IDENTIFYING PATTERNS OF INFORMANT DISCREPANCY AND TRAJECTORIES OF YOUTH DEPRESSIVE SYMPTOMS THROUGH A LATENT VARIABLE APPROACH

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MICHAEL VAN WIE

Dr. Keith Herman, Thesis Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled, Identifying Patterns of Informant Discrepancy and Trajectories of Youth Depressive Symptoms Through a Latent Variable Approach, presented by Michael Van Wie, a candidate for the degree of Master of Arts, and hereby certify that, in their opinion, it is worthy of acceptance.

Professor Keith Herman

Professor Wendy Reinke

Professor Wendy Reinke

Professor Aaron Thompson

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ABSTRACT

The aim of this study was to identify classes of children at the outset of school transitions with different patterns of informant discrepancy with respect to depressive symptoms. A latent class analysis was conducted with a longitudinal sample of 456 predominantly low-income African American children. Results identified multiple classes of children differentiated mostly by symptom severity. Regression analysis identified significant differences between classes and predictors of depressive symptoms including student self-esteem and perceived parental monitoring, parent rated behavioral indicators such as peer rejection and teacher rated need for counseling services. Although there were relatively consistent reports among informants, latent class regressions still show meaningful differences between informants on variables that may provide contextual information about depressive symptoms. A latent transition analysis found that class membership was relatively stable between 6th and 9th grade time points and the majority of transitions were made by students transitioning into lower depression-risk classes. These findings serve an important role in continued validation of the diverging operations approach as a useful framework for understanding informant discrepancies.

Introduction

The identification of agreement and discrepancy amongst multiple informants has traditionally been undervalued as both a methodological and clinical decision-making tool (Achenbach, McConaughy, & Howell, 1987). Recent research, however, has brought the utility of informant discrepancies to the forefront of the developmental psychopathology field (De Los Reyes & Kazdin, 2005; De Los Reyes, 2013 & Herman et al., 2016). In the past, discrepancy between multiple informants was discounted as an artifact that occurred too often to be construed as meaningful. In the last thirty years, several methods that aggregate multiple scores have been identified. These methods can be simple, e.g., making assumptions that each informant's account of the data is equally valid (Piacentini, Cohen, & Cohen, 1992). More complex methods assign differing value to certain informant reports based on different contexts or the presence of certain disorders (Hughes & Gullone, 2010). A Converging Operations approach (Garner et al, 1956) works towards relieving the level of discrepancy found between raters to achieve the goal of higher rates of agreement. Converging operations has been the approach most commonly used in psychological research to address informant discrepancy. The rationale behind converging operations states that convergence of informant ratings or high level of agreements between informants equals truth. Because meaningful observations can be drawn from convergence of reports, there is, therefore, a lack of meaning inherent in divergence among reports. To address the issue of divergent reporting, researchers seek out methods that can explain away divergent findings. Using combinational algorithms, driven by "and" or "or" statements such as "both a parent and a child" or "either the parent or child" must endorse a specific rating, researchers can limit discrepancies that would otherwise be apparent in their data.

An alternative to the convergent operations approach is to use discrepant reporting advantageously and glean valuable information from the differences found between raters. The Diverging Operations approach supports the notion that discrepancies represent true differences that may just happen to differ across contexts (de Los Reyes, Thomas, Goodman, & Kundey, 2013). Extensive evidence across multiple areas of clinical science indicates low to moderate levels of correspondence in multi-informant assessments (De Los Reyes & Kazdin, 2004; Klonsky et al., 2002). Consistently seeing the same level of cross-contextual disagreement could provide evidence that all informants may be providing accurate information, but this information is simply garnered from multiple contexts.

The divergent operations approach holds intrinsic value in child developmental research. Children may often view things differently compared to their adult caretakers, but can still be accurate reporters of their internalizing symptoms (Rhew et al., 2010) Understanding discrepant reporting can be especially valuable for children with internalizing symptoms. The nature of internalizing disorders makes accurate identification by outside sources difficult. Compared to symptoms of externalizing disorders, caretakers may have a much harder time seeing some of the cognitive symptoms common amongst disorders such as depression (Dwyer, Nicholson, & Battistutta, 2006; Stanger & Lewis, 2010). Developmental issues surrounding internalizing disorders tend to make accurate identification difficult as well. Research has shown that depressive episodes in childhood may look much different compared to depressive episodes in adulthood, with irritation being one of the core features rather than sadness or anhedonia (Cicchetti & Toth, 1991). Due to the variable nature of internalizing symptoms as well as several contextual factors, there are likely multiple variables that will contribute to the level of discrepancy found between informants.

Identifying key variables responsible for creating differences between raters may shed light on how to interpret informant discrepancy in the field of child psychopathology. As noted previously, finding patterns of discrepancy should shed light on why and how informant's reports differ across contexts. Understanding these discrepant reports based in different contexts should aid in mapping a developmental trajectory of certain groups of individuals experience with differing levels of depression. To achieve this, we can use latent profile analyses (LPA) to determine different patterns of informant discrepancy and how often that discrepancy occurs. LPA is a person-centered approach that can be used to group individuals based on common patterns of informant reporting. The person-centered approach of LPA offers a different focus than commonly used statistical methods such as regression analysis or factor analysis, which focus on the relationships among variables (Muthen & Muthen, 2000). When testing the divergent operations approach to informant discrepancies, a person-centered approach is better suited for answering questions about the relationships among individuals. The person-centered approach can also be useful when using longitudinal data, by identifying heterogeneity of groups in developmental trajectories. For the purposes of this study, LPA will be used to examine the divergent operations approach by determining the ideal number of latent profiles or distinct groups of individuals that best fits a certain pattern of discrepant reporting. Based on previous research (Herman et al., 2016) the primary aim of this study will attempt to find distinct patterns of reporting between students, parents, and teachers. Herman et al., used three informant ratings of child depression as LPA indicators, ultimately finding a three-class solution the provided the best model. The first of three classes were characterized by clinically significant scores provided by student raters and normative scores on parent and teacher ratings of student behavior, this profile was labeled Child-Only Severe Depression. The second profile was characterized by

higher child reported scores compared to parent and teacher ratings, this profile was labeled Child-Only Mild Depression. The third class found in the LPA was characterized by scores that fell in the normative range across all three informants. We expect to find a similar finding in our sample with multiple latent profiles characterized by varying levels of informant agreement concerning child depressive levels. Secondly, to test the divergent operations approach, we will attempt to find predictors that would explain the patterns of reporting seen with depressive symptoms. We predict that for the latent profiles that have high levels of disagreement between adult and child ratings of depression, we will find that certain variables can predict the degree of discrepancy. Predictors of interest are correlates of depression, such as child anxiety, parental bonding, self-efficacy, and perceived stress. These variables have all been consistently identified as concerns that often co-occur with depressive symptoms in children (Cicchetti & Toth, 1991; Herman, Ostrander, Walkup, Silva, & March, 2007; Hubbard, Smith, & Rubin, 2013). For parents of a single child, there may not be many instances to see their child interact with other children, giving them less of an opportunity to have experience rating their child on that variable. Teachers, however, may have a keen understanding of how a child functions in relation to their peers, simply because they have more of an opportunity to see the child in that context. Similarly, parental bonding status might be easily identifiable by a parent but less so by a teacher. The secondary aim of the current study will be to identify the variables that best distinguish the latent profiles.

Prior studies have used LPA to measure informant discrepancies, but few have focused on child internalizing symptoms (Herman, 2016). The current study will advance knowledge of informant discrepancy research by experimentally testing the Attribution Bias Context (ABC) Model (De Los Reyes, 2005). Few studies have tested the ABC conceptual framework of

informant discrepancy, and this study will be the first attempt to replicate LPA and LTA findings from a study that directly tested the diverging operations concept outlined in the ABC model. To our knowledge, no other studies have used LPA methods to test a diverging operations approach that has examined co-occurring mental health status as a predictor of discrepancies. We will also attempt to identify the discrepant profiles longitudinally, assessing reports of depressive symptoms at grade six and grade nine. To our knowledge, measurement of informant discrepancy spread across the middle school-junior high school range using LPA and LTA in a school-based sample of children and adolescents has previously not been attempted. By focusing on a larger age range, we may be able to show the capability that LPA has in longitudinal samples that stretch across several years. Changes across age ranges might also reveal opportune moments in child development that are ideal for intervention. Addressing these gaps in the literature will allow us to expand our knowledge of (1) multiple informant's accurate identification of youth depressive symptoms (2) covariates responsible for separation of latent classes of discrepant reporting (3) the interaction of multiple covariates on each other to influence levels of depressive symptoms (4) stability of class membership across time. To address these gaps in the literature we propose three research questions. First, we will examine profiles of parent, teacher, and youth ratings of youth depressive symptoms in a longitudinal developmental sample in 6^{th} and 9^{th} grade. We will attempt to replicate previous research that has shown a differentiation of latent profiles based on informant agreement regarding child depressive symptoms (Herman et al., 2016). Second, we will examine if the latent profiles could be distinguished by certain predictors such as demographic characteristics, broad youth internalizing behavior, parental bonding, self-efficacy, and perceived stress. These predictors will be used to test the Divergent Operations model, as we hypothesize that parent and teacher

ratings of these constructs will predict profile patterns characterized by discrepancies. Lastly, we plan to conduct a LTA to estimate the probability of youth informants transitioning into new profiles between 6th and 9th grades.

Literature Review

This section will provide additional background information relevant to the present study. The review of the literature will provide a theoretical perspective on the role of informant discrepancies in the assessment of youth mental health concerns with an emphasis on child and adolescent depression. The review will provide a thematic overview of the risk and protective factors associated with youth depression. Both theoretical and methodological limitations of assessment of youth depression will be discussed.

Internalizing problems are often defined as a broad domain of characteristics and symptoms associated with depression, anxiety, social withdrawal, and somatic complaints (Whitcomb & Merrell, 2013). Internalizing disorders, specifically depression is an important yet under-researched matter in the fields of developmental psychopathology and school psychology (Friman, 2007). Compared to externalizing disorders, internalizing disorders such as depression receive considerably less attention in school research, partly because they can be difficult to observe and measure (Beidel, Turner, Morris, 1999). Although disorders such as depression may be difficult to measure in schools, decades of epidemiological research have established clear base rates of depression in childhood and adolescence. Reviews of prior studies on Major Depressive Disorder (MDD) in childhood show a median prevalence estimate of 4% with a range of .2% to 17% (Merikangas et al, 2013). When reviewing longitudinal studies of community children and adolescents an average age of onset of MDD appears to fall between 11 to 14 years.

Risk increases from childhood into adolescence with estimates of additional onset at age 15 increases by 4%. (Lewinsohn, Moerk, & Klein, 2000).

The idea that internalizing disorders such as depression are difficult to observe and by virtue difficult to measure provides context for the importance of a comprehensive approach to the assessment of childhood depression. Using multiple informant's ratings of a disorder such as depression may help provide a more complete picture of the problem. Certain informants may have a better vantage point to identify certain features of the condition based on the context in which they are familiar.

An issue central to the use of multiple informant ratings is that of discrepancy. Historically, one of the first studies to assess informant discrepancy in clinical child research was a meta-analysis conducted by Achenbach, McConaughy, and Howell (1987). In this seminal piece of research, the authors attempted to determine the degree of consistency between different informants' reports, taken from 119 studies, of behavioral and emotional problems across childhood and adolescence. Findings indicated that low to moderate levels of agreement were found between informants. Similar informants such as pairs of parents only had moderate levels of agreement, whereas different types of informants such as parents and teachers, showed low levels of agreement. The authors finding that multiple informants (children, parents, teachers) rating of social, emotional or behavior problems are discrepant has been replicated further since.

Traditionally researchers approached informant discrepancy as an artifact amongst the data (Laird & De Los Reyes, 2013). Although some have found that discrepancies are developmentally normative (Steinberg, 2011), the methodological concerns remain. No theoretically relevant rationale was used to address the discrepancies which in turn created a lack of tests to examine the nature of discrepancies (De Los Reyes & Kazdin, 2005). Not until the

past decade have researchers begun to examine informant discrepancy as a tool for gaining a deeper understanding of issues such as depression. Informant discrepancy can assert high levels of influence on the assessment of child psychopathology. If researchers rely on both parent and teacher ratings of a child's internalizing disorder like anxiety or depression, prevalence rates can range from 10.3% to 36.2% (MacLeod et al., 1999). This approach leads to possible inflation of true prevalence rates based purely on who provided the information (Kazdin, 1989).

Research has found some connections between informant characteristics and discrepant reporting. Regarding children's characteristics, research has shown that variables such as age, gender, race, and social standing can all attribute to differences in reporting (De Los Reyes, 2005). Age is routinely investigated as possible influence attributable to informant discrepancy. There is research to suggest that age does influence reporting (Achenbach et al., 1987), supporting the idea that younger children are more likely to agree with other informants because they are more constrained by their environment and thus have a higher ability for observation. Others have not found age differences (Choudhury, 2003) or have found evidence that suggest adolescents have higher rates of agreement with other informants (Grills & Ollendick, 2003). Other factors such as ethnicity have also been studied. Many investigations have found that discrepancy is higher between racial minority children compared to Caucasian children (Youngstrom, Loeber & Stouthamer-Loeber, 2000; Li 2014). Some believe that racial minority parents might have less consensus regarding what constitutes problem behavior (De Los Reyes & Kazdin, 2005). Another characteristic that might influence children's reporting is social desirability. Children and adolescents are more likely to rate their problems as less severe than parents (Twenge & Nolen-Hokesema, 2002; Hammen, 2013). Social desirability has been linked to depression through mediators such as social avoidance. The explanation here is that the more

a child engages in social avoidance, the more likely they are to under-report that behavior to appear in a more favorable light to a parent, teacher, or clinician in an effort to minimize their depression.

Perceived stress has been identified as a characteristic that differs in children that may be related to reporting style. Children and more so, adolescents often report that their thoughts or behavior is less problematic compared to parents (Phares & Compas, 1990; Feurer, Hammen, & Gibb, 2016). Another characteristic that is often identified is the nature of the mental health problem. On average, there is more agreement between informants when reporting on externalizing symptoms compared to internalizing symptoms (Achenbach et al., 1987; Duhig et al., 2000; Barry, Frick & Grafeman, 2008). This is supported by the notion that the more observable behavior is, it will be reflected in the level of agreement during a report.

Turning to parent characteristics that account for reporter discrepancy is parental psychological functioning (Ehrlich, Cassidy, & Dykas, 2011). Parent's prior episodes of depression or features of depressive symptoms have been shown to influence their ratings (Betts, Gullone & Allen, 2007; Chi & Hinshaw, 2002; Meites, Ingram & Sigle, 2011). Specifically, maternal depression is positively related to discrepancies between a mother's reports compared to others. This holds true for not only reports of youth depression but anxiety and externalizing problems as well. This highlights the depression-distortion hypothesis which supports the idea that depression skews how mothers see behavior and emotional problems via a negative bias (Gartstein, 2009). Another variable that has been shown to influence parent agreement is stress. Some research has shown that this may occur through levels of parental criticism directed toward children (Gibb et al., 2009). Mothers experiencing higher levels of chronic stress are more likely

to use criticism when interacting with their children. This criticism creates a discrepancy as well as fuels the emergence of youth depression in some cases.

Other informants commonly used in developmental psychopathology are teachers. To date, there have been fewer studies that have examined why teachers may view internalizing problems such as depression differently compared to parent-child dyads. Teachers can be useful informants as the may be the primary source of referral (Mychailyszyn, Mendez, Kendall, 2010), however, this is most likely constrained to referrals to school services. Due to schools, slow adoption of considering internalizing problems compared to externalizing problems, teachers' referral makes up a small fraction of referral sources. There is research to support a trend that teachers will have higher levels of agreement with parents compared to children (Lee, Elliot & Barbour, 1994; Loeber et al., 1991; Phares & Danforth, 1994). A gap in the literature exists for characteristics that might explain teacher discrepancy. Unlike children and parents, we know relatively little about how variables such as stress or mental health history influence teacher's ratings.

There are currently two theories used to understand the interpretation of informant discrepancy, named Converging Operations and Diverging Operations. De Los Reyes et al., describe converging operations as a set of measurement conditions for interpreting patterns of findings based on the consistency within which findings yield similar conclusions (De Los Reyes et al., 2013). The converging operations approach to understanding discrepancy, therefore, assumes that inconsistent findings are interpreted as a problem that prevents a full understanding of the issue. This leads researchers to discontinue advancing the rationale of the study to explain the inconsistent findings. Converging operations as a process might not provide a good fit considering the types of questions being asked in a research study. The converging operations

approach might insufficiently characterize instances in which informants' reports provide diverging findings that reveal meaningful information relevant to the behaviors of interest. When considering clinical application this can have negative side effects such as researchers placing less emphasis on whether discrepant findings reveal information about diagnosis or treatment response.

Diverging operations is defined as a set of measurement conditions for interpreting patterns of inconsistent findings based on a hypothesis about variations in the behaviors assessed. This approach assumes that discrepancies between multiple raters reflect meaningful variation in the expression of a thought or behavior. One of the leading theoretical frameworks addressing discrepant reporting is derived from the diverging operations approach. The Attribution Bias Context (ABC) Model (De Los Reyes & Kazdin, 2005) explains that informants' reports differ due to three different features. First, the informant's own interpretation of why a subject expresses certain thoughts or behaviors. Second, informant perception of thresholds necessary for meeting criteria for a symptom or behavior. Lastly, the changing contexts in which informants observe behavior. The ABC model is useful due to its ability to outline precise differences among informants in how they observe behavior and in which contexts certain behaviors occur. In theory, these precise differences should be able to translate into discrepancies among informants' reports which reflect meaningful variation in the behaviors which the informants report on. Studies from both the clinic and the field have supported the notion that informant discrepancies reflect information about contextual differences in behavior (Auger, 2004; Bein et al, 2014; Berg-Nielsen et al, 2012; Brown et al, 2006; Choudhury, Pimentel, & Kendall, 2003). Evidence from clinical samples (De Los Reyes, Henry, Tolan, & Wakschlag, 2009) found significant discrepancies between multiple raters (parent and teacher) regarding

youth disruptive behavior. Disruptive behavior was measured in different contexts, interactions between youth and parents and interactions between youth and unfamiliar clinical examiners. Discrepancies were found in both the reports of children displaying high levels of disruptive behavior as well as the variation observed across contexts in the clinic. Further, parent-teacher discrepant reports of child disruptive behavior were linked to context observed in the clinic. For example, disruptive behavior in the presence of a parent predicted disruptive behavior identified by the parent but not by the teacher. Alternatively, disruptive behavior exhibited in the presence of an unfamiliar clinical examiner yielded disruptive behavior identified by teachers, but not by parents. This clinic-based study was able to describe variations between parent and teacher reports that were consistent with the Diverging Operations concept, meaning that discrepancy between informant reports reflected differences in children's behavior as a function of the context of their interactions in the clinic. In school-based samples, the concept of Diverging Operations has also been supported. In a study of children's anxiety in response to a social evaluative task (DiBartolo & Grills, 2006), findings support the notion that parents' and teachers' scores of baseline anxiety differed from each other. Additionally, parent, teacher, and child ratings of predicted anxiety during a social stress task were all significantly different from one another. None of the parents' or teachers' predictions of child anxiety were correlated with children's self-reported anxiety during the social stressor task or with behavioral observer's rating of child anxiety during the social stressor task. The meaningfulness that can be derived from the observed discrepancy could be that novel social situations do not occur frequently enough for parents or teachers to develop an accurate sense of a child's behavior in unfamiliar situations, and thus observations in yet to be discussed contexts may be important in understanding a child's rating of their own behavior.

To better understand the role that informant discrepancy plays in the assessment of depression it is important to address certain gaps in the literature that may incorrectly estimate the presence of certain symptoms. To date, relatively few studies have operated under a diverging operations approach to assess parent, teacher, and child reports of youth depression. As previously discussed, there have been numerous research findings that support consistent low to moderate levels of agreement between informants (child, parent, and teacher) across dissimilar contexts (home vs school). Our study will attempt to identify whether informants' reports yield meaningful differences in relation to risk for youth depression. Through identifying patterns of informant reports, it may be possible to identify latent classes of students at risk. Further, the present study will aim to examine the role that certain covariates can play in supporting a diverging operations approach to studying informant discrepancy. If patterns of informant reporting are likely to identify certain levels of depression risk, are they just as likely to identify other risk factors for youth depression such as comorbid anxiety, parental conflict, peer victimization, and low academic performance? This group of covariates offers an opportunity to examine a mix of contexts (home vs school), informant interpretation (parent vs teacher) and changing thresholds for meeting certain criteria that may distinguish different profiles of risk for depression.

Method

Participants

Data were collected as part of an intervention field trial involving the enhancement and combination of classroom-based interventions. The aim of the initial study was aimed at improving school achievement and reducing attention/concentration problems as well as

aggressive and shy behavior. 678 first-graders were recruited from 27 classrooms in 9 elementary schools located in western Baltimore. Of the 678 children recruited, 53.2% were male, 86.8% were African-American, and 13.2% were white. Cohort tracking began in first grade, where the mean age of students at the beginning of the academic year was 6.2 years and a range of 2.3 to 7.7 years. Consistent with school demographics, 63.4% of the children received free or reduced lunch. Ninety-three percent of first-graders remained enrolled in the study and completed one of two randomized intervention condition or control condition.

The current study utilizes data obtained from the student cohort at grades 6 and 9. Four hundred fifty-six students were used in the final analysis of the sample. The constructs of interest were assessed annually with the intent of measuring distal outcomes of the original interventions (ex. Anxious and depressive symptoms, academic achievement, youth substance use, gambling, etc.). The informant sources include annual youth, parent, teacher, and school mental health professional reports.

Procedures

The primary outcome measures were collected during the fall semester of each grade year in school. Assessments were administered by trained staff members. Through middle and high school, assessments were conducted through computerized reporting methods as well as paper and pencil reports. Parent reports were mailed home and teacher reports were completed at school. Structured clinical interviews were carried out by child-clinical psychologists and provided DSM-IV diagnoses. Direct observations of parent-child interaction centered on a learning and behavior management task were also conducted. Annual school record searches provided academic and disciplinary data.

Measures

LPA and LTA Indicators

The *Teacher Observation of Classroom Adaptation Revised* (TOCA-R; Werthamer Larsson, Kellam, & Wheeler, 1991), the *Parent Observation of Child Adaptation* (POCA; Werthamer Larsson et al., 1991), were used to obtain teacher and parent ratings of behavior indicative of students' academic helplessness.

The TOCA-R and POCA were developed and employed by the Prevention Intervention Research Center (PIRC) in the evaluation of the 1st and 2nd generation PIRC trials in Baltimore City (Ialongo, Poduska, Werthamer, & Kellam, 2001). The TOCA-R requires teachers to respond to 43-items pertaining to the child's adaptation to classroom task demands over the last three weeks. Adaptation is rated by teachers on a six-point frequency scale (1 = *almost never* to 6 = *almost always*). Items for the subscales were largely drawn from the DSM-III, III-R and IV. In this study, we used the Concentration Problems (Inattention), Peer Rejection (Likeability), Oppositional Defiant, Proactive Aggression, Helpless Behavior, and Shy Behavior subscales. The Concentration Problems subscale has nine items (e.g., "pays attention," "easily distracted"). The Peer Rejection subscale includes 3 items (rejected by classmates, has lots of friends, and children seek him out to play); we reversed scored the positively worded items and summed all items. The TOCA-R was administered in both 6^{th} and 9^{th}grade. Test-retest correlations over a four-month interval with different interviewers were .60 or higher for each of these subscales. The coefficient alphas for the TOCA-R subscales in middle and high school were .97 (Oppositional Defiant), .90 (Proactive Aggression) .78 (Peer Rejection), and .83 (Shy Behavior). The POCA was administered in both 6^{th} and 9^{th}grade. The coefficient alphas for the POCA subscales in middle and high school were .79 (Concentration Problems), .78 (Peer Rejection), .70 (Oppositional Defiant) and .62 (Shy Behavior).

Baltimore How I Feel, Youth Report (BHIF, Ialongo, Kellam, & Poduska, 1999). The BHIF is a youth self-report scale of depressive and anxious symptoms, which was used in grades 6-12. Youth report the frequency of depressive and anxious symptoms over the last two weeks on a 4-point frequency scale. Items were keyed for the most part to Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R; American Psychiatric Association, 1987) criteria for major depression, dysthymia, and the anxiety disorders. A pool of items was drawn from existing child self-report measures, including the Children's Depression Inventory (Kovacs, 1983), the Depression Self-Rating Scale (Asarnow & Carlson, 1985), the Hopelessness Scale for Children (Kazdin, Rodgers, & Colbus, 1986) and the Revised-Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985). The alphas for the BHIF Depression and Anxiety subscales ranged from .79 to .85 in the middle school years. Two-week test-retest reliability coefficients were .76 and .83 for anxiety and depression. In terms of concurrent validity, youth self-reports on the BHIF Depression subscale in grade six significantly predicted a diagnosis of Major Depressive Disorder on the Diagnostic Interview Schedule for Children-IV (DISC-IV, Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), whereas grade six BHIF Anxiety subscale scores significantly predicted a diagnosis of Generalized Anxiety Disorder on the DISC-IV.

Predictors

Structured Interview of Parent Management Skills and Practices- Parent Version (SIPMSP, Patterson, 1982). The SIPMSP was created to measure major constructs central to the development of antisocial behavior in children. Items addressed parental monitoring, discipline, reinforcement, rejection, and problem-solving. Using both open-ended and forced-choice response formats, parents provide feedback related to the parent-discipline component of the

family-school partnership intervention. In the original data set, it was shown that parental rejection was related to decrements in child psychological well-being in terms of anxious and depressive symptoms. Significant relations were also found for achievement subscale scores and children's standardized achievement in first grade. The parental monitoring subscale was indicative of the need to monitor unwanted youth behavior rather than a parental desire to use positive proactive monitoring skills.

Structured Interview of Parent Management Skills and Practices--Youth Version (SIPMSP, Patterson, 1982). This interview was developed by Patterson and his colleagues as a counterpart to their parent interview. The youth version assesses the parenting constructs integral to the Patterson et al. (1992) model of the development of antisocial behavior and substance use, which were the caregiver disciplinary practices targeted in the family-school partnership program in first grade. The relevant parenting constructs assessed are parental monitoring, discipline, reinforcement, rejection, problem-solving, and involvement in learning and behavior. We employed the childhood version of the SIPMSP in first grade and the adolescent version in grades 6-12.

Diagnostic Interview Schedule for Children-V (DISC-IV, Shaffer, et al., 2000) Specific modules of the DISC were used to assess conduct disorder, major depressive disorder, and dysthymic disorder in the 6-12 grade sample of students. The DISC-IV is a fully structured interview that yields a DSM-IV diagnosis as well as a symptom count and impairment indices for each disorder endorsed. The interview is fully structured, specifying the exact wording and sequence of questions to be used by interviewers. Diagnostic sensitivity and diagnostic specificity have been reported to range from 80% to 100% for nearly all diagnostic scales.

Positive predictive value ranges between .4 and .7. Test-retest reliabilities show good internal consistency and intraclass correlation coefficients range from .52 to .82.

Self-Perception Profile for Adolescents (SPPA, Harter, 1985). SPAA domains assessed in middle school and high school include scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, romantic appeal, and close friendships. The SPAA's validity is supported by findings linking scores to perceived control, mastery motivation, academic achievement, and depression (Connell, 1985, Harter 1985).

Service Assessment for Children and Adolescents: Teacher Report (SACA-T). A small subset of questions from the school-based mental health and educational services module of the SACA-Parent version, which were incorporated into the TOCA-R (teacher checklist described above). Teachers were asked in grades 6-12 whether a youth is receiving special education services, whether they are in need of such services (regardless of whether they are receiving those services), whether they are receiving and/or are in need of counseling for behavioral problems, attention concentration problems, and anxiety and depression, respectively, and whether they are receiving and/or are in need of medication for these problems.

Youth Report of Parent and Teacher Reinforcement and Punishment. For the grades 6-12 assessments, we developed a 20-item youth self-report scale to assess parent and teacher response in terms of reinforcement and punishment for academic success and failure and good and bad behavior. There are 10 teacher response items and 10 parent response items. Within the teacher and parent subscales, five items are centered on behavior and 5 on academic achievement. A five-point response scale was employed (1=All of the time, 2=Most times, 3=Sometimes, 4=Hardly ever, 5 = Never). The measurement of youth report of parent and teacher reinforcement and punishment is in keeping with our hypothesis that youth antisocial

behavior may be associated with decreased reinforcement and increased punishment from parents and teachers. Moreover, decrements in reinforcement and increased punishment may accelerate the initiation and maintenance of drug use.

Neighborhood Environment Scale (NES, Elliott, Huizinga, & Ageton, 1985). The NES consists of 18 true-false items and we have used it in our grades 6-12 assessments to assess exposure to deviant behavior in the neighborhood, including violent crime, drug use and sale, racism, and prejudice. Crum and Anthony (1993) report youths living in neighborhoods in the highest tertial of crime and drug use, as measured on the NES, were 3.8 times more likely to have been offered cocaine than youths in the lowest tertial. Coefficient alpha for the total scale was .80 in grades 6-12.

The Racism and Life Experiences Scales (Harrell, 1997). The RLES was used in grades 6-12 to assess the frequency the youth experiences racism or negative events associated with his or her race within the last year. We hypothesize that racial discrimination may result in decrements in psychological well-being and social adaptational status. The items the youth respond to on the RLES include: "How often have you been ignored, overlooked, or not given service in a restaurant, store, etc?"; How often have you been treated rudely or with disrespect because of your race. Youths respond on a five-point frequency scale (1= Less than once a year, 2= A few times a year, 3= About once a month, 4= A few times a month, 5= Once a week or more). The overall alpha for this 12-item scale was .85.

Data Analytic Plan

The variables were collected across two time points (6^{th} and 9^{th} grades). These time points offered many parallel measures that assess constructs of interest (internalizing symptoms, depression diagnosis, stressful life events, mental health service utilization). Sixth and ninth

grades also provide an opportunity to assess children at periods of transitions into new schools (middle vs high school). Beginning in sixth grade, informants began completing assessments to provide diagnostic ratings of youth anxiety and depression, making these time points particularly interesting given the relatedness to the developmental trajectory of internalizing symptoms.

The sequence of analyses was carried out in the following order. First, we began with completing a separate unconditional latent profile analyses (LPA) at each time point (6^{th} vs 9^{th} grade) to determine optimal class solutions. Separate LPA's were conducted on 6^{th} and 9^{th}-grade indicators. LPA indicators included teacher rating of student internalizing symptoms (TOCA-R Internalizing subscale), as well as parent and child ratings of internalizing symptoms (TRBRC/POCA subscales). Relative fit of proposed models will be compared by comparing the Bayesian information criterion (BIC; Schwartz, 1978). We approached estimating model fit by beginning with one model and adding additional profiles until a model with the lowest possible BIC score is found, before additional profiles are added, and BIC scores begin to increase in subsequent models containing more profiles. The Vuong-Lo-Mendell-Rubin likelihood ratio test, which assesses the fit between two nested models that differ by one class and provides a *p*-value that indicates which model fits best was also used in the analysis. In addition, we evaluated the classification precision as indicated by estimated posterior class probabilities, summarized by the entropy measure (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Entropy values close to 1.0 indicate higher classification precision (Muthén, 2004). The final model determination was based on model fit indicators—with more weight given the BIC because simulation studies have suggested it provides the most reliable fit indicator (Nylund et al., 2005)— as well as class prevalence, interpretability, and substantive theory.

Next, latent class regressions were used to determine if class profiles at each time point could be distinguished by demographic characteristics, teacher and parent ratings of student social problems, externalizing symptoms, and concentration problems and by the student's academic performance, measured by grade point average. These analyses were model-based and retained the latent structure of the identified profiles to minimize measurement error.

Last, LTA was used to determine changes in class membership over time. We used the final LPA class solutions at each time point for the LTA. We then calculated joint and conditional probabilities to estimate the likelihood of appearing in the identified 6th or 9th grade profiles. For these analyses, we included data from participants who had complete indicator data at either time point. Mplus software uses full information maximum likelihood with the assumption that the data are missing at random (Little, 1995), a common approach employed within this analysis method (Schafer & Graham, 2002). The minimum covariance coverage recommended for reliable model convergence is 0.10 (Muthen & Muthen, 2010).

Results

Patterns of Informant Ratings: Latent Profile Analysis of Grade 6 and Grade 9 Ratings

The three informant ratings of child depressive symptoms (teacher, parent, and self) were entered as indicators in LPAs at 6th (time point one) and 9th grades (time point two). LPA fit indices for class solutions are summarized in Table 1. The four-class solution emerged as the optimal fit for the data at both time points. In grade 6, indicators of model fit supported the four-class solution (e.g., lowest BIC, adjusted BIC, and Entropy). The four-class solution was selected as the best model in grade nine because it had the lowest BIC value and because subsequent solutions added classes with very low prevalence.

Figures 1 and 2 summarize the prevalence and characteristics of the four classes at each time point. The class patterns were essentially the same in grades 6 and 9, so we adopted the same naming convention at each time. An exception came in class four, which varied between 6th and 9th grade in the average student report of depressive symptoms. Class 1 was labeled as the Normative class (46.4% and 51.5% for grades 6 and 9, respectively). Class 2 had higher scores on each measure, was labeled Low Depressive Symptom Risk (Mild) (37.8% and 36.3%, respectively). The third class had the highest overall scores across informants and was labeled High Depressive Symptom Risk (7.3% and 8.6%, respectively). The third class' symptom risk was driven largely by parent reports of depressive symptoms. The final class was labeled as Normative as all three indicators fell in the average range for this class (68.7% and 65%, respectively). The final class was labeled as the Shifting Student Risk class (8.5% and 3.6% respectively). Classes 1 through 3 appear relatively stable across informants and time, however, the fourth class showed a wide variety in student report of depressive symptoms. Additionally, the parent report of depressive symptoms increased beyond the Low Depressive Risk class during the 9th grade latent profile analysis, a feature not seen in the 6th grade time point. Based on the characteristics of the fourth class it is possible that the fourth class across the 6th and 9th grade time points reflect separate classes entirely.

Predictors of LPA Classes Using Latent Class Regressions

Demographic Predictors. The first latent regression analyses focused on the demographic predictors of class membership. We entered child race, sex, and grade status as predictors of latent profiles at both time points. All three demographic predictors were unrelated to profiles at either time.

Social and Symptom Predictors. We used the Normative class as the reference group in separate latent class regression analyses to determine if the three depressive risk classes could be distinguished on teacher and parent ratings of social skills, other child symptoms, and family conflict at sixth grade (see Table 2).

The Mild profile had significantly higher scores on student-rated parental monitoring (p= .000), neighborhood violence (p=.027), MDD symptom count (p=.034), and lower reports self-esteem (p=.003). Parent reports in the Mild profile reported significantly higher ratings of peer rejection (p=.041), oppositional-defiant behavior (p=.000), and shy behavior (p=.000) compared to the normative group. Lastly, the teachers in the Mild profile reported a greater need for students needing to enter treatment services for internalizing symptoms (p=.003) compared to the normative group. Based on student reporting, the High-risk profile had significantly higher reports of parental monitoring (*p*=.031), concentration problems (*p*=.009), and peer rejection scores (*p*=.000) than the Normative comparison group. The High-risk class also had significantly higher student ratings of depression with Major Depressive Disorder (MDD) criteria met in the past month and MDD lifetime symptom count both being significantly higher (p=.000 and .001 respectively.) The High-risk group also experienced lower self-esteem scores in 6th grade compared to the normative group (p=.003). Parents in the High-risk group reported significantly more peer rejection (p=.000), oppositional-defiant behavior (p=.000), and shy behavior (p=.037) compared to the normative group. Teachers in the High-risk group reported a significantly higher need for treatment services focusing on internalizing symptoms compared to the normative group (p=.000). The Shifting-risk profile had significantly higher scores on MDD symptom count (p=.000), MDD past month criteria (p=.000) and lower significantly lower reports self-esteem (p=.015). Parent reports in the Shifting-risk profile. Teachers in the Shifting-risk profile reported

a greater need for students needing to enter treatment services for internalizing symptoms (p=.001) compared to the normative group.

Latent class regressions were conducted with sixth-grade variables that could predict differences between classes in the ninth-grade time point. The Mild profile had significantly higher scores on student-rated parental monitoring (p= .012), neighborhood violence (p=.012), and previously reported racism (p=.028). Parent reports in the Mild profile reported significantly higher ratings of oppositional-defiant behavior (p=.000) compared to the normative group. The Mild profile also saw parents rate themselves as significantly less likely to praise student academic success (p=.031) while also reporting lower overall grades than the normative group (p=.009). Teachers in the Mild profile reported a greater need for students needing to enter treatment services for internalizing symptoms (p=.003) compared to the normative group. Additionally, teachers reported that students experiencing significantly more peer rejection (p=.000) and displaying more proactive aggression (p=.000) compared to the normative group. Based on student reporting, the High-risk profile had significantly higher reports of parental monitoring (*p*=.000), neighborhood violence (p=.000) and racism in both 7th and 8th grades (p=.000 and .050 respectively) compared the Normative comparison group. The High-risk profile also saw parents rate themselves as significantly less likely to praise student academic success (p=.009) while also reporting lower overall grades than the normative group (p=.000). Teachers in the High-risk group reported a significantly higher need for treatment services focusing on internalizing symptoms compared to the normative group (p=.000). Additionally, teachers in the High-Risk profile reported that students experiencing significantly more peer rejection (p=.000) and displaying more proactive aggression (p=.000), and oppositional defiance (p=.000) compared to the normative group. Based on student reporting, the Shifting-risk profile had

significantly higher reports of parental monitoring (*p*=.018), neighborhood violence (p=.002) and racism in both 7th and 8th grades (p=.000 and .037 respectively) compared the Normative comparison group. The Shifting-risk profile also saw parents rate themselves as significantly less likely to praise student academic success (p=.001) while also reporting lower overall grades than the normative group (p=.000). Additionally, parents in the Shifting-risk group reported they were less likely to praise their children's positive behavior that was unrelated to academics (p=.002). Parents in this group also reported greater concentration problems (p=.000), peer rejection (p=.000), oppositional-defiant behavior (p=.000), and shy behavior (p=.000) compared to the normative group. Teachers in the Shifting-risk group reported a significantly higher need for treatment services focusing on internalizing symptoms compared to the normative group (p=.001). Additionally, teachers in the Shifting-risk profile reported that students experiencing significantly more peer rejection (p=.023) and displaying more proactive aggression (p=.000), and oppositional defiance (p=.000) compared to the normative group. Teachers in this group also noted that they were less likely to provide praise for positive student behaviors in the classroom.

Stability of Class Membership Over Time: Latent Transition Analysis

LTA provided probability estimates of joint group membership at both time points (see figure 3). The probability of Normative group membership at both time points was .72 indicating that nearly a quarter of the sample had a transition pattern characterized by stable membership in that group at both points. The conditional probabilities revealed that shifts occurred across all profile types. Zero percent of students in the normative class in grade 6 moved to the High-risk class at grade 9; 2% moved to the Shifting-risk class and 25% transitioned into the Mild/Low-risk class by grade 9. The latent transitional analysis also so a small percentage of students move into "lower-risk" classes. Zero percent of students from the 6th-grade High-risk class stayed in

the 9th-grade High-risk class. Four percent of the High-risk class moved into the Shifting-risk class, which was characterized by lower scores of student depressive symptoms. Thirty-four percent of students moved from the High-risk class into the Low-risk class. Finally, 60% of students transitioned from the High-risk class to the normative class.

Finally, we examined whether sixth grade parental monitoring predicted class transitions. Students with stable membership in the Mild-Mild class (.50; OR=2.76 [95% CI: 1.57-12.31]) and with transitions from Mild to High-risk (.06; OR=6.45 [CI: 2.23-32.12]), classes had significantly greater probabilities of higher parental monitoring in Grade 6 compared to those with stable membership in the Normative class (.72).

Discussion

The purpose of this study was to identify patterns of informant ratings of student depressive symptoms over time in a community sample of families from Baltimore and to test Divergent Operations hypotheses about the correlates of these patterns. We found four patterns best characterized teacher, parent, and child ratings of depressive-related symptoms at each time point: a normative type and three patterns characterized by higher reports of depressive symptom ratings by students, and teachers. One exception was a single class characterized by drastically lower student reports of depressive symptoms compared to their parents and teacher ratings. The distinctiveness of the three depressive patterns was confirmed by teacher and parent ratings of other child symptoms. Latent transition analyses suggested a fair amount of stability in these patterns between sixth and ninth grade. A greater need for parental monitoring in sixth grade predicted transitions to the more depressive classes relative to transitions to normative classes.

Informant discrepancies have been well-documented, yet little is known about how and when they represent meaningful differences in the expression and observation of symptoms

across settings. Consistent with a Divergent Operations perspective (de Los Reyes et al., 2013), the two profiles characterized by higher ratings of depressive symptoms were distinguished by a range of parent and teacher ratings of other related concerns. In other words, although parent and teacher ratings of child depressive symptoms did not converge with child ratings in the two maladaptive classes, parents and teachers consistently rated these classes as having higher levels of other types of problems that commonly co-occur with depressive features, including externalizing symptoms, inattention, peer rejection, parenting practices and teacher behavior management. Moreover, children in the depressive risk profiles were much more likely to have higher rates of parental monitoring, which in this context was representative of parenting behaviors required to curb negative child behavior, such as meeting curfew and completing homework without prompting.

The present findings suggest that children in a community sample who report depressive symptoms may not exhibit discernible depressive behaviors and/or teachers and parents may not recognize or have enough opportunities to observe these symptoms. However, these children may express, or teachers and parents may notice, other social and behavioral symptoms that go along with their depressive symptoms, such as social and conduct problems, as well as ratings of depression, obtained only in a diagnostic interview.

For child development researchers, the present findings suggest that aggregation methods, such as structural equation modeling, which treat informant discrepancies as error may not be an appropriate choice for capturing nuanced perspectives about child depressive symptoms. Rather, profile approaches allow for understanding different rater perspectives within their observed contexts. Prior studies have used symptom profile patterns of single informants to define the various subtypes of youth depression (Herman et al., 2007). An alternative is to create

profile patterns across informants. In this study, we examined profiles of three informants' ratings on a unifying construct of depressive behavior. The finding that adults noticed symptom presentations other than depression suggests that it may be fruitful for future research to examine profiles of multiple informants' ratings of multiple types of symptoms related to child depression.

Another implication of these findings is that screening for youth depression at the community level should include the youth's perspective. It appears screening that relies solely on parent and teacher perspectives of depressive symptoms may miss many children who themselves report experiencing depression and who have corresponding skill deficits. In some instances, adult raters may also overestimate a youth's true depressive symptom severity. However, asking adults about a range of other related symptoms and problems may provide a higher detection rate as teachers and parents were more likely to rate children who reported depressive symptoms as having other concerns. Thus, our findings support the use of measures of social, academic, and environmental influence, as risk factors or potential indicators of youth depression. These assessments are routinely given in school settings and may serve as a marker for children at risk for depression.

A final set of analyses focused on examining the stability of profile patterns. Although the pattern of discrepancies was stable between 6th and 9thgrade (i.e., essentially the same three profiles emerged at each time point), the LTA revealed that the likelihood of a given child remaining within a given profile was relatively high. The stability of child depressive symptoms is surprising given the amount of time between the time points and relative degree of change between environments (middle school vs high school). Still, abundant evidence suggests that depressive symptoms in youth, even at a single time point, are associated with significant

impairment and predict future depressive and general psychiatric symptoms and disorders across development (Dunn & Goodyer, 2006; Fombonne et al., 2001; Ialongo et al., 2001; Roza et al., 2006).

The findings from the present study should be considered with limitations in mind. First, the study focused on a sample of low SES children from an urban setting in the Mid-Atlantic. Although examining discrepancy ratings in this unrepresented sample is important and contributes to the literature, it is not known whether these findings will generalize to those growing up in other social strata or settings. Second, students in the study completed a broadband measure of internalizing symptoms from which depressive symptoms could be extracted. A true analogue to the student measure could not be obtained in the parent and teacher samples. Thus, measurement method cannot be ruled out as an explanation for discrepancies. However, using parent and teacher ratings of student helpless behavior as a proxy for depressive symptoms should correspond to youth ratings of similar constructs if children are expressing symptoms across settings and adults have opportunities to observe them. The use of both adult ratings of the same observable behavior is viewed as a net positive in this context. Both adults rate a defined behavior which may vary in context (home vs school) and account for differences in informant ratings. This method should introduce less subjectivity than both adult informants simply providing their estimates of a less observable phenomenon within another informant. Previous researchers have made a compelling case for having adult informants provide ratings of observable youth behavior instead of estimates of internalizing functioning (De Los Reyes et al. 2013).

Overall, the study provides information on the meaning of informant discrepancies when rating child depressive symptoms in line with Divergent Operations. Both teachers and parents

reported higher ratings of depression than children in the maladaptive depressive profiles yet noted other skills or behavioral concerns for these children. In turn, these profiles were linked to lower levels of youth competence and confidence, an area associated with increased risk for depression in youth. Finally, latent profile and transition analyses provide an innovative approach to examine rater discrepancy patterns and to further our understanding of this common phenomenon.

References

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational *Psychological Bulletin*, *101*(2) 213-232. http://dx.doi.org/0033-2909/87/S00.75

Beidel, D.C., Turner, S.M., & Morris, T.L. (1999). Psychopathology of childhood social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*(6), 643-650.

Cicchetti, D., & Toth, S. (1991). *Internalizing and externalizing expressions of dysfuntion*. New York, NY: Psychology Press.

De Los Reyes, A. (2013). Strategic objectives for improving understanding of informant discrepancies in developmental psychopathology research. *Development and Psychopathology*, *25* 669-682. http://dx.doi.org/10.1017/S0954579413000096

De Los Reyes, A., & Kazdin, A. (2005). Informant discrepancies in the assessment of childhood psychopathology: a critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin*, *131*(4) 483-509. http://dx.doi.org/10.1037/0033-2909.131.4.483

De Los Reyes, A., Thomas, S. A., Goodman, K. L., & Kundey, S. M. (2013). Principles underlying the use of multiple informants' reports. *Annual Review of Clinical Psychology*, *9* 123-149. http://dx.doi.org/10.1146/annurev-clinpsy-050212-185617

Dwyer, S. B., Nicholson, J. M., & Battistutta, D. (2006). Parent and teacher identification of children at risk for developing internalizing or externalizing mental health problems: a comparison of screening methods. *Prevention Science, 7,* 343-357. http://dx.doi.org/10.1007/s11121-006-0026-5

Garner WR, Hake HW, Eriksen CW. (1956). Operationism and the concept of perception. *Psychology Review.* 63, 149–59.

Herman, K. C., Ostrander, R., Walkup, J. T., Silva, S. G., & March, J. S. (2007). Empirically derived subtypes of adolescent depression: latent profile analysis of co-occuring symptoms in the treatment for adolescents with depression study (TADS). *Journal of Consulting and Clinical Psychology, 75*, 716-728. http://dx.doi.org/10.1037/0022-006X.75.5.716

Herman, K., Cohen, D., Reinke, W., Ostrander, R., Burrell, L., McFarlane, E., & Duggan, A. (2017). *Using latent profile and transition analyses to understand patterns of informant ratings of child depression*. Manuscript submitted for publication.

Hubbard, J. A., Smith, M. A., & Rubin, R. M. (2013). Use of latent profile analysis to assess the validity of a peer-rejected group of children. *Journal of Clinical Child & Adolescent Psychology, 42*, 843-854. http://dx.doi.org/10.1080/15374416.2013.804410

Hughes, E. K., & Gullone, E. (2010). Discrepancies between adolescent, mother, and father reports of adolescent internalizing symptom levels and their association with parent symptoms. *Journal of Clinical Psychology, 66*, 978-995. http://dx.doi.org/10/1002/jclp.20695

Ialongo, N. S., Kellam, S. G., & Poduska, J. (1999). Manual for the Baltimore How I Feel. (Tech. Rep. No. 2). Baltimore, MD: Johns Hopkins University.

Laird, R.D. & De Los Reyes, A. (2012). Testing informant discrepancies as predictors of early adolescent psychopathology: why difference scores cannot tell you what you want to know and how polynomial regression may. *Journal of Abnormal Child Psychology, 41*(1), 1-14

Lewinsohn P.M., Moerk, K.C., Klein, D.N. (2000). Epidemiology of adolescent depression. Journal of Neuroscience, Economics, and Psychology, 2, 52-68.

Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., … Swendsen, J. (2010). Lifetime Prevalence of Mental Disorders in US Adolescents: Results from the National Comorbidity Study-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, *49*(10), 980–989. http://doi.org/10.1016/j.jaac.2010.05.017

Nolen-Hoeksema, S., Girgus, J.S., & Seligman, M. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. Journal of Abnormal Psychology, 101, 403-422.

Piacentini, J. C., Cohen, P., & Cohen, J. (1992). Combining discrepant diagnostic information from multiple sources: are complex algorithms better than simple ones? *Journal of Abnormal Child Psychology*, *20*(1), 51-63. http://dx.doi.org/10.1007/BF00927116

Rhew, I. C., Simpson, K., Tracy, M., Lymp, J., McCauley, E., Tsuang, D., & Vander Stoep, A. (2010). Criterion validity of the short mood and feelings questionnaire and one- and two-item depression screens in young adolescents. *Child and Adolescent Psychiatry and Mental Health*, *4*. http://dx.doi.org/10.1186/1753-2000-4-8

Stanger, C., & Lewis, M. (2010). Agreement among parents, teachers, and children on internalizing and externalizing behavior problems. *Journal of Clinical Child Psychology*, *22*, 107-116. http://dx.doi.org/10.1207/s15374424jccp2201_11

Werthamer-Larsson, L., Kellam, S.G., & Wheeler, L. (1991). Effect of first-grade classroom environment on child shy behavior, aggressive behavior, and concentration problems. American Journal of Community Psychology, 19, 585-602

Whitcomb, S., & Merrell, K. (2013). Behavioral, social, and emotional assessment of children and adolescents (4th ed.). New York, NY: Routledge

Table 1

Model Fit Indices for 1-5 Class Solutions of Grade 6 and Grade 9 Child Internalizing Symptom Ratings

	Grade 6 (*n*=456)				Grade 9 (*n*=456)			
LC	BIC	aBIC	VLMR	Entropy	BIC	aBIC	LMR	Entropy
1	10204.05	10185.01	--	--	10216.71	10197.68	--	--
2	10090.94	10059.20	.0002	0.709	10139.96	10108.22	0.0017	0.683
3	10096.20	10051.77	.0052	0.709	10128.04	10083.61	0.0036	0.764
4	**10069.19**	**10012.07**	**.0067**	**0.805**	**10103.49**	**10046.36**	**0.0170**	**0.857**
5	10088.78	10018.96	.3533	0.795	10116.99	10047.17	0.0252	0.877

Note. BIC = Baysian information criterion; aBIC = adjusted Baysian information criterion; LMR = Vuong-Lo-Mendell-Rubin Adjusted Likelihood Ratio Test. Smaller values indicate better fit of the model. Entropy values close to 1.0 indicate higher classification precision. Bold indicates selected solutions.

Figure 1. LPA Class membership profiles, grade 6

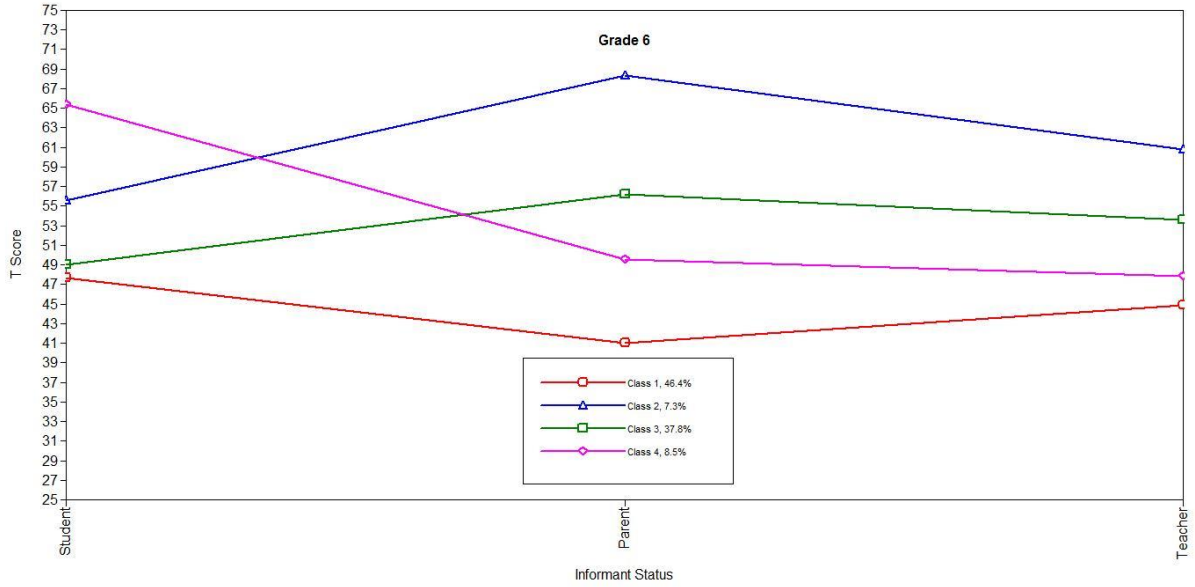

Figure 2. LPA Class membership profiles, grade 9

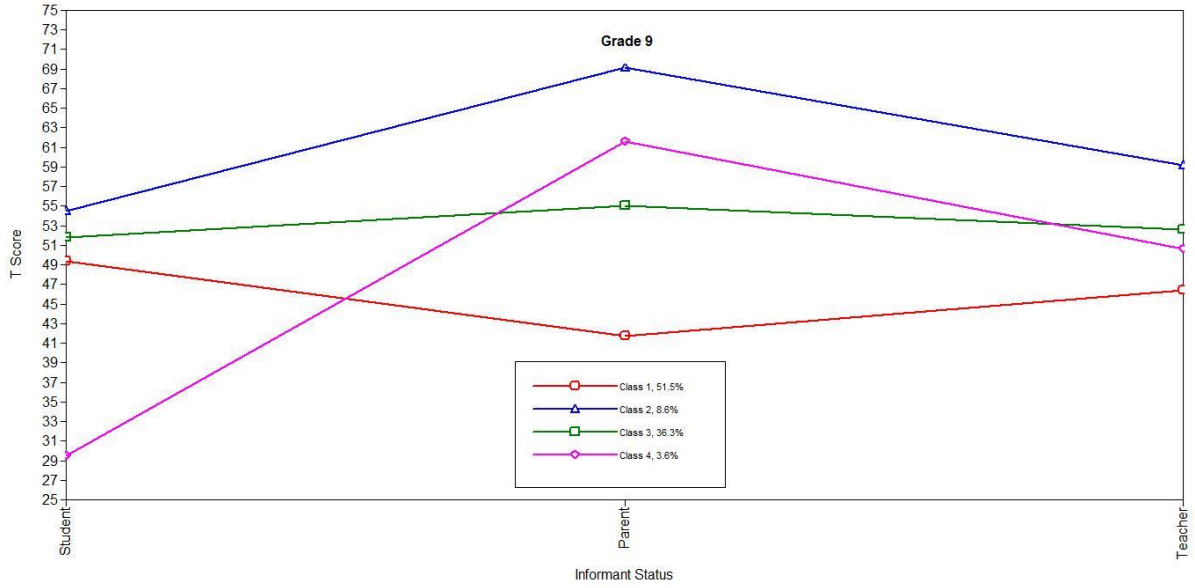

Table 2. Sixth Grade Predictors of Sixth Grade Classes

Teacher Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
Need for Internalizing t(x)	0.084	0.493	0.406	0.200	1<2; p=.000 1<3; p=.001 1<4; p=.003 2>4; p=.035

Parent Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
POCA-Peer Rejection	1.412	2.069	1.617	1.720	1<2; p=.000 1<4; p=.041 2>3; p=.000
POCA-OppDefiant	1.654	2.993	2.013	2.088	1<2: p=.000 1<4: p=.000 2>3; p=.017
POCA-Shy Behavior	1.516	1.773	1.652	1.807	1<2; 0=.037 1<4; p=.000

Student Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
Parental Involvement (Higher = Better)	2.426	2.268	2.336	2.535	4>2; p=.041
Parental Monitoring (Lower = Better)	1.845	2.268	1.945	2.185	1<2; p=.000 1<4; p=.000
Neighborhood Violence	1.709	2.090	1.863	1.870	1<4; p=.021 1<3; p=.027
MDD Past Month Criteria	0.000	0.496	0.552	0.066	1<2; p=.000 1<3; p=.000 2>4; p=.015 3>4; p=.009
MDD Symptom Count	6.972	11.164	11.942	8.285	1<2; p=.001 1<3; p=.001 1<4; p=.034 2>4; p=.025 3>4; p=.000
Self-Esteem	3.760	3.490	3.457	3.559	1>2; p=.003 1>3; p=.015 1>4; p=.003

Table 3. Sixth Grade Predictors of Ninth Grade Classes

Teacher Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
Need for Internalizing t(x)	0.084	0.493	0.406	0.200	1<2; p=.000 1<3; p=.001 1<4; p=.003 2>4; p=.035
Positive Attention-Academics	3.077	2.014	3.738	3.350	3>2; p=.043 4>2; p=.027
Positive Attention-Behavior	3.290	3.572	4.109	3.278	3>1; p=.031 3>4; p= .032
TOCA-Peer Rejection	2.494	3.054	3.728	3.078	3>1; p= .023 4>1; p= .000 2>1; p=.000
TOCA-OppDefiant	1.806	3.605	2.878	3.013	3>1; p=.000 2>1; p=.000 4>1; p=.000
TOCA-Proactive Aggression	1.230	2.175	2.125	1.942	3>1; p=.000 2>1; p=.000 4>1; p=.000

Parent Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
Positive Attention-Academics	2.284	2.796	3.662	2.521	1<2; p=.009 1<3; p=.001 1<4; p=.031
Positive Attention-Behavior	2.775	2.911	3.763	2.827	3>1; p=.002 3>2; p=.009 3>4; p=.003
POCA-Concentration	1.676	2.424	2.497	2.197	1<2; p=.021 1<3; p=.000
POCA-Peer Rejection	1.661	1.000	2.055	1.618	1>2; p=.041 1<3; p=.000
POCA-OppDefiant	1.713	2.599	2.369	2.071	1<2; p=.000 1<3; p=.000 1<4; p=.000 4<2; p=.001
POCA-Shy Behavior	1.596	1.774	2.030	1.674	3>4; p= .002 3>1; p=.000
Overall Grades (Lower = Better)	2.072	3.284	2.747	2.697	1<2; p=.000 1<3; p=.000 1<4; p=.009

					3<4; p=.034

Student Report	**1 Normative** ***M (SD)***	**2 High Risk** ***M (SD)***	**3 Shifting Risk** ***M (SD)***	**4 Low Risk** ***M (SD)***	**Significant Class Comparisons**
Parental Monitoring	1.891 ()	2.626()	2.196 ()	2.084 ()	1<2; p=.000 1<3; p=.018 1<4; p=.012
Neighborhood Violence	1.672()	2.146()	2.006()	1.909	1<2; p=.000 1<3; p=.002 1<4; p=.012 2>3; p=.026 2>4; p=.048
Racism G7	1.572	1.944	1.000	1.840	1<2; p=.000 1>3; p=.000
Racism G8	1.684	1.897	1.203	1.761	1<2; p=.050 1>3; p=.037 1<4; p=.028

Figure 3. Latent Transition Analysis Progress Digress