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Using the Expectancy-Value Theory of Motivation to Predict Behavioral and Emotional Risk Among High School Students

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Abstract. Within the expectancy-value framework, much work has been done linking expectancies and task values to academic outcomes such as performance, persistence, and choice. Research on the associations between student motivation (including efficacy and task values) and behavioral and emotional problems, however, is nascent. The present study examined a structural equation model using efficacy, utility value, attainment value, and cost to predict internalizing risk and hyperactivity–distractibility risk within a sample of 5,126 high school students (76.5% African American) in a high-needs school district. The results indicated that efficacy negatively predicted both domains of risk, attainment value negatively predicted hyperactivity–distractibility risk only, and cost positively predicted both domains of risk. Implications for both theory and practice are discussed, including the relative importance of cost in the prediction of behavioral and emotional risk.

STUDENT MENTAL HEALTH AND BEHAVIORAL AND EMOTIONAL RISK IN SCHOOLS

The prevalence, costs, and consequences of mental health problems among school-age children and adolescents are staggering. A recent surveillance report released by the Centers for Disease Control and Prevention (CDC, 2013) found that approximately 20% of children suffer from mental health disorders each year and that the prevalence of such disorders increases with age throughout childhood and adolescence. Unfortunately, these estimates have remained relatively stable over the past decade (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003), as most youth in need of mental health services do not receive appropriate intervention (Dowdy, Ritchey, & Kamphaus, 2010; Mills et al., 2006). The CDC (2013) report estimated that mental health disorders among children and adolescents cost society an astounding $250 billion per year. Even more alarming is the cost to our youth—among adolescents, suicide was the leading cause of death in 2010.

The mental health problems most often exhibited by children and adolescents are typically categorized as either behavioral problems or emotional problems (e.g., Frick,

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Burns, & Kamphaus, 2009). Behavioral problems are usually more overt and include externalizing difficulties such as conduct problems, hyperactivity, and aggression. In contrast, emotional problems are predominantly covert difficulties, including internalizing problems such as depression, anxiety, and somatization. Behavioral and emotional problems in childhood and adolescence have been linked consistently with poor academic outcomes (e.g., Lane, Barton-Arwood, Nelson, & Wehby, 2008). The association between behavioral and emotional problems and lower achievement has been found as early as kindergarten (Morris et al., 2013) and continues through the high school years (Breslau, Breslau, Miller, & Raykov, 2011). In addition, children and adolescents with behavioral and emotional disorders are more likely to drop out, face poor employment opportunities, and become involved in the juvenile justice system (Bradley, Doolittle, & Bartolotta, 2008). Longitudinally, externalizing behavior predicts poorer achievement, and poorer achievement then predicts the development of internalizing problems in a spiraling fashion that is difficult for some children and adolescents to escape (Masten et al., 2005).

These poor academic outcomes are evident even prior to the diagnosis of a disorder or disability. Students who are exhibiting signs of behavioral and emotional risk are also at risk for difficulties in school. For the purposes of this paper, behavioral and emotional risk includes the *precursors* to behavioral and emotional disorders, including maladaptive behaviors, emotions, or thought patterns that are atypical as compared to a normative sample of children or adolescents (O'Connell, Boat, & Warner, 2009). In recent reviews, subsyndromal risk levels for attention deficit hyperactivity disorder (ADHD; Balázs & Keresztény, 2014) and depression (Bertha & Balázs, 2013) were associated with significant academic difficulties, indicating the need for early detection of risk for behavioral and emotional problems. Students with elevated levels of behavioral and emotional risk in general also have lower levels of reading and mathematics achievement as compared with their peers (Juechter, Dever, & Kamphaus, 2012), and these differences in academic achievement by behavioral and emotional risk status persist across school transitions (Lane, Oakes, Carter, & Messenger, 2015).

As behavioral and emotional risk predicts deleterious academic outcomes in much the same way as diagnosed behavioral and emotional disorders do, it is critical to identify at-risk children and adolescents as soon as possible. The failure to identify risk denies youth who are in need of potential intervention and could allow risk to develop into disability. With appropriate intervention, behavioral and emotional risk can be mitigated and the consequences of such difficulties can be diminished (e.g., Bradley et al., 2008). Across contexts, schools are most often utilized for prevention and intervention services related to the mental health of youth, as schools are where youth are for most of their waking hours (Burns et al., 1995; O'Connell et al., 2009; Weist, Lever, Bradshaw, & Owens, 2014).

To identify children with elevated levels of behavioral and emotional risk who are at risk for developing more significant mental health difficulties, schools increasingly have been adopting universal behavioral and emotional screening programs. In 2005, it was estimated that 2% of schools screened for behavioral and emotional risk (Romer & McIntosh, 2005); in less than a decade, that number has increased nearly seven-fold (Bruhn, Woods-Groves, & Huddle, 2014). Although this increase in universal screening indicates that more schools are moving toward a preventive model for serving the mental health needs of their students, over 85% of schools still do not screen for such risk factors. Unfortunately, barriers including costs in terms of time and personnel continue to hinder the growth of universal screening programs (Dever, Raines, & Barclay, 2012). However, recent research has suggested that school- and district-level universal behavioral and emotional screening programs are not only feasible, they are essential to data-based decision making for the purposes of identification and informing intervention efforts (Dever, Kamphaus, Dowdy, Raines, & DiStefano, 2013).

As Tilly (2008) stated, "universal screening must become a part of business as usual in our schools" (p. 31). The present study includes schools from a district that had recently adopted a universal screening procedure as part of a program to identify behavioral and emotional risk and its antecedents to inform early intervention and prevention services.

STUDENT MOTIVATION WITHIN THE EXPECTANCY-VALUE FRAMEWORK

From a developmental systems perspective, it is critical to consider behavioral and emotional risk as part of a larger process, which includes antecedents in addition to the academic consequences previously discussed. The antecedents of behavioral and emotional risk in the broader process are necessary to identify, as they could serve as entry points for school-based intervention and prevention efforts. One potential antecedent that is highly relevant to the educational context is student motivation. Although motivation has typically been studied in populations of students who are not considered to be at risk for behavioral and emotional problems, researchers have called for motivation to be integrated into studies of exceptional children and adolescents (Patrick, Ryan, Anderman, & Kovach, 2004). More recently, Adelman and Taylor (2009, 2012) have argued that assessment and intervention efforts considering student motivation and engagement must be integrated into school improvement plans, along with typically addressed domains of instruction and management. These researchers advocated that motivation is especially important to include in prevention and intervention strategies for mental health problems in schools, as interventions targeting motivation have been successful at increasing academic performance specifically among students with behavioral problems (Adelman & Chaney, 1982; Adelman & Taylor, 1983, 2012).

In the present study, student motivation was measured consistent with the expectancy-value model of achievement motivation proposed by Eccles and her colleagues (Eccles et al., 1983; Eccles & Wigfield, 2002; Wigfield & Eccles, 2000). According to expectancy-value theory, students' choices, persistence, and achievement outcomes can be predicted by how successful they expect to be and the value they place on the achievement context. Expectancy for success includes students' judgments about their competencies and the likelihood of succeeding in the academic task; in fact, expectancies are often assessed similarly to academic efficacy, as expectancy for success and efficacy have been difficult to distinguish empirically among children and adolescents (Wigfield, 1994; Wigfield & Eccles, 2000). Academic efficacy consists of beliefs regarding one's abilities to do well in specific academic tasks, as well as beliefs in one's abilities to do well academically in general (Pajares, 2009). On the value side, task value in expectancy-value theory has considered four domains: interest value, attainment value, utility value, and cost. *Interest value* is defined as the student's level of intrinsic interest or liking of the task. *Attainment value* is the importance that the student places on the academic task or domain personally and is tied to personal identity. *Utility value* includes the student's perceptions of how useful what he or she learns in school is to one's personal goals or future plans outside of school. Finally, *cost* assesses the extent to which the student believes he or she needs to sacrifice or endure anxiety, social consequences, and so on to do well academically (see Eccles, 2005, for a review of task value literature).

A large body of literature suggests that expectancies and values are positively related yet theoretically and empirically unique constructs (e.g., Wigfield, 1994; Wigfield & Eccles, 2000). The academic outcomes of expectancies for success and subjective task value can be differentiated, with expectancy for success and competence beliefs predicting achievement and task value predicting choice and persistence (e.g., Eccles & Wigfield, 2002). Developmentally, adolescence has been touted as a critical period for the study of motivation (Wigfield, Byrnes, & Eccles, 2006). Declines in academic efficacy and task value have been found longitudinally across

the primary and secondary school years (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002), positioning adolescence as a critical period for prevention and intervention efforts related to student motivation.

MOTIVATION AND STUDENT MENTAL HEALTH CORRELATES

As Patrick et al. (2004) noted, research on motivation has typically omitted exceptional student populations, including students with identified behavioral and emotional disorders. However, a small body of literature has begun to establish the link between student motivation and behavioral and emotional problems. In some instances, motivation has been used to predict student mental health difficulties; in others, student mental health categorizations have been used to predict motivational outcomes. What follows is a brief review of this literature, highlighting aspects of this previous work that justify both the hypotheses of and the need for the present investigation.

The relations between externalizing behaviors and motivation have been studied more often than the relations between internalizing behaviors and motivation. This research has consistently supported an association between behavioral problems and less adaptive motivation. Within a sample of sixth-grade students, Patrick et al. (2004) found that disruptive behavior predicted lower subjective task value. Schultz and Swtizky (1993) reported similar findings, with intrinsic interest being lower among elementary school students with behavioral disorders. This was especially troublesome given that they also found that interest was even more important in predicting achievement outcomes among students with behavioral disorders as compared with their peers. Finally, symptoms that indicated risk for ADHD (i.e., hyperactivity, impulsivity, inattention) predicted lower levels of motivation and engagement among elementary school students (Demaray & Jenkins, 2011).

Reversing the causal inference, lower academic competence was related to higher levels of externalizing problems generally, and hyperactivity more specifically, among an urban high school sample (Borders, Earleywine, & Huey, 2004). These researchers suggested that less adaptive motivation may lead to behavioral problems because of fewer perceived alternative behaviors that could lead to success; if the student does not perceive academic success as attainable because of lower efficacy, he or she will seek out alternative, nonacademic behaviors that could lead to success in other areas, such as the social domain. Kaplan, Gheen, and Midgley (2002) studied motivation from an achievement goal orientation framework and found that mastery goals were related to lower levels of behavioral problems whereas performance goals predicted more behavioral problems. Finally, among a sample of 97 middle school students, higher levels of academic efficacy and subject value predicted lower self-reported externalizing and internalizing distress (Roeser, Strobel, & Quihuis, 2002; Roeser, van der Wolf, & Strobel, 2001).

Several studies comparing the motivational correlates of internalizing and externalizing behaviors simultaneously have been conducted internationally. Among middle school students in Norway, Stornes and Bru (2011) found that mastery goals predicted lower behavioral problems whereas performance goals predicted higher levels of both behavioral problems and depression. Academic efficacy has also emerged as an important correlate of student mental health, predicting both internalizing and externalizing problems in a sample of Italian middle school students (Caprara, Barbaranelli, Pastorelli, & Cervone, 2004). In fact, the domain of academic efficacy may be more important than any other type of efficacy in the prediction of both depression and anxiety disorders (Ehrenberg, Cox, & Koopman, 1991; Muris, 2002). Finally, research in Sweden has established both unidirectional (Määttä, Stattin, & Nurmi, 2002) and reciprocal (Määttä, Nurmi, & Stattin, 2007) relations among motivational profiles, behavioral problems, and depression among adolescents.

Although Borders et al. (2004) focused on an urban, predominantly Latino sample of

students in their study of the association between motivation and problem behaviors, this is the exception rather than the rule. A growing body of evidence suggests that students who are from lower socioeconomic status (SES) backgrounds (Loe, Lee, Luna, & Feldman, 2011; Wadsworth & Achenbach, 2005) and who belong to particular racial minority groups (Cooper, Masi, & Vick, 2009) experience elevated risk for behavioral and emotional problems. As such, O'Connell et al. (2009) have recommended that screening programs be implemented in high-risk, high-needs schools to inform prevention and early intervention work for those students most at risk for behavioral and emotional challenges.

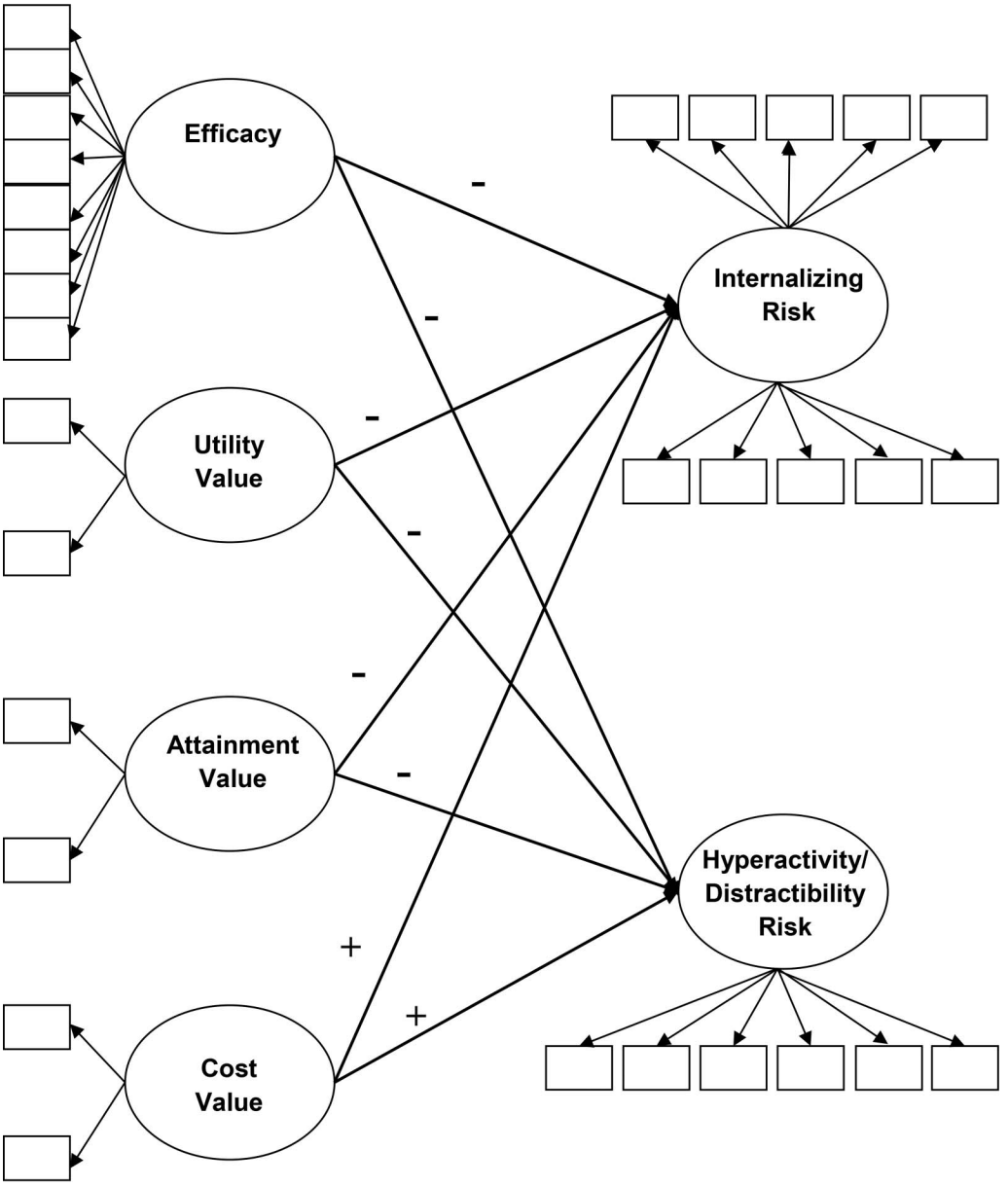
Elevated levels of behavioral and emotional risk among racial minority youth have educational implications as they reach the point of diagnosis or referral for special education, as African American students are overrepresented in special education, particularly in the category of emotional disturbance (Ahram, Fergus, & Noguera, 2011; Hosp & Reschly, 2003; MacMillan & Reschly, 1998) and are more likely than their peers to be placed in restrictive environments (Serwatka, Deering, & Grant, 1995; Skiba et al., 2008), even with more mild symptomology (Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006). In addition, African American students are more likely to face disciplinary consequences such as suspensions and expulsions as compared with their peers with similar behavioral infractions, and this disciplinary gap has grown over time (Wallace, Goodkind, Wallace, & Bachman, 2008). According to Ogbu and colleagues (e.g., Ogbu, 1978, 1987; Ogbu & Simons, 1998), distrust of and disengagement from schools result from disproportional placement in special education, the disciplinary gap, and other systematic biases faced by minority and lower SES youth in their educational pursuits. As such, low-SES minority youth are at risk for lower levels of educational attainment and achievement (Kao & Thompson, 2003). All of these factors have clear implications for the academic motivation of these youth; racial minority and economically disadvantaged students generally report lower levels of academic efficacy and engagement in school as early as elementary school (Fan, Williams, & Wolters, 2012; Shin, 2011), which predict dropout prior to secondary school completion (Peguero & Shaffer, 2015). Peguero and Shaffer (2015) found that academic self-efficacy serves a particularly protective role against high school dropout for racial minority students, providing a potential entry point for prevention and intervention work. Considered together, the dearth of research on motivational correlates and outcomes for low-SES racial minority youth and their heightened risk for educational obstacles contribute to the need for an increased focus on this particular student population.

CONTRIBUTION OF THE PRESENT STUDY

Previous research has mainly focused on the relation between one aspect of motivation and behavioral and emotional disorders (e.g., Ehrenberg et al., 1991; Muris, 2002, Schultz & Swtizky, 1993). However, motivation is a complex construct, and it is imperative to consider the potential for different types of motivation to predict student mental health outcomes in different ways, using a broader theoretical model. Furthermore, the focus of prior work mainly on behavioral and emotional disorders as outcomes perhaps misses the opportunity for prevention and early intervention among students with emergent behavioral and emotional risk. Finally, previous work has typically been conducted with small samples (e.g., Demaray & Jenkins, 2011; Roeser et al., 2002) and/or with European students (e.g., Caprara et al., 2004; Määttä et al., 2007; Muris, 2002; Stornes & Bru, 2011). Therefore, it is important to extend this work to larger samples of students in other regions of the world, with a particular focus on underrepresented youth who might be at elevated levels of risk for these difficulties.

The present study will be the first to use the expectancy-value constructs of academic efficacy and subjective task values (utility, attainment, and cost) to predict two domains of behavioral and emotional risk: risk for inter-

Figure 1. Hypothesized Model



Note. Correlations among latent factors have been removed for simplicity.

nalizing problems and risk for hyperactivity–distractibility problems. This research included all high school students in a large, lower SES, predominantly African American district in the United States as part of a district-wide initiative to better understand how motivation was related to students' behaviors in school and inform future school-wide prevention decisions. The hypothesized model of relations is presented in Figure 1. More specifically, on the basis of previous work, it was hypothesized that:

1. Academic efficacy would be a negative predictor of internalizing risk (e.g., Roeser et al., 2002) and hyperactivity–distractibility risk (e.g., Borders et al., 2004).

2. Utility value would be a negative predictor of internalizing risk (e.g., Roeser et al., 2001) and hyperactivity–distractibility risk (e.g., Patrick et al., 2004).

3. Attainment value would be a negative predictor of internalizing risk (e.g., Roeser et al., 2001) and hyperactivity–distractibility risk (e.g., Schultz & Switzky, 1993).

4. Cost would be a positive predictor of internalizing risk and hyperactivity–distractibility risk. This was an exploratory hypothesis, as at present, there is a paucity of research on the associations between cost value and mental health outcomes in schools.

METHOD

The sample for the present study included 5,126 high school students (Grades 9–12) in one school district in a small city in the southeastern United States. As part of a district-wide universal screening program, data were collected from students across all seven high schools in the district. The district employed a passive consent procedure for data collection, which allowed either parents or students the opportunity to refuse participation; three parents withdrew their children from the screening.

Participants

Of the students who participated, 52.8% were female; 76.5% were African American, 18.7% were White (non-Latino), 1.8% were Latino, 1.5% were Asian American, 1.3% were mixed race–ethnicity, and 0.2% were other races–ethnicities. Consistent with dropout patterns in this high-risk district, 29.1% of participants were enrolled in 9th grade, 25.6% in 10th grade, 22.8% in 11th grade, and 22.5% in 12th grade. Approximately 6% of participants were receiving special education services, and 76% were eligible for free or reduced-price lunch.

Measures

The Behavioral and Emotional Screening System Student form (BESS Student; Kamphaus & Reynolds, 2007) is a 30-item instrument designed to assess self-reported levels of risk for behavioral and emotional problems. The final items for the BESS Student were selected from a longer, commonly used comprehensive behavior rating scale, the Behavior Assessment System for Children, Second Edition Self-Report of Personality (BASC-2 SRP; Reynolds & Kamphaus, 2004). The BESS Student assessment requires no informant training, can be completed by the student in 5 to 10 minutes, is appropriate for students in Grades 3 through 12, and consists of items at approximately a third-grade reading level. All items on the BESS Student are rated on a 4-point scale (i.e., *never, sometimes, often, almost always*). Development and additional factor analytic work has established a four-factor structure of the BESS Student, including (a) internalizing problems, (b) hyperactivity–distractibility, (c) school problems, and (d) adaptive skills (Dowdy et al., 2011). Given the focus of the present study on internalizing and externalizing risk, only the internalizing problems (10 items) and hyperactivity–distractibility (6 items) factors were included in the analyses. The psychometric properties of the BESS Student have been reviewed by the developers of the instrument, with adequate split-half reliability (.90–.93) and test–retest reliability (.80), as well as moderate to high correlations with similar measures (Kamphaus & Reynolds, 2007). In addition, measurement equivalence has been established across African American, Latino, and White adolescents (Kamphaus & Reynolds, 2007; Raines, 2011). For the present study, internal consistency coefficients were adequate for the internalizing problems (α = .81) and hyperactivity–distractibility (α = .73) factors.

Academic efficacy was assessed using an eight-item scale based on the general academic self-efficacy scale of the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000). This scale measured students' self-

reported confidence in their ability to do their schoolwork ($\alpha = .85$; sample item: "I can do almost all the work in class if I don't give up."). There was a 5-point response scale, ranging from *not at all true* (1) to *very true* (5). Items were rated at approximately a fifth-grade reading level. Evidence of measurement equivalence across African American and White adolescents has been presented in prior work (Dever & Kim, 2016).

Utility value was measured with two items on students' perceptions of their work in school as something that is useful to them for their future and life outside of school ($\alpha = .64$; sample item: "In general, what I learn in school is useful."). Items were adapted from established scales (e.g., Eccles & Wigfield, 1995) based on the needs of the school district such that items were worded to be about school and academics in general, rather than subject domain specific, consistent with similar adaptations that have been made in past research (e.g., Roeser et al., 2001). There was a 5-point response scale, ranging from *not at all true* (1) to *very true* (5). Items were rated at approximately a fourth-grade reading level.

Attainment value was assessed with two items measuring students' perceptions of how important it was for them to be someone who was good at academics ($\alpha = .61$; sample item: "It's important for me to be good at my schoolwork."). Items were adapted from established scales (e.g., Eccles et al., 1993) based on the needs of the school district, as described for utility value earlier. There was a 5-point response scale, ranging from *not at all true* (1) to *very true* (5). Items were rated at approximately a fourth-grade reading level.

Cost value was measured with two items on students' perceptions of needing to sacrifice things that were important to them in order to do well in school ($\alpha = .63$; sample item: "I have to give up a lot to do well in school."). Items used in the present study were adapted from established scales (e.g., Eccles, Adler, & Meece, 1984) based on the needs of the school district, as described for utility value earlier. Items were rated on a 5-point response scale, ranging from *not at all true for me* (1) to *very true for me* (5). Items were rated at approximately a fifth-grade reading level.

Procedure

Participating students completed all questionnaire forms during their homeroom periods to prevent the loss of instructional time. School psychologists and trained assistants administered the instruments in a group format, using a standardized script. Students first completed the BESS Student, followed by the motivation questionnaire. Items on the motivation questionnaire were presented in a randomized order. Students were assigned an identification number by the district, which was used to anonymize the research file and to add demographic information from district files. All identifying information about the students was removed prior to creation of the research file, and appropriate institutional review boards for the school district and researcher's university approved all activities with these data.

RESULTS

Structural equation modeling was used to test the hypothesized model in Mplus (version 5.21; Muthén & Muthén, 2004). Weighted least squares with mean and variance adjustment (WLSMV) estimation was selected because of its robustness against violations of multivariate normality and its appropriateness for ordinal-scale data (Byrne, 2012; Finney & DiStefano, 2006; Flora & Curran, 2004; Muthén, du Toit, & Spisic, 1997). The χ^2 goodness-of-fit statistic is presented, although with larger sample sizes, this statistic is likely to be statistically significant because of sensitivity to sample size (e.g., Hu & Bentler, 1999; Martens, 2005). The comparative fit index (CFI) and Tucker–Lewis index (TLI) are considered as indices of model fit, with values above .90 and .95 indicative of acceptable and superior model fit, respectively. The root mean square error of approximation (RMSEA) is an index of model misfit, with values below .08 and .05 indicative of acceptable and superior model fit, respectively (Hu & Bentler, 1999; Marsh, Hau, & Wen,

2004). Any model comparisons were based on a Satorra–Bentler scaled χ^2 difference (S–B $\Delta \chi^2$) test (Sass, 2011; Satorra & Bentler, 2001) because of the use of the WLSMV estimation method, with a nonsignificant result indicating that the smaller, more parsimonious model fit the data as well as the larger model in the comparison.

Prior to testing the full structural equation model, the measurement model was tested to determine the adequacy of the proposed factor structure. The proposed measurement model provided a poor to adequate fit, depending on the fit index examined: $\chi^2(204) = 4{,}617.92$, $p < .001$, CFI = .868, TLI = .940, RMSEA = .065. On examination of the modification indices, two items from the internalizing problems scale of the BESS Student were highly negatively related to the efficacy factor. Both of these items included language about trying hard without success, which could represent negatively valenced items to assess efficacy. Therefore, the decision was made to remove these items from the measurement model and subsequent analyses. The new eight-item internalizing problems scale maintained adequate levels of reliability (α = .80). After removal of the two internalizing items, the measurement model exhibited an adequate to superior fit, depending on the fit index examined: $\chi^2(180) = 2{,}826.54$, $p < .001$, CFI = .918, TLI = .959, RMSEA = .054. Therefore, this model was accepted as the final measurement model of the six constructs of interest. Standardized factor loadings can be found in Table 1; correlations among the latent variables in the measurement model are presented in Table 2.

Next, the hypothesized model was assessed. Although the fit indices were adequate, $\chi^2(180) = 2{,}826.54$, $p < .001$, CFI = .918, TLI = .959, RMSEA = .054, the paths from utility value to both outcomes and from attainment value to internalizing were not statistically significant. Therefore, in the next step these paths were removed from the model. Removing these paths did not lead to a significant loss in fit, S–B $\Delta \chi^2(3) = 4.34$, $p > .05$, CFI = .920, TLI = .960, RMSEA = .053. This model, which is pictured in Figure 2, was accepted as the final model. As hypothesized, efficacy was negatively related to internalizing and hyperactivity–distractibility risk, attainment value was negatively related to hyperactivity–distractibility risk, and cost was positively related to internalizing and hyperactivity–distractibility risk. However, utility value did not significantly predict either of the areas of risk. Overall, efficacy and task values predicted 16% of the variance in internalizing risk and 17.8% of the variance in hyperactivity–distractibility risk.

DISCUSSION

The present study sought to contribute to the literature on the relation between motivation and behavioral and emotional difficulties by examining expectancies and values of students as predictors of risk for internalizing and externalizing difficulties. As previous literature established the link between academic efficacy and task value and outcomes such as performance and persistence (e.g., Eccles & Wigfield, 2002), it was expected that similar, but inverse, relations would be found when predicting behavioral and emotional risk in a larger framework. More specifically, academic efficacy, utility value, and attainment value were hypothesized to be negative predictors of risk for internalizing and hyperactivity–distractibility problems, whereas cost was anticipated to be a positive predictor of difficulties in both domains.

The results of the structural equation model partially supported the hypotheses, and the patterns that emerged supported some differentiation in the prediction of the domains of risk. Although academic efficacy was a negative predictor of both internalizing and hyperactivity–distractibility risk, it was a stronger predictor of internalizing risk. This may be the result of an early manifestation of the positive illusory bias that is associated with ADHD symptomology, whereby students with ADHD tend to overestimate their own competence, including the academic domain (see Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007).

Table 1. Standardized Measurement Model Parameter Values

Construct	Item	Factor Loading
Academic	Can do hardest work	0.60
Efficacy	Can master skills	0.67
	Can figure out difficult work	0.72
	Can learn hard material	0.76
	Can do all the work	0.74
	Can help other students understand	0.72
	Can figure out answers	0.79
	Can do assignments	0.51
Utility value	School is useful for work	0.69
	What I learn is useful	0.80
Attainment value	Important to be good at school work	0.77
	School is an important part of who I am	0.71
Cost value	Must give up a lot to do well in school	0.76
	Academic success requires giving up activities	0.69
Internalizing risk	Worry	0.54
	Feel out of place	0.58
	People mad at me	0.65
	Life getting worse	0.74
	Others against me	0.69
	Worry about future	0.60
	Left out	0.65
	Get blamed	0.72
Hyperactivity–distractibility risk	Talking	0.43
	Paying attention	0.73
	Sitting still	0.76
	Noisy	0.54
	Inattention	0.63
	Standing in lines	0.70

Note. All factor loadings were significant at $p < .001$.

Attainment value, on the other hand, was a negative predictor of hyperactivity–distractibility risk only. The lack of association between attainment value and internalizing symptoms yet the prediction of internalizing risk by efficacy makes intuitive sense. A student who does not place value on schoolwork and does not feel competent may fare better in terms of anxiety and depression symptoms as compared with a student who does value academics yet doubts his or her ability to perform. Utility value did not significantly predict either of the domains of risk, which may be partially a result of the shared variance between attainment and utility values. Finally, as hypothesized, cost was a significant positive predictor of both internalizing and hyperactivity–distractibility risk. In other words, when students feel they have to sacrifice things they enjoy to do well in school, they are more likely to report early symptomology such as worry, sadness, and attentional difficulties.

Consistent with past literature concerning academic outcomes, efficacy and subject task values were distinct constructs both empirically in the measurement model and theoretically in terms of what they each predicted (e.g., Eccles & Wigfield, 2002; Wigfield & Eccles, 2000). The results of the present study support previous research regarding the role of academic efficacy for anxiety and depression

Table 2. Correlations Between Latent Factors for Final Measurement Model

	1	2	3	4	5	6
1. Internalizing	—					
2. Hyperactivity–distractibility	.53*	—				
3. Academic efficacy	–.27*	–.28*	—			
4. Utility value	–.17*	–.26*	.55*	—		
5. Attainment value	–.19*	–.35*	.69*	.69*	—	
6. Cost value	.30*	.22*	–.01	–.01	.03	—

* $p < .001$.

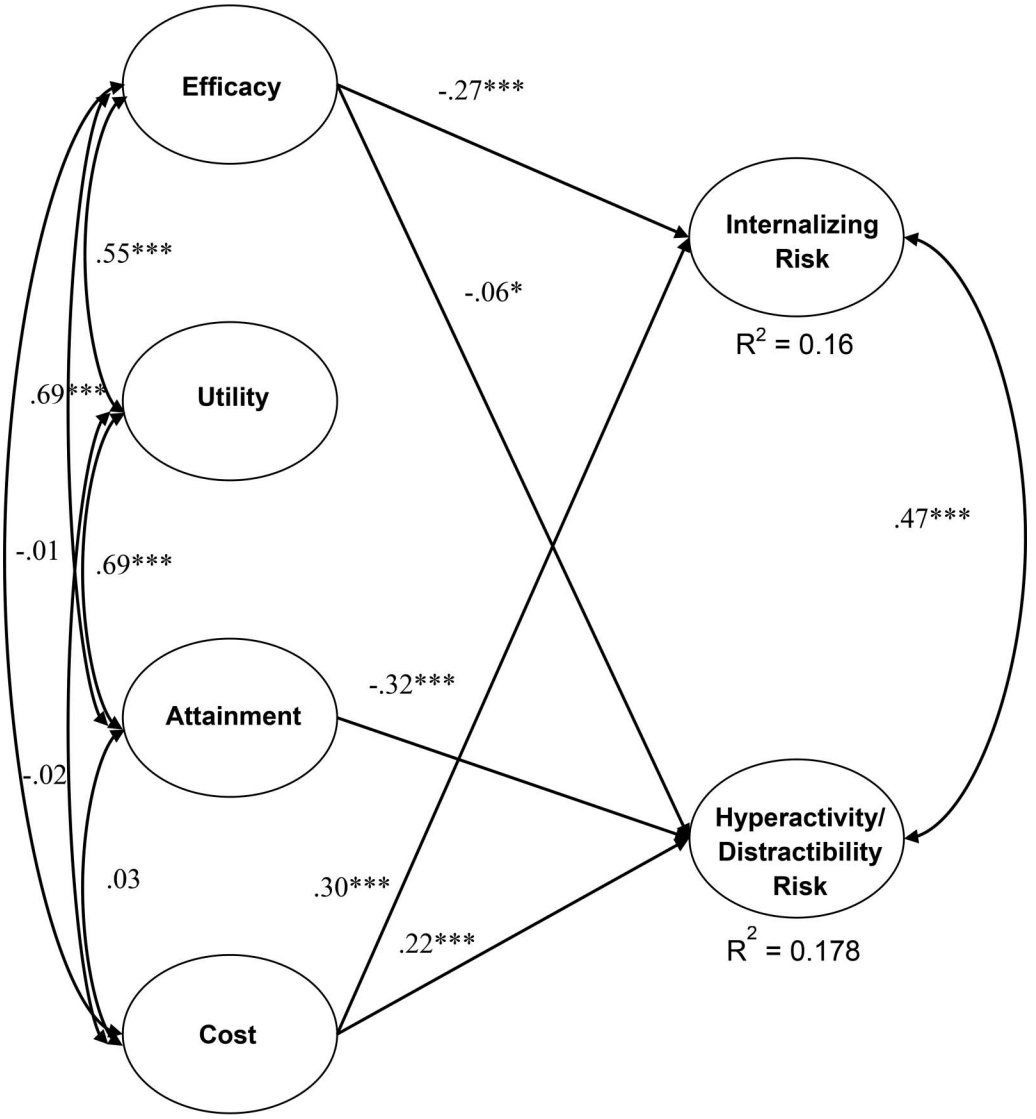
for adolescents (Ehrenberg et al., 1991; Muris, 2002), even at the subsyndromal level. In addition, the results of this work suggest that subjective task value is indeed related to behavioral difficulties (Patrick et al., 2004; Schultz & Switzky, 1993). Because of the inclusion of multiple facets of subjective task value, the present study was able to isolate the effect of attainment value as especially critical as a negative predictor of hyperactivity–distractibility risk, with the relation between utility value and risk failing to reach statistical significance in any model. Therefore, feeling that academics are a part of one's identity may be an important facet to understanding attention and on-task behavior in the classroom.

Interestingly, the one hypothesis that was fully supported was the role of subjective cost in positively predicting both internalizing and externalizing risk. Previous research has also suggested that cost is important at differentiating motivational profiles of students in adolescence (Conley, 2012). Despite the role of cost in understanding students' motivation toward, and against, academic endeavors, this is the most often omitted construct in studies using the expectancy-value framework (Flake, Barron, Hulleman, McCoach, & Welsh, 2015). The results of the present study support the continued inclusion of cost in expectancy-value models, as it is both a unique and powerful predictor of student outcomes.

The present study has several limitations, and future directions for research follow from these limitations. First, the self-report format and the motivational domains of interest were selected by the district in order to address its own needs and priorities. The district only chose two items to measure each of the constructs of attainment value, utility value, and cost value to meet its evaluation needs. Because of the use of these two-item scales, the measurement model could not be examined by individual scale. Future research should include and continue to refine more robust measures of utility, attainment, and cost. As the present study included only student self-report data, future work should also include other informants and forms of assessment to examine the multiple perspectives on student behavior and motivation in the classroom. In addition, these data are drawn from high schools in one school district in one geographic region of the United States; therefore, a nationally representative sample of students would be ideal for extending these results beyond the present study.

Although perceptions of motivation have been posited to be important to consider at the student level (Linnenbrink & Pintrich, 2002; Stornes & Bru, 2011), multilevel models of student motivation and achievement have also discovered significant relations at the classroom and school levels (e.g., Kaplan et al., 2002). Future research would be enriched by a multilevel model of the relations between student motivation and behavioral and emotional risk, as this would contribute to an understanding of how these associations can inform school-wide prevention and intervention strategies. Furthermore, a longitudinal examination of this model is imperative to

Figure 2. Final Model of Associations Among Study Variables



Note. Measurement model was omitted for simplicity.

establish the direction of causality, as some past research has indicated that behavioral and emotional difficulties predict motivational outcomes (e.g., Demaray & Jenkins, 2011; Patrick et al., 2004).

Despite the limitations of the present study, the results suggest implications for theory and practice. Theoretically, these findings underscore the importance of considering student motivation and behavioral and emotional outcomes in the context of a broader theoretical framework. Some of the relations that emerged would not have been clear if expectancies, values, internalizing risk, and externalizing risk were not entered simultaneously into one model; for example, much of the previous literature has focused only on the contribution of one facet of motivation (e.g., efficacy). The inclusion of cost value is particularly important, given its omission from

most previous work and its predictive value in the present models. In addition, the role of cost in the prediction of both internalizing and externalizing risk emphasizes the need for researchers to continue not only to include it in their expectancy-value models but also to refine its measurement (Flake et al., 2015).

For practitioners, the current study provides evidence that student motivation may be an entry point for prevention and early intervention efforts targeted at decreasing risk for behavioral and emotional problems. This means that a one-size-fits-all approach to motivation is ill advised, as motivation and its link to behavioral and emotional challenges in the classroom are quite nuanced. The current findings add to a body of research that suggests that students are not either motivated or unmotivated; rather, motivation is a multidimensional construct, and each dimension may have unique relations with behavioral and emotional problems. More specifically, efforts to increase academic efficacy through appropriate scaffolding and calibration of academic tasks in the classroom may be useful in decreasing internalizing symptoms. A focus on reframing task value may be more effective in decreasing externalizing symptoms, including an emphasis on the importance and usefulness of attaining the skills learned in high school from a more practical perspective. For prevention efforts interested in both domains of risk, examining and addressing students' perceptions of the costs related to academic success may be especially advantageous at the high school level.

It is important to consider the context of this study when discussing implications as well. This work was in alignment with recommendations that high-needs, higher risk schools and districts could benefit most from screening for behavioral and emotional risk (O'Connell et al., 2009). School psychologists and other mental health personnel in schools should be encouraged by the fact that universal screening was carried out successfully across all seven schools in this study and that the results of these screening efforts informed data-based decision making around prevention and early intervention for behavioral and emotional difficulties. The associations between the motivational and behavioral–emotional domains of interest in this study indicate the need for interventions that include a motivational component, particularly among at-risk youth. Those who design and implement those interventions in schools should consider the Model Program and other culturally sensitive interventions for African American and other underrepresented student groups (Tucker & Herman, 2002). The Model Program specifically addresses motivation and empowerment through the lens of the educational challenges and obstacles faced by African American youth; this program has been associated with better academic performance, higher adaptive skills, and fewer behavioral incidents as compared with a control group (Tucker et al., 1995). School psychologists and other stakeholders should continue to examine innovative, culturally responsive programs to address the intertwined effects of motivation, behavior, and achievement, particularly in high-needs contexts.

In conclusion, the results of the present study provide evidence that the outcomes related to the expectancy-value theory of motivation extend beyond achievement outcomes and include behavioral and emotional risk outcomes related to student mental health. As mental health concerns among children and adolescents continue to grow, along with costs related to these problems, schools are increasingly faced with the arduous task of both identification and intervention for behavioral and emotional problems. The results of the current study indicate that student motivation can be used to predict the early precursors of behavioral and emotional difficulties, such that motivation could provide any entry point for early intervention and prevention efforts. Continued research in this area is necessary to determine how student motivation data can be integrated into school mental health promotion programs effectively and efficiently at both the school and student levels.

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