the top 5% of scores on the Add Health Picture Vocabulary Test (AHPVT), which has been used as a proxy for intelligence in other studies (e.g. Halpern, Joyner, Udry, & Suchindran, 2000) and is described in further detail below. A matched sample of nongifted students was selected using scores from the AHPVT (85 to 115), and was matched based on age, gender, family income level, and ethnicity. Only respondents with complete data on all independent and dependent variables were used for data analysis.

Gifted sample. Gifted students (N = 762) ranged in age from 12 to 19 years old (M = 15.70, SD = 1.65), and there were more males (52.6%) than females (47.4%) in the sample. The sample was predominately White (75.6%), with the rest of the sample comprised of Black (10.8%), Hispanic (8%), Asian Pacific Islander (4.9%), and other (.7%). The mean family income (gross) for the sample was approximately US$56,000 per year (SD = US$35,000) and ranged from US$0 to US$250,000. The mean AHPVT score for the gifted sample was 125.88 (SD = 3.08) with scores ranging from 123 to 146, which represented the top 5% of scores in Add Health. The AHPVT utilizes an IQ metric (Halpern et al., 2000) where the mean standardized score is 100 with a standard deviation of 15. The self-reported mean grade point average (GPA) for gifted students was 3.22 (SD = .73). GPA was calculated using the most recent self-reported grades in English or language arts, math, history or social studies, and science. GPA was coded to reflect a traditional grading metric (1 = D, 2 = C, 3 = B, 4 = A).

Nongifted sample. Nongifted students (N = 762) were matched on age, gender, family income level, and ethnicity; therefore, demographic information on these variables was identical to those of the gifted sample. Nongifted students were identified as those being within one standard deviation above or below the mean on the AHPVT. This resulted in a mean AHPVT score of 102 (SD = 8.35) for the nongifted sample, with the scores ranging from 85 to 115. The self-reported mean GPA for nongifted students was 2.78 (SD = .77).

Table 1
Results From Scale Construction (Gifted Sample)

Scale	α	Eigenvalue	% Variance	Item	Loading
Self-concept	.85	3.737	53.39	You have a lot to be proud of.	.80
				You feel like you are doing everything just about right.	.77
				You have a lot of good qualities.	.76
				You like yourself just the way you are.	.75
				You feel loved and wanted.	.73
				You feel socially accepted.	.70
				You feel physically fit.	.59
Parent–family connectedness	.84	3.361	56.01	How much do you feel that you and your family have fun together?	.81
				How much do you feel that your family pays attention to you?	.80
				How close do you feel to your mother?	.76
				How much do you feel that people in your family understand you?	.75
				How close do you feel to your father?	.73
				How much do you feel that your parents care about you?	.63
School belonging	.79	2.484	62.11	You feel like you are part of your school.	.86
				You are happy to be at your school.	.84
				You feel close to people at your school.	.84
				You feel safe at your school.	.57

Measures

Scales adapted for use in the current study were developed using principle-components analysis (varimax rotation). The decision was made to conduct independent factor analyses and reliability estimates for gifted and nongifted students because the researcher was interested in the unique effect of each independent variable within both groups. Tables 1 (gifted) and 2 (nongifted) provide all relevant information pertaining to scale development, including eigenvalues, factor loadings, reliability estimates, and items contained on each scale.

Intelligence. The Peabody Picture Vocabulary Test (PPVT) has been designed to measure hearing vocabulary for Standard American English and is often administered and used as a proxy for intelligence in large field studies (such as in Add Health). The (PPVT) is typically used in such situations because administration time is short, no specialized training in cognitive assessment is needed, and because test performance is not dependent on the test-taker's reading ability (Halpern et al., 2000). The PPVT has shown a moderate correlation with other measures of IQ, such as with the Stanford–Binet Intelligence Scale (.62) and the Wechsler Intelligence Scale for Children (.64; Halpern et al., 2000). In other studies, the PPVT was deemed across a range of different age groups (Bieliauskas et al., 2000; Craig & Olsen, 1991). Halpern et al. (2000) noted that both the PPVT and the Add Health Picture Vocabulary Test (AHPVT) utilized a scoring metric similar to that of IQ where the standardized mean score was 100 and the standard deviation was 15. See Halpern et al. for additional information pertaining to the AHPVT.

Outcome measure. The main outcome measure for the study was adolescent self-report of depressive symptoms (Rushton, Forcier, & Schectman, 2002). In Add Health, depressive symptomology was measured using an adapted form of the Center for Epidemiological Studies-Depression Scale (CES-D) and contained a total of 19 items. The CES-D (Radloff, 1977) was originally designed to measure depressive symptoms in adult populations but has been adapted for use with adolescent populations (Radloff, 1991). In both versions (CES-D and Add Health), respondents were asked to indicate, among other things, how often over the past 7 days they had felt "sad" or "depressed or "happy." Responses on all items ranged from 0 (never or rarely) to 3 (most of the

Table 2
Results From Scale Construction (Nongifted Sample)

Scale	α	Eigenvalue	% Variance	Item	Loading
Self-concept	.87	3.985	52.93	You have a lot to be proud of.	.81
				You like yourself just the way you are.	.79
				You feel loved and wanted.	.79
				You feel socially accepted.	.76
				You have a lot of good qualities.	.75
				You feel like you are doing everything just about right.	.72
				You feel physically fit.	.66
Parent–family connectedness	.78	2.890	48.17	How much do you feel that your family pays attention to you?	.76
				How much do you feel that people in your family understand you?	.74
				How much do you feel that you and your family have fun together?	.72
				How close do you feel to your mother?	.71
				How much do you feel that your parents care about you?	.63
				How close do you feel to your father?	.59
School belonging	.74	2.261	56.53	You feel like you are part of your school.	.83
				You are happy to be at your school.	.79
				You feel close to people at your school.	.74
				You feel safe at your school.	.63

time or all of the time) (Jacobson & Rowe, 1999). Four of the 19 items were positively worded, and were reverse-coded to produce a single score. In previous studies using Add Health data, scores are summed to create a composite score and have demonstrated good overall reliability in those cases (Jacobson & Rowe, 1999; α = .87; Wight, Botticello, & Aneshensel, 2006, α = .85). In the current study, depressive symptomology was treated as a continuous variable with scores ranging from 0 to 57. Gifted students had a mean score of 8.67 (SD = 6.67), with scores ranging from 0 to 52. Compared with the gifted students, nongifted students had a higher overall mean score of 10.69 (SD = 7.05) but with a reduced range of scores from 0 to 44. Reliability estimates were similar to those reported in previous studies for both gifted (α = .87) and nongifted (α = .85) students.

Independent Variables

All of the independent variables chosen in this study were selected based on their previously discussed relationship with adolescent depression. In particular, demographic variables (age, gender, family income level, ethnicity) and personal (self-concept), family (perceived family support), and contextual or environmental (school belonging) protective factors served as the main independent variables in the study.

Demographic variables. Age, gender, family income level, and ethnicity served as the main demographic variables in both samples. Age was calculated by subtracting the year of birth of each respondent from the year of the interview (1995). Age was treated as a continuous variable in the subsequent regression analyses. Gender was dummy-coded (0 = male, 1 = female). Family income level was measured in US$1,000 increments and was also treated as a continuous variable. Ethnicity was measured using the primary racial group each respondent identified with most. In Add Health, respondents were able to identify with more than one ethnic group. In those cases, an additional question asked respondents which group they identified with most. Ethnic choices were White, Black, Hispanic, Asian Pacific Islander, Native American, and Other. For both groups in the current study (gifted and nongifted), the Native American (combined N = 6) and Other race (combined N = 6) categories were combined to form a new Other variable because of the limited number of respondents in each of the original categories. Thus, in each of the regression analyses conducted, *Other* refers to respondents who identified as Other and Native American.

Self-concept. Self-concept was measured using a seven-item scale (Anderman, 2002). This scale was

designed to measure global self-concept and included such items as, "You have a lot of good qualities" and "You feel socially accepted." Responses were coded on a 5-point Likert-type scale, with higher responses indicating higher self-concepts. Anderman found good overall reliability for this scale ($\alpha = .86$), which was also found for both gifted ($\alpha = .85$) and nongifted ($\alpha = .87$) students in the present study.

Parent–family connectedness. Perceived parent–family connectedness was measured using a six-item scale. This scale measured both the level of perceived closeness in the immediate family (e.g. "How much do you feel that your family pays attention to you?") and parent–child relationships (e.g. "How close do you feel to your father or mother?"; Jacobson & Rowe, 1999; Resnick et al., 1997). Responses were coded on a 5-point Likert-type scale, with higher values indicating higher levels of parent–family connectedness. The scale was created by taking the mean scores from each item to generate an overall mean score for the scale. Good reliability was found for both gifted ($\alpha = .84$) and nongifted ($\alpha = .78$) students.

School-belonging. School belonging was measured using a four-item scale. This scale measured the level to which a student felt a sense of belongingness in their school. Items included, "You feel close to people at your school" and "You are happy to be at your school." Responses were coded on a 5-point Likert-type scale (0 = strongly disagree to 5 = strongly agree) where higher scores indicated higher levels of perceived school belonging. This scale is identical to the one used by Anderman (2002; $\alpha = .76$) and produced good reliability indices in both the gifted ($\alpha = .79$) and nongifted ($\alpha = .74$) sample.

Data Analysis

To explore the moderating effect of personal (self-concept), family (parent–family connectedness), and school level (school-belonging) protective factors on depressive symptoms in separate samples of gifted and nongifted adolescents, hierarchical regression analyses were conducted. The demographic variables of age, gender, family income level, and ethnicity were entered at step 1 of each analysis. At step 2, protective factors thought to buffer adolescents from depression were entered as additional predictors for each group. A measure of adolescent depression served as the as the main dependent variable in each analysis.

Table 3
Means and Standard Deviations for Predictor and Outcome Variables for Gifted and Nongifted Samples

Predictor Variables	Gifted Sample	Nongifted Sample
Self-concept	4.07 (.56)	4.09 (.60)
Parent–family connectedness	4.09 (.61)	4.11 (.60)
School belonging	3.83 (.78)	3.77 (.76)
Depressive symptoms	8.67 (6.67)	10.69 (7.05)

Results

Descriptive Statistics

Table 3 presents the means and standard deviations (by group) for the three protective factors and the outcome variable. A series of *t* tests were conducted to test for mean differences between gifted and nongifted students in their levels of self-concept, parent–family connectedness, school belonging, and on the outcome variable, depression. In general, there were no significant differences found between the two groups, gifted ($M = 4.07$, $SD = 59$) and nongifted ($M = 4.09$, $SD = .60$), in their mean levels of self-concept, $t(1521) = .627$, $p = ns$. In addition, no significant differences were found between the groups on mean levels of parent–family connectedness, $t(1521) = .609$, $p = ns$, with gifted ($M = 4.09$, $SD = .61$) and nongifted ($M = 4.11$, $SD = .60$) students both indicating high levels on this variable. For school belonging, the differences between the two groups were also nonsignificant (t (1502) = –1.927, $p = .054$) with gifted ($M = 3.79$, $SD = .72$) and nongifted ($M = 3.72$, $SD = .73$) students showing similar levels on this construct. Lastly, gifted students ($M = 8.67$, $SD = 6.67$) were found to experience significantly fewer depressive symptoms than their nongifted peers ($M = 10.69$, $SD = 7.05$; $t(1522) = 5.758$, $p < .000$). It is noteworthy, however, that the means for both groups were still relatively low given that the scale ranged from 0 to 52 (Rushton et al., 2002). Implications of these results are further examined in the Discussion section.

To test for the relative influence of protective factors on both gifted and nongifted students' level of depressive symptomology, hierarchical regression analyses were used. Student demographics, a control variable that consisted of age, gender, family income

Table 4
Full Hierarchical Linear Model Predicting Depression in Gifted Sample ($N = 754$)

Variable	Step 1 β	Step 2 β
Step 1		
Age	.13***	.03
Gender	.07*	.04
African American[a]	–.04	.00
Hispanic[a]	.10**	.06*
Asian Pacific Islander[a]	.03	.03
Other race[a]	.06	.03
Family income level	–.04	–.00
Step 2		
Self-concept		–.33***
Parent–family connectedness		–.21***
School belonging		–.22***
Adjusted R^2	.03***	.40***
Change in R^2	.04***	.37***

a. All ethnic categories compared to White students in each sample.

*$p < .05$. **$p < .01$. ***$p < .001$ (two-tailed).

Table 5
Full Hierarchical Linear Model Predicting Depression in Nongifted Sample ($N = 748$)

Variable	Step 1 β	Step 2 β
Step 1		
Age	.09**	.05
Gender	.13***	.03
African American[a]	.02	.05
Hispanic[a]	.05	.04
Asian Pacific Islander[a]	.03	.02
Other race[a]	–.00	.00
Family income level	–.05	–.04
Step 2		
Self-concept		–.44***
Parent–family connectedness		–.16***
School belonging		–.09**
Adjusted R^2	.02**	.34**
Change in R^2	.03**	.32**

a. All ethnic categories compared to White students in each sample.

**$p < .01$. ***$p < .001$ (two-tailed).

level, and ethnicity were entered in the first step for each group. The protective factors, self-concept, parent–family connectedness, and school belonging were entered in the second and final step of the analysis. Full regression results are displayed in Table 4 for gifted students and Table 5 for nongifted students.

Protective Factors as Barriers to Depression in Gifted Adolescents

For gifted adolescents, the full regression model of demographic variables was shown to have a significant effect on the dependent variable. Age, gender, family income level, and ethnicity combined to explain a small but significant proportion of the variance in depression for this group, with an adjusted $R^2 = .03$, $p < .000$. Age ($\beta = .134$, $p < .000$), gender (.071, $p = .05$), and identifying as Hispanic ($\beta = .095$, $p = .01$) were all significant positive predictors of depression. For this sample of gifted adolescents, the older you were, whether you were a female and whether you identified as Hispanic, all made a significant difference in your level of depression.

In the regression model that included both demographic variables and protective factors, there was also a significant effect on the dependent variable of depression. With the addition of the three protective factors, the second regression model explained a considerably larger amount of the variance in the dependent variable, with an adjusted $R^2 = .40$, $p < .000$. In the presence of the protective factors, the demographic variables of age and gender dropped out of the regression model as significant; however, gifted Hispanic adolescents ($\beta = .059$, $p < .05$) were still shown to be more depressed as compared to their White counterparts. In addition, all three protective factors, self-concept ($\beta = –.333$, $p < .000$), parent–family connectedness ($\beta = –.214$, $p < .000$), and school belonging ($\beta = –.220$, $p < .000$) were significant negative predictors of depression for the gifted adolescents. Therefore, having a healthy self-concept, perceiving a high level of parent–family cohesiveness, and feeling a sense of belonging in one's school, all reduced vulnerability to depression for members of this group.

Protective Factors as Barriers to Depression in Nongifted Adolescents

For nongifted adolescents, the full regression model of demographic variables also had a significant effect on the dependent variable of depression. Combined, age, gender, family income level, and ethnicity explained a comparatively small but significant proportion of the variance in depression with an adjusted $R^2 = .02$, $p < .01$. With nongifted adolescents, only age ($\beta = .093$, $p = .01$) and gender (.128, $p < .000$) were significant positive predictors of depression.

Older students and females were more likely to be depressed than younger, male students.

For the full regression model including both demographic variables and the protective factors, there was a significant overall effect on the dependent variable; in this case, explaining a considerably larger amount of the variance with an adjusted $R^2 = .34$, $p < .000$. In the presence of the protective factors, the demographic variables of age and gender dropped out of the regression model as significant predictors. As in the case of gifted adolescents, all three protective factors, self-concept ($\beta = -.436$, $p < .000$), parent–family connectedness ($\beta = -.163$, $p < .000$), and school belonging ($\beta = -.090$, $p < .01$) were found to be significant negative predictors of depression. For the sample of nongifted students, having a healthy self-concept, perceiving a high level of parent–family cohesiveness, and feeling a sense of belonging in one's school all reduced vulnerability to depression.

Discussion

The purpose of the present study was twofold: (a) to examine similarities and differences between gifted and nongifted adolescents in their self-reported levels of depression, and (b) to explore how specific protective factors acted to moderate depression in both gifted and nongifted adolescents. Based on previous findings, it was expected that gifted students would exhibit similar or lower levels of depression than their nongifted peers; however, due to lack of other empirical work, no a priori assumptions were made about how the protective factors would function within each group. The three most significant findings of this study were (a) gifted adolescents were significantly less depressed than their nongifted peers, (b) gifted Hispanic adolescents were significantly more depressed as compared to Whites, even in the presence of the protective factors, and (c) for both gifted and nongifted adolescents, the protective factors were significant negative predictors of depression.

Neihart (1999) concluded that existing empirical evidence overwhelmingly supported the conclusion that levels of depression in gifted students are often similar to or lower than those found for nongifted students (e.g. Baker, 1995; Neihart, 1991). Results from the current study support this view. In addition to finding that gifted adolescent populations experienced significantly fewer depressive symptoms as compared to their nongifted peers, both groups were also shown to be well below clinically diagnosable levels for adolescents (Rushton et al., 2002). Typically, cutoff scores of 16 on the CES-D have been used to define levels of depression in adult populations (Rushton et al., 2002); whereas Roberts, Lewinsohn, and Seeley (1991) suggested a cutoff score of 24 and above for adolescents due to issues related to the CES-D being too sensitive a measure of depression in adolescents. Rushton et al. (2002), citing a number of other empirical studies, noted that using a cutoff score of 16 with adolescents would yield an estimated prevalence of depression above 50% for all adolescents. In their own study, Rushton et al. (2002) set depressive symptom cutoffs as "minimal" (0-15), "mild" (16-23), and "moderate or severe" (>24; p. 200). Comparatively, both gifted ($M = 8.67$) and nongifted ($M = 10.69$) students reported relatively low levels of depressive symptoms in the current study. In this case, mean depressive symptom scores for both groups fell within the minimum range. Lombroso's (1889) assertion that giftedness increases vulnerability is not supported by the current findings, at least as related to depression (Neihart, 1999).

Given the additional challenges faced by gifted minority students, Ford, and others, offer several recommendations for enhancing resiliency in these same students. Kitano and Lewis (2005), citing a review conducted by Dudley-Grant et al. (2004), indicated that connectivity, as indicated by strong family ties or a feeling of connection to one's community, acted as a protective factor in many cases. For gifted African American students, Ford notes the importance of strengthening the "family-school-community" link to provide adequate social support in the many contexts that adolescents live (Bronfenbrenner, 1977). To enhance self-concept in gifted African American students, Ford advocates for providing proper role models and increasing interactions with similar ethnic peer groups. Researchers focusing specifically on Hispanic students have noted that higher levels of ethnic identity exploration and resolution could indirectly influence levels of depression by helping these individuals attain higher levels of self-esteem (Umaña-Taylor & Updegraff, 2007). Once again, these findings indicate the importance of supportive relationships for developing adolescents, whether gifted or not.

In spite of the merit of these suggestions, it is important to note that in the current study Hispanic students were significantly more depressed even in the presence of all three protective factors. Additional research is needed to further disentangle which protective factors enhance the resiliency of all minority gifted adolescents, not just Hispanic students.

Lastly, the finding that all of the protective factors were significant negative predictors of depression for both gifted and nongifted adolescents was not surprising given the previous empirical evidence supporting this conclusion. For example, self-concept was found to moderate depression for both gifted and nongifted students alike. When students have positive self-views, they tend to feel less depressed. In the current study, self-concepts for gifted (M = 4.07) and nongifted students(M = 4.09) were almost identical. Other studies comparing levels of self-concept between gifted and nongifted students have been mixed (e.g. Chan, 1988; Forsyth, 1987; see Neihart, 1999 for a more thorough discussion) leading Neihart to conclude that self-concept is not a useful construct when examining psychosocial well-being in gifted students because of the confounding effect of extraneous variables that limit generalizability of the results of these studies.

Other empirical research has documented the importance of social support in helping adolescents maneuver their way through the developmental challenges of early and late adolescence (e.g. Cohen & Wills, 1985). Support from family, friends, teachers, and other caring adults can often help gifted and nongifted adolescents deal with stressors in a way as to reduce vulnerability to psychosocial and environmental risk factors. Dunn, Putallaz, Sheppard, and Lindstrom (1987) concluded that social support is especially important for gifted students as they transition to high school. Dunn and her colleagues found gender differences in the types of social support needed—males tended to seek support from peers and females tended to seek support from multiple sources. Results in the current study support the conclusion that social support is an important moderator of depression for both gifted and nongifted students, given that parent–family connectedness and school belonging were both significant. Again, this is not surprising in light of the extensive empirical support found in previous research (Carbonell et al., 2002; Dunn et al., 1987; Jacobson & Rowe, 1999; Resnick et al., 1997). Levels of attachment may be one way to explain this phenomenon, as adolescents, both gifted and nongifted, benefit from strong and healthy attachments to those close to them, including friends, family, and teachers (Meadows et al., 2006). Thus interventions designed to enhance resiliency in both gifted and nongifted students may need to include efforts to help strengthen interpersonal or social skills as one way to aid in this process.

Implications, Limitations, and Future Research

Two important implications of the current study are the clear need to better understand social and emotional development in gifted minority populations, especially with Hispanic students and to further understand the role that social support plays in enhancing the resiliency of gifted and nongifted students alike. Although the results of the current study add to the growing literature in this area, there are issues that need to be addressed in further research.

First, although the use of large-scale datasets, such as Add Health, provides researchers with many advantages, these datasets have inherent limitations, including limited measures, inflexibility in conducting data analyses, and other peculiarities stemming from the original design. When using Add Health, researchers are limited in the independent and dependent variables that can be analyzed. This limits researchers in the types of questions that can be asked and the types of relationships that can be explored. As such, results from the current study are best viewed as having very strong external validity, with the results being highly generalizable but with limitations in the types of relationships that could be explored.

Future research designs should be expanded to include additional indicators of psychosocial well-being and could possibly include the variables used in the current study. As Dole (2000) noted, over the past 50 years there has been a shift in research in the risk and resiliency area away from a focus on risk factors and more to a focus on protective factors. As the results of the present study show, protective factors can often make a significant difference for gifted and nongifted students between optimal psychosocial well-being or problematic social and emotional development.

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