

2005

Early problem behavior and the development of depressive symptoms in school age children.

Susan M. Meagher

University of Massachusetts Amherst

Follow this and additional works at: <https://scholarworks.umass.edu/theses>

Meagher, Susan M., "Early problem behavior and the development of depressive symptoms in school age children." (2005). *Masters Theses 1911 - February 2014*. 2434.

Retrieved from <https://scholarworks.umass.edu/theses/2434>

This thesis is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses 1911 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

★ UMass/AMHERST ★



312066 0288 9906 9

LD
3234
M268
2005
M482

EARLY PROBLEM BEHAVIOR AND THE DEVELOPMENT OF DEPRESSIVE
SYMPTOMS IN SCHOOL AGE CHILDREN

A Thesis Presented

by

SUSAN M. MEAGHER

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

September 2005

Clinical Psychology

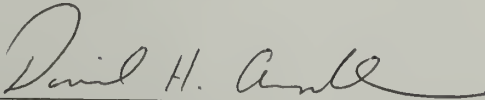
EARLY PROBLEM BEHAVIOR AND THE DEVELOPMENT OF DEPRESSIVE
SYMPTOMS IN SCHOOL AGE CHILDREN

A Thesis Presented

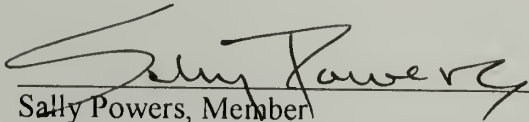
by

SUSAN M. MEAGHER

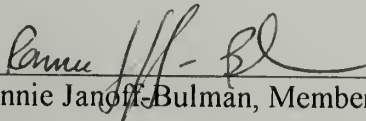
Approved as to style and content by:



David H. Arnold, Chair



Sally Powers, Member



Ronnie Janoff-Bulman, Member



Melinda A. Novak, Department Head
Psychology

ABSTRACT

EARLY PROBLEM BEHAVIOR AND THE DEVELOPMENT OF DEPRESSIVE SYMPTOMS IN SCHOOL AGE CHILDREN

SEPTEMBER 2005

SUSAN M. MEAGHER, B.A., BROWN UNIVERSITY
M.S., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor David H. Arnold

The present study examined the relationship between early externalizing behaviors and the development of depressive symptoms approximately three years later. In addition, the study tested gender and ethnic status as potential moderators of this hypothesized relationship. Participants included 54 children, their mothers, and their teachers. Teacher reports of internalizing and externalizing behaviors were obtained while children were in preschool. Children's self-reports of depressive symptoms were collected approximately three years later. Overall levels of externalizing problems did not predict later depressive symptoms. However, gender moderated the relationship between scores from the delinquent problems subscale of externalizing problems and later depressive symptoms. Girls' levels of delinquency scores were a stronger predictor of later depressive symptoms than boys' levels of delinquent behavior. A positive association was also found for the relationship between thought problems at preschool and later depressive symptoms. In addition, results showed tentative support for ethnic differences in the relationship between certain types of problem behavior and the development of depressive symptoms.

CONTENTS

	Page
ABSTRACT.....	iii
LIST OF TABLES.....	v
CHAPTER	
1. INTRODUCTION.....	1
Externalizing and Internalizing Problems in Children.....	1
Role of Gender Socialization.....	5
Study Rationale.....	7
2. METHOD.....	8
Participants.....	8
Procedure.....	9
Measures.....	9
3. RESULTS.....	11
Descriptive Statistics.....	11
Gender Differences.....	11
Plan of Analyses.....	11
Problem Behavior, Gender and Depressive Symptoms.....	12
Problem Behavior, Ethnicity and Depressive Symptoms.....	13
4. DISCUSSION.....	15
BIBLIOGRAPHY.....	24

LIST OF TABLES

Table		Page
1.	Mean T-Scores for Measures of Child Behavior	21
2.	Mean Scores for Measures of Child Behavior by Sex	22
3.	Mean Scores for Measures of Child Behavior by Ethnicity	23

INTRODUCTION

Externalizing and Internalizing Problems in Children

The need for early identification of socio-emotional difficulties in children cannot be overstated. Greater understanding of the early stages of psychopathology adds to our theoretical knowledge and allows for the development of effective prevention and intervention programs. Moreover, early identification provides hope for treatment before problems become well entrenched and more difficult to ameliorate. While many recognize the need for greater understanding and early prevention, efforts become mired in the complexity of children's distress (Hammen & Compas, 1994). The identification of problems is complicated by mounting evidence that a child often exhibits externalizing and internalizing behaviors concomitantly or experiences a shift in symptoms.

Traditionally, researchers have examined the distinction between externalizing and internalizing disorders, particularly with regards to childhood psychopathology.

Established gender differences in the prevalence rates have added to the distinctions between categories (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). More recent work, however, raises questions about the limits of these categories, as findings suggest high correlations between externalizing and internalizing symptoms (Birmaher & Rozel, 2003; Hammen & Compas, 1994; Keiley, Bates, Dodge, & Pettit, 2000; Lilienfeld, 2003).

We need to understand how these two categories of problems relate to one another and what this connection might mean for gender differences in the expression of and identification of socio-emotional difficulties. The current project will examine the connection among early behavioral problems, gender, and developmental changes in

psychological distress. Theoretical support for this study stems from a developmental psychopathology perspective, a field concerned with understanding the origins, pathways and reorganization of maladaptive behavior across different developmental stages (Sroufe & Rutter, 1984). In the present study, the relationship between early externalizing problems and the development of later depressive symptoms will be examined as a means to explore different ways problem behavior in preschool might impact later adjustment.

Externalizing problems identified as early as preschool can show both stability and acceleration over time (Kazdin, 1997; Smith, Calkins, & Keane, 2004). These early behavioral problems are associated strongly with the development of later disorders and problems such as Oppositional Defiant Disorder, Conduct Disorder (Campbell, March, & Pierce, 1991; Kazdin, 1997), and academic failure (Arnold & Doctoroff, 2003). These types of problems also show strong evidence of gender differences in their progression. Despite equal rates of externalizing problems among boys and girls in preschool, these problems begin to affect a disproportionate number of boys by school age (Keenan & Shaw, 1997).

As researchers gain more insight into externalizing behaviors and later problems, the precursors and early stages of internalizing problems continue to elude our understanding (Prior, Smart, Sanson, & Oberklaid, 1993). This gap in knowledge is not surprising given that internalizing problems are characterized by behaviors and emotions turned inward upon the self. Due to the internal nature of such problems, they are more difficult to identify than externally directed behaviors, especially in younger children (Birmaher & Rozel, 2003). Nevertheless, internalizing problems identified at a young age are associated with later maladjustment. Depressive symptoms among first graders,

for example, have shown significant prognostic value to levels of depression and adaptive functioning at 5th grade (Ialongo, Edelsohn, Werthamer-Larsson, Crockett & Kellam, 1993). Depressive symptoms in elementary school are negatively correlated with levels of social and academic competence, with incompetence showing a cumulative effect on levels of depressive symptoms over time (Cole, 1990; Puura et al., 1998). One of the more interesting and still largely unknown aspects of childhood psychopathology is the role of gender differences. In sharp contrast to data on externalizing problems, gender differences in the prevalence of internalizing problems among preschool and school age children remains in question. Some research shows equal rates between boys and girls in both community and clinical populations (Birmaher & Rozel, 2003; Keenan & Shaw, 1997; Prior et al., 1993). Other analyses report higher levels of internalizing problems in young boys as compared to their female counterparts (Nolen-Hoeksema, 1990; Zahn-Waxler et al., 2000), particularly when co-occurring externalizing problems are present (Somersalo, Solanta, & Almqvist, 1999). On the other hand, several longitudinal studies have found being female to be a significant predictor of higher rates of internalizing symptoms among school age children (Achenbach, Howell, & Quay, 1991; Keiley, Lofthouse, Bates, Dodge & Pettit, 2003; Somersalo et al., 1999).

Despite these contradictory findings, researchers do agree that in time depression disproportionately affects females. Adolescent rates of depression parallel those of adult populations with depression in women outnumbering that in men 2 to 1 (Hankin & Abramson, 2001; Nolen-Hoeksema, 1990; Nolen-Hoeksema & Girgus, 1994; Powers & Welsh, 1999). Although the pathways leading to this dramatic shift are unclear, researchers have begun to examine ways in which childhood distress might forecast later

depression (Costello, Angold, & Keeler, 1999; Egeland, Pianta, & Ogawa, 1996). For example, Egeland et al. (1996) found a strong relationship between school age problems and psychopathology in adolescence. Interestingly, they did not find continuity within problem types, asserting that “internalizing and externalizing symptom clusters do not unfold over time in a homotypic fashion” (Egeland et al., 1996, p.747). The authors conclude that depression and anxiety are more likely to occur in adolescents who have an early history of psychological problems of *any* form. In addition, they found that externalizing problems at school age predicted later depression in girls but not in adolescent boys, with boys showing less cross over between affective and behavioral problems (Egeland et al., 1996). Similarly, in a longitudinal study of adolescent consequences of childhood distress, Costello et al. (1999) found that non-clinical levels of emotional distress in elementary school children placed girls but not boys at significantly increased risk to develop an emotional disorder in later years.

Such findings suggest that socio-emotional disorders manifest differently over time and in gender specific ways. However, more research is needed on earlier developmental stages to understand more fully these changing pathways. Concerning gender differences, in particular, there remains a disconnect between our understanding of early behavior and its connection to later depression. An important starting point would be to examine whether early externalizing behaviors relate to the development of depressive symptoms in the years just after preschool. It is logical that the risk factors implicated in the development of early behavioral problems could also greatly impact the development of depressive symptoms. Looking specifically at the temporal relationship between early problem behaviors and the development of depression would contribute to

our understanding of how and why internalizing problems begin. Developmental changes in social relationships and self-awareness are implicated in this relationship as well as the increasing impact of negative life events (Nolen-Hoeksema, Girgus & Seligman, 1992). In light of the overwhelming prevalence of co-occurring internalizing and externalizing problems, longitudinal research that examines the relationship between problem types is needed.

Role of Gender Socialization

The role of gender socialization should also be considered as an influence on maladaptive patterns. Although girls are seen as more developmentally ready to adapt to the increasing demands of school (Keenan & Shaw, 1997), they are also socialized to be more attuned to social relationships (Gilligan, 1982; Zahn-Waxler, 2000). Consistent with related research, it is possible that the ripple effects of early problem behavior on social relationships could prove more salient to girls in the development of inwardly expressed negativity (Bandura, Pastorelli, Barbaranelli, & Caprara., 1999; Cole, 1990; Nolen-Hoeksema & Girgus, 1994). In a prospective study of socio-cognitive influences on depression among middle-schoolers, Bandura et al. (1999) found that “perceived social inefficacy” was more strongly associated with girls’ concurrent depressive symptoms than boys, and this association predicted the stability of depression over time. This line of research suggests that the relationship between social relationships and self-appraisal is stronger for girls. As proposed by the present study, the transition into elementary school offers one important and understudied period to look at these issues.

The current study will look at the relationship between early problem behavior and depressive symptoms and possible gender differences in this relationship. This

study's aims are directly supported by at least two previous studies. In their large-scale epidemiological study, Fischer, Rolf, Hasazi, & Cummings (1984) found little evidence for the continuity of internalizing symptoms assessed at preschool age and again at a 7-year follow-up. They did find, however, associations between early levels of externalizing behavior and subsequent levels of internalizing behaviors at follow-up. Similarly, Rose, Rose, & Feldman (1989) found that externalizing symptoms at age 2 predicted levels of internalizing problems at age 5. Taken together, these studies demonstrate the possibility of a connection between early behavioral problems and the development of internalizing symptoms.

While these previous studies provide support for the possibility that early externalizing symptoms predict later internalizing problems, they are limited by their reliance on parent and teacher reports of internalizing symptoms. Research suggests that parents and teachers are poor reporters of young children's depressive symptoms for several reasons (Keiley et al., 2000; Angold, Weissman, & John, 1987; Puura et al., 1998). Since externalizing and internalizing problems often co-occur, adult informants may be more influenced by overt behaviors than by the subtler symptoms of depression, leading to possible underreporting or misinterpretation of problems (Bandura et al., 1999; Keiley et al., 2000). In these cases, children with both externalizing and internalizing problems may be identified for disruptive behavior but their internalizing problems remain unnoticed (Puura et al., 1998; Zahn-Waxler et al., 2000). Alternatively, studies showing discrepancy between teacher and parent reports of children's internalizing symptoms could reflect the domain specificity of socio-emotional behavior, where certain settings elicit different behaviors and emotions than others (Keiley et al., 2000). Children

may learn to suppress negative emotion in the more public setting of school or, it could be that home triggers negative emotionality more so than school (or vice versa). At the same time, informant discrepancy also might speak to the complexity of problems such that adult informants report on different aspects of a child's behavioral and emotional state than captured by self-report (Achenbach, McConaughty, & Howell, 1987).

Nevertheless, strong support exists for the use of self-report in the identification of internalizing problems. First, self-reports minimize biased reporting from adult informants whose more general, established relationships with a child most likely impact their reporting on specific behaviors. One recent study comparing mother, father and teacher reports on child behavior among five and six year olds found reporting disagreement highest for internalizing problems (Grietens et al., 2004). Moreover, studies which include child self-report of internalizing problems consistently show that children report more distress than identified by their parents, suggesting that parents are unaware of the full extent of their children's internal thoughts and feelings (Angold et al., 1987; Epkins, 1996; Hammen & Compas, 1994; Kazdin & Petti, 1982; Puura et al., 1998). Teachers are even more likely to underreport children's distress as compared to parents (Achenbach, et al., 1987). Given the level of discrepancy across informants and the subjective nature of emotional problems, child self-report is offered as the most reliable and valid approach to measuring depression in school-age children (Bandura et al., 1999; Hammen & Compas, 1994). In addition, the use of self-report as the outcome measure in the current study will reduce shared method variance among variables.

Study Rationale

This longitudinal study is the first to examine whether preschool externalizing difficulties predict self-reported depressive symptoms at school age. Two main questions were addressed. First, does the presence of externalizing problems in preschool predict depressive symptoms at ages 7-8? It was expected that children with externalizing problems in early childhood would show higher levels of depressive symptoms at school age, controlling for initial levels of internalizing symptoms. The second question was whether this association is different for boys and girls. Extant research on gender differences and socio-emotional problems among school age children remains inconclusive. It was hypothesized that gender would moderate the relationship such that externalizing problems in preschool girls would be a stronger predictor of later depressive symptoms than for boys. Exploratory analyses also examined potential differences among cultural groups. Given the dearth of research in this area, no specific hypotheses guide these analyses.

Specific strengths of the present study include the longitudinal design spanning an important developmental transition and the use of a self-report of depressive symptoms as the outcome measure. To the best of my knowledge, this is only the second study to look directly at the connection between behavioral problems and depressive symptoms from preschool to school age, and the first to utilize self-report data to examine this question. Finally, the study includes a diverse community sample at high risk for mental health problems that has been underrepresented in previous research.

METHOD

Participants

This study utilized data from a larger study. The sample includes 54 children, their mothers, and their teachers recruited from seven childcare centers in the Springfield, Massachusetts area. Five of the seven centers serve economically disadvantaged families from ethnically diverse backgrounds, and the two remaining centers serve predominantly Caucasian families with higher socioeconomic status. The ethnic background of child participants is 13% African American, 35% Hispanic, 10% biracial, and 42% Caucasian. The sample contains approximately equal numbers of boys and girls (24 boys). The mean age of child participants at the beginning of the study was 4.4 years. Children's ages averaged 7.6 years old at study end.

Procedure

Parents learned about the study through a letter sent home with children from each daycare center. Families interested in participating attended a 2-hour meeting that included parents completing demographic questionnaires. Teachers completed assessments of child behavior for each child in their class participating in the study. In situations with more than one teacher in a classroom, all teachers completed questionnaires. Approximately three years later (Time 2), parents were contacted to arrange a home visit. During this visit, children completed a self-report measure of depressive symptoms.

Measures

Teacher report of externalizing and internalizing behaviors. The Child Behavior Checklist-Teacher Report Form (CBC-TRF; Achenbach, 1991b) was administered to teachers to measure a range of behaviors displayed by each child in the classroom. In classrooms where more than one teacher filled out the form, an average score from their

responses was taken. This 113-item scale yields a total scale score (Total Problems) and two primary scale scores (Externalizing and Internalizing). The Externalizing Scale score is based on Delinquent Behavior and Aggressive Behavior subscale scores. The delinquent subscale has subsequently been renamed to “rule-breaking behavior” in the most recent version of the TRF-CBC (Achenbach & Rescorla, 2001). For the purpose of this paper, the subscale will be referred to as “delinquent behavior” in order to remain consistent with its name during data collection. It should be noted, however, that the “delinquent” title is misleading and that “rule-breaking behavior” provides a more accurate description of its items, which include lying, cursing, and befriending others who get in trouble. The Internalizing Scale score is based on Withdrawn, Somatic Complaints, and Anxious/Depressed subscale scores. Three independent problem clusters of Social, Thought and Attention problems are also assessed. The Internalizing Scale of this measure was used to control for initial levels of internalizing symptoms. The CBC-TRF has been standardized for use with children between the ages of 4 and 18 and has been used extensively with preschool children. Strong reliability and validity data has been established for this measure among community samples (Achenbach, 1991b).

Child report of depressive symptoms. At time 2, children completed the Childhood Depression Inventory, a 27-item self-report scale designed to measure depressive symptoms in school-age children and adolescents (Kovacs, 1985). A range of affective, cognitive and behavioral symptoms of depression is assessed, and items are divided into three levels of severity (*e.g.*, “I am sometimes sad”, “I am often sad”, “I am always sad.”). Children indicate which statement describes them best within the

past two weeks. Adequate reliability and validity have been established for this measure for this age group, especially for non-clinical populations (Saylor, Finch, Spirito & Bennett, 1984).

RESULTS

Descriptive Statistics

Descriptive statistics presented in Table 1 provide information about children's internalizing and externalizing problems based on teacher ratings and child self-report. The number of children included in the analyses varied slightly due to occasional missing data for some children. Children in the sample demonstrated average levels of total behavior problems (Sample Mean T-score for Total Problems = 48). Teachers' ratings of children's internalizing symptoms at preschool were not significantly related to children's CDI scores three years later ($r = .10$).

Gender Differences

T-tests were performed to examine mean differences between girls and boys on measures of internalizing and externalizing problems. Boys and girls did not differ significantly on any measure (all $ps > .05$). The results of the t-tests are summarized in Table 2.

Plan of Analyses

Unstandardized scores were used throughout the analyses, to allow for comparison across children without the gender-adjustments of T-scores. All regression analyses were run controlling for gender and initial levels of internalizing symptoms using teacher ratings on the internalizing subscale of the CBC-TRF. The first set of analyses tested whether preschool symptoms predicted later CDI scores. For each

measure of early symptoms, a regression was first run with the symptom scale as well as gender and initial internalizing scores. An interaction variable was then added to test the hypothesis that the association between early problems and later internalizing symptoms might differ depending on child gender. Correlations were run to determine the direction of associations for the interactions. The second set of analyses took the same approach to examining whether preschool behavioral measures and ethnicity interacted in predicting CDI scores.

Problem Behavior, Gender and Depressive Symptoms

Externalizing scores from the total externalizing symptoms scale were not a significant predictor of later depressive symptoms on the CDI ($\beta = .09, SE = .15, p = .54$). There was no significant interaction between externalizing scores and gender in predicting CDI scores (interaction $\beta = -.30, SE = .23, p = .19$).

To examine whether particular subtypes of externalizing behaviors might be related to the development of depressive symptoms, subscales of the CBC-TRF were analyzed individually. CDI scores were regressed on scores from the delinquent behavior subscale of the CBC and gender. Overall, scores from the delinquent behavior subscale did not significantly predict CDI scores ($\beta = .89, SE = .97, p = .36$). However, there was a significant interaction between delinquency scores and gender (interaction $\beta = -3.82, SE = 1.54, p = .02$). The relationship between early delinquency scores and later depressive symptoms was found to be both stronger and positively correlated for girls ($r = .41$) compared to a weaker, negative relationship for boys ($r = -.21$).

The relationship between the aggressive subscale of the CBC-TRF and children's CDI scores was also analyzed. Aggression scores were not a significant predictor of CDI

scores ($\beta = .09, SE = .16, p = .60$) nor was the interaction between the two independent variables significant (interaction $\beta = -.27, SE = .25, p = .29$)

Attention, social, and thought problems from the CBC-TRF were also analyzed in relation to CDI scores. It was hypothesized that these problems that do not fall within the dimensions of externalizing and internalizing difficulties, but nevertheless impact a child's interpersonal relationships, might also contribute later difficulties. CDI scores were regressed on the attention problems scale scores. Attention problems did not significantly predict depressive symptoms ($\beta = .11, SE = .21, p = .60$). There was no significant interaction between attention scores and gender in the prediction of CDI scores (interaction $\beta = .22, SE = .31, p = .48$).

CBC-TRF rating of social problems approached significance in the prediction of CDI scores ($\beta = 1.18, SE = .60, p = .06$). The trend suggests that there may be a positive association between social problems and depressive symptoms ($r = .23$). No significant interaction between the two independent variables was found (interaction $\beta = -.11, SE = .74, p = .88$).

A main effect for the relationship between thought problems and later depressive symptoms was found ($\beta = 3.47, SE = 1.42, p = .02$). No significant interaction between thought problems and gender was found (interaction $\beta = -3.49, SE = 2.37, p = .15$).

Problem Behavior, Ethnicity and Depressive Symptoms

Subsequent analyses looked at the relationship among problem behavior, ethnicity and depressive symptoms. Due to power limitations, analyses could not be performed on all ethnic groups within the sample. The following regression analyses test ethnic differences between Caucasian children ($N = 22$) and Puerto Rican children ($N = 21$),

where Caucasian is coded as 1 and Puerto Rican as 0. Preschool internalizing symptoms were again used as a control variable in the equations. Only the interaction equations for these analyses are included, as main effects are captured by the above analyses.

The descriptive statistics presented in Table 3 provide internalizing and externalizing symptoms levels based on teacher ratings and child self-report. T-tests were performed to examine mean differences between Caucasian and Puerto Rican children in the sample. Children from these two ethnic groups did not differ significantly on any measure (all $ps > .05$).

To examine differences among cultural groups in the relationship between early externalizing behavior and later depressive symptoms, CDI scores were regressed on the total externalizing scale of the CBC-TRF. An interaction term was added to test the moderating effect of ethnicity. There was no significant interaction between externalizing scores and ethnicity in the prediction of CDI scores ($\beta = .13, SE = .47, p = .78$). Subscales of the externalizing scale were further analyzed for ethnic differences in the relationship between problem behavior scores and depressive symptoms. No significant interaction was found between delinquent behavior ($\beta = 2.69, SE = 2.62, p = .31$) or aggression ($\beta = -.01, SE = .53, p = .91$) and children's ethnicity. The independent scale scores of Attention, Social, and Thought Problems were also analyzed. CDI scores were regressed on attention scale scores. There was no significant interaction between attention difficulties ($\beta = -.01, SE = .59, p = .91$) or social problems ($\beta = 1.34, SE = 1.46, p = .36$) and ethnicity in the prediction of CDI scores.

There was a significant interaction between ethnicity and thought problem scores ($\beta = 5.80, SE = 2.86, p = .05$), such that Caucasian children's thought problem scores

were a stronger predictor of their CDI scores ($r = .52$) than those of Puerto Rican children's CDI scores ($r = .28$).

DISCUSSION

This study examined the relationship between early externalizing behaviors and the development of depressive symptoms approximately three years later. An overall aim of the study was to further our understanding of the developmental pathways of early problem behavior. It was hypothesized that the developmental transition of school entry would be an important period to examine potential changes in these pathways. Few studies have looked at the cross over between externalizing and internalizing behaviors in a longitudinal design among young children. While these studies suggest that externalizing and internalizing problems are related over time (Fischer et al., 1984; Keiley et al., 2000; Rose et al., 1984), none have had the advantage of children's self-report of depressive symptoms.

Based on previous research, it was hypothesized that early problem behavior would predict the development of depressive symptoms. This study also tested whether this relationship is moderated by gender and/or ethnic status. The main hypothesis of the study was partially supported. Overall levels of teacher reported externalizing behaviors did not predict scores from the CDI, nor was this relationship moderated by gender. However, the externalizing subscale of delinquent (rule-breaking) behavior did show a significant interaction in the prediction of depressive symptoms between level of externalizing behaviors and child gender. Girls' levels of this type of problem behavior (e.g., cursing, lying) showed a stronger association with later depressive symptoms than among boys. There are several possible explanations for this finding. Before interpreting

the gender difference, it is important to consider why problem behaviors in preschool might lead to the development of internalizing problems in elementary school. First, it is still unclear exactly what depressive symptoms look like in young children. It could be the case that the acting out behaviors captured by the delinquency subscale are related directly to feelings associated with childhood depression such as low self-esteem, irritability, and negative affect. At the preschool level, children's understanding of the distinction between themselves and others is not yet fully developed. Thus, delinquent behavior could be a manifestation of negative feelings about the self that have not been fully differentiated from the world. Delinquent behavior might particularly speak to children's feelings of non-conformity. In earlier years, a sense of misunderstanding between the child and what is expected of him/her is more likely to be displayed in acting out behavior. As the child matures, similar feelings might turn inward as the sense of self is more developed.

The interaction effect found between delinquent behavior and child gender suggests that mediators related to gender socialization processes might be an important influence in this relationship. Research on the development of internalizing symptoms shows a mediating effect of peer rejection between early conduct problems and later internalizing symptoms (Keiley et al., 2000). Studies have shown that behavior problems show a bi-directional relationship with peer rejection and social isolation, which fosters negative feelings about the self and one's social efficacy. As discussed previously, there is some evidence to suggest that peer problems associated with problem behavior might have an especially negative impact on girls' self-esteem (Bandura et al., 1999). While the current study did not measure mechanisms in the relationship between problem

behavior and depressive symptoms, these findings extend previous work in gender differences as they relate to problem behavior. Given the fact that gender socialization practices emphasize social conformity in girls, there may be less acceptance of girls' socially deviant behavior. Rule-breaking among girls may draw more attention, which in turn may elicit more peer, teacher and parent disapproval than similar behavior in boys. The effect of peer and adult disapproval could account for the stronger association with later depressive symptoms found for girls. It is also possible that rule-breaking at such a young age indicates a higher level of distress in girls than the other dimension of externalizing problems, aggressive behavior, which is more commonly seen across both sexes in preschool.

A main effect was found for the association between children's level of thought problems and later depressive symptoms. The thought problems scale corresponds with "atypical" behaviors including items such as "Harms self," "Hears things", "Strange behavior", "Strange ideas" and "Stores things". Similar to delinquent behavior, this cluster of problems relates to socially deviant behaviors. The finding that thought problems are predictive of depressive symptoms supports the idea that behaviors which place children more at-risk for social isolation and adult disapproval show developmental change in their outcomes. While both of these significant results provide evidence for the relationship between early problem behavior and later internalizing symptoms, the pattern of the results underscore the nuances of outcomes in relation to particular types of problems. The gender interaction found for delinquent behavior but not for thought problems provides further support that acting out behaviors more than atypical behavior (e.g., independent problem scales) have different developmental trajectories for boys and

girls . It could be that there is a higher social price paid for outwardly directed negativity in girls, or that both girls and boys suffer socially for these behaviors, but girls internalize the social rejection more. Although these hypotheses remain speculative, they underscore the need for further research on how the early gender socialization of girls and boys impacts later developmental processes.

The role of social consequences in the developmental course of problem behavior is supported by the trend showing a positive association between preschool scores on the social problems scale and later depressive symptoms. A stronger effect would be expected given the established relationship between social difficulties and internalizing symptoms (Keiley et al., 2000). It could be that during preschool social problems are not as fully recognizable as they are in later years. Thus, while the initial stages of social difficulties are beginning at this age, their identification by adults is less established. Future studies could look at the concurrent development of social problems and depressive symptoms over time.

The lack of findings regarding aggressive behavior and attention problems suggest that these types of problems may not contribute to later development of negative feelings about the self. However, the lack of findings is also not surprising given the small sample of the current study. A larger sample may have provided different results.

No predictions were made regarding possible ethnic differences in the relationship between early problem behavior and the development of depressive symptoms. Findings did not support a relationship moderated by ethnicity. Neither the interaction between ethnicity and total externalizing scores nor between ethnicity and scores from the externalizing subscales (i.e., delinquent and aggressive behaviors) was predictive of

depressive symptoms. It is possible that children's cultural background does not differentially impact the developmental course of early problem behavior. This lack of findings, however, should be interpreted cautiously given the small sample size used in these predictions.

In contrast to findings in the gender analyses, an interaction between ethnicity and thought problems was found in the prediction of later depressive symptoms. White children's levels of thought problems were more positively associated with later depressive symptoms, despite equal levels across groups. This association suggests that atypical behavior captured by the thought problems scale may have more punitive social consequences among White children leading to more inwardly expressed negativity. The exact relationship among problem behavior, social consequences and depressive symptoms would need to be tested to fully understand this finding. This interpretation is also limited by the confound between ethnic and socio-economic status in this sample. Among this population, ethnic minority status is highly correlated with lower economic status, thus effects interpreted as ethnic differences should also be understood as related to economic differences as well.

Limitations of the study include the correlational nature of the analyses. This type of analysis does not allow for predictions about causality, and directions among relationships remain unclear. The longitudinal design of the study, however, provides support for the temporal relationship between early problem behavior reported in preschool and later report of depressive symptoms. Limited by power size, this study did not consider other contextual factors such as SES status and other ethnic differences. Future research should consider how these relationships differ with regards to individual

child characteristics as well as the impact of other socio-cultural factors. It is also worth noting that the measurement of internalizing symptoms at preschool differed to some extent than the measurement at school age. The teacher report of internalizing symptoms includes anxiety symptoms in addition to depressive symptoms, whereas the outcome measure only looked at depressive symptoms. These findings should be replicated using a more comprehensive outcome measure of internalizing symptoms.

One of the main goals of this study was to extend findings related to preschool behavioral problems and provide information on childhood internalizing symptoms that would connect this area of research with existing findings on adolescent internalizing problems. Results from this study bring us closer to understanding how early adjustment can lead to different developmental outcomes. The findings that delinquent and atypical behavior are more related than other problem behaviors to the later depressive symptoms suggest that the social conformity aspect of these behaviors represent distinctive features in their developmental course. Results also indicate that the relationship between socially deviant problem behavior and later depressive symptoms is particularly strong for girls. Mechanisms involved in these processes, however, deserve further attention. Attention to the role of parents and peers could be especially illustrative. The use of observational data could add to this work by providing additional measurement of problems as well as information regarding interpersonal processes. Potential differences among cultural groups also warrant further investigation. Overall, this study provides further support for the development of interventions which are attuned to changes in the developmental course of problems as well as to the socio-cultural differences among target populations.

Table 1

Mean T-Scores for Measures of Child Behavior

Measure	M	SD	N
CBC-TRF– Externalizing			
Total Externalizing	51.70	9.56	54
Delinquency	54.25	4.90	54
Aggression	55.19	7.62	54
CBC-TRF – Internalizing			
	47.66	8.31	54
CBC-TRF- Independent Scales			
Social Problems	54.08	5.81	54
Thought Problems	53.07	5.24	54
Attention Problems	52.74	6.71	54
CDI (Depressive Symptoms)	48.59	9.75	54

Note: Teacher ratings on the CBC-TRF and self-report scores from the CDI were converted to T-scores to facilitate comparison to normative samples.

Table 2

Mean Scores for Measures of Child Behavior by Sex

Measure	Girls N=30		Boys N=24	
	M	SD	M	SD
CBC-TRF – Externalizing				
Total Externalizing	5.93	8.92	7.67	10.03
Delinquency	0.87	1.17	1.21	1.33
Aggression	5.06	8.01	6.46	9.02
CBC-TRF – Internalizing				
	4.02	6.11	4.29	3.80
CBC-TRF – Independent Scales				
Social Problems	1.69	2.93	1.90	2.63
Thought Problems	0.30	0.74	0.67	1.03
Attention Problems	3.52	6.34	5.56	7.76
CDI (Depressive Symptoms)	8.47	7.83	9.21	5.82

Note: Mean differences were non-significant on all measures (all $ps > .05$).

Table 3

Mean Scores for Measures of Child Behavior by Ethnicity

Measure	Caucasian		Puerto Rican	
	M	SD	M	SD
	n=22		n=21	
CBC-TRF – Externalizing				
Total Externalizing	5.88	5.87	3.43	5.14
Delinquency	1.05	1.08	0.71	0.87
Aggression	4.83	5.13	2.71	4.55
CBC-TRF – Internalizing	2.84	3.00	3.17	3.33
CBC-TRF- Independent Scales				
Social Problems	1.14	1.40	1.29	2.03
Thought Problems	0.34	0.61	0.50	1.06
Attention Problems	3.10	3.60	3.33	5.04
CDI (Depressive Symptoms)	8.73	9.10	8.81	5.67

Note: Mean differences were non-significant on all measures (all $ps > .05$).

BIBLIOGRAPHY

- Achenbach, T.M. (1991a). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington: University of Vermont Department of Psychiatry.
- _____. (1991b). *Manual for the Teacher's Report Form and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Achenbach, T.M., Howell, C.T., & Quay, H.C. (1991) National survey of problems and competencies among four- to sixteen-year-olds: Parents' reports for normative and clinical samples. *Monographs of the Society for Research in Child Development, 56(3)* i-120.
- Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213-232.
- Achenbach, T.M., & Rescorla, L.A. (2001). *Manual for the ASEBA School Age Forms & Profiles*. Burlington, VT: University of Vermont Research Center for Children, Youth and Families.
- Angold, A., Weissman, M., & John, K. (1987). Parent and child reports of depressive symptoms in children at low and high risk of depression. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 28(6)*, 901-915.
- Arnold, D.H. & Doctoroff, G. L. (2003). The early education of socioeconomically disadvantaged children. *Annual Review of Psychology, 54*, 517-545.
- Bandura, A., Pastorelli, C., Barbaranelli, C., & Caprara, G.V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology, 76*, 258-269.
- Birmaher, B. & Rozel, K. (2003). The school age child. In Goodyer, I. (Ed.). *Unipolar depression: A lifespan perspective*. Oxford: Oxford University Press.
- Boggs, S. R., Eyberg, S., & Reynolds, L. A. (1990). Concurrent validity of the Eyberg Child Behavior Inventory. *Journal of Clinical Child Psychology, 19*, 75-78.
- Campbell, S., March, C. L., & Pierce, E. (1991). Hard to manage preschool boys: Family context and the stability of externalizing behavior. *Journal of Abnormal Child Psychology, 19(3)*, 301-318.
- Cole, D.A. (1990). Relation of social and academic competence to depressive symptoms in childhood. *Journal of Abnormal Psychology, 99(4)*, 422-429.

- Costello E.J., Angold, A., & Keeler, G.P. (1999). Adolescent outcomes of childhood disorders: The consequences of severity and impairment. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38(2), 121-128.
- Egeland, B., Pianta, R., & Ogawa, J. (1996). Early behavior problems: Pathways to mental disorders in adolescence. *Development and Psychopathology*, 8, 735-749.
- Epkins, C.C. (1996). Parent ratings of children's depression, anxiety, and aggression: A cross-sample analysis of agreement and differences with child and teacher ratings. *Journal of Clinical Psychology*, 52(6), 599-608.
- Fischer, M., Rolf, J.E., Hasazi, J.E., & Cummings, L. (1984). Follow-up of a preschool epidemiological sample: Cross-age continuities and predictions of later adjustment with internalizing and externalizing dimensions of behavior. *Child Development*, 55, 137-155.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.
- Grietens, H., Onghena, P., Prinzie, P., Gadeyne, E., Van Assche, V., Ghesquiere, P. & Hellinckx, W. (2004). Comparison of mothers', fathers' and teachers' reports on problem behavior in 5- to 6-year-old children. *Journal of Psychopathology & Behavioral Assessment*, 26, 137-146.
- Hammen, C. & Compas, B.E. (1994). Unmasking unmasked depression in children and adolescents: The problem of comorbidity. *Clinical Psychology Review*, 14(6), 585-603.
- Hankin, B. L. & Abramson, L.Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability-transactional stress theory. *Psychological Bulletin*, 27(6), 773-796.
- Ialongo, N., Edelsohn, G., Werthamer-Larsson, L., Crockett, L., & Kellam, S. (1993). Are self-reported depressive symptoms in first-grade children developmentally transient phenomena? A further look. *Development and Psychopathology*, 5, 433-457.
- Kazdin, A. (1997). Conduct disorder across the life-span. In Luthar, S., Burack, J.A., Cicchetti, D., & Weisz, J.R. (Eds.) *Developmental Psychopathology: Perspectives on adjustment, risk and disorder* (pp.248-272). Cambridge: Cambridge University Press.
- Kazdin, A. & Petti, T. (1982). Self-report and interview measures of childhood and adolescent depression. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, Vol 23(4), 437-457.

- Keenan, K. & Shaw, D. (1997). Developmental and social influences on young girls' early problem behavior. *Psychological Bulletin*, *121*, 95-113.
- Keiley, M., Bates, J., Dodge, K., & Pettit, G. (2000). A cross-domain growth analysis: Externalizing and internalizing behaviors during 8 years of childhood. *Journal of Abnormal Child Psychology*, *28*(2), 161-179.
- Keiley, M., Lofthouse, N., Bates, J., Dodge, K. & Pettit, G. (2003). Differential risks of covarying and pure components in mother and teacher reports of externalizing and internalizing behavior across ages 5 to 14. *Journal of Abnormal Child Psychology*, *31*, 267-283.
- Kovacs, M. (1985). The Children's Depression Inventory. *Psychopharmacology Bulletin*, *21*, 995-998.
- Lilienfeld, S. O. (2003). Comorbidity between and within childhood externalizing and internalizing disorders: Reflections and directions. *Journal of Abnormal Child Psychology*, *31*(3), 285-291.
- Nolen-Hoeksema, S. (1990). *Sex differences in depression*. Stanford, CA: Stanford University Press.
- Nolen-Hoeksema, S., Girgus, J., & Seligman, M. (1992). Predictors and consequences of childhood depressive symptoms: A 5-year longitudinal study. *Journal of Abnormal Psychology*, *101*(3), 405-422.
- Nolen-Hoeksema, S. & Girgus, J.S. (1994). The emergence of gender differences in depression in adolescence. *Psychological Bulletin*, *115*, 424-443.
- Powers, S.I. & Welsh, D. P. (1999). Mother-daughter interactions and adolescent girls' depression. In M.J. Cox & J. Brooks-Gunn (Eds.) *Conflict and cohesion in families: Causes and consequences* (pp.243-281). Mahwah, NJ: Lawrence Erlbaum Associates.
- Prior, M., Smart, D., Sanson, A., & Oberklaid, F. (1993). Sex differences in psychological adjustment from infancy to 8 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32*, 291-305.
- Puura, K., Almqvist, F., Tamminen, T., Piha, J., Kumpulainen, K., Rasanen, E., Moilanen, I., & Koivisto, A. (1998). Children with symptoms of depression--What do adults see? *Journal of Child Psychology & Psychiatry & Allied Disciplines*, *39*(4), 577-585.
- Robinson, E.A., Eyberg, S., & Ross, A. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology*, *9*, 22-29.

- Rose, S.L., Rose, S.A., & Feldman, J.F. (1989). Stability of behavior problems in very young children. *Development and Psychopathology, 1*, 5-19.
- Saylor, C., Finch, A., Spirito, A., & Bennett, B. (1984). The Children's Depression Inventory: a systematic evaluation of psychometric properties. *Journal of Consulting and Clinical Psychology, 6*, 955-967.
- Smith, C., Calkins, S., & Keane, S. (2004). Predicting Stability and Change in Toddler Behavior Problems: Contributions of Maternal Behavior and Child Gender. *Developmental Psychology, 40*(1), 29-42.
- Somersalo, H., Solantaus, T. & Almqvist, F. (1999). Four-year course of teacher-reported internalizing, externalizing and comorbid syndromes in preadolescent children. *European Child & Adolescent Psychiatry, 8*(4), 89-97.
- Sroufe, A. & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55*, 17-29.
- Zahn-Waxler, C. (2000). The development of empathy, guilt, and internalization of distress: Implications for gender differences in internalizing and externalizing problems. In R. Davidson (Ed.), *Wisconsin Symposium on Emotion: Vol 1. Anxiety, depression, and emotion* (pp.222-265). Oxford: Oxford University Press.
- Zahn-Waxler, C., Klimes-Dougan, B., & Slattery, M. (2000). Internalizing problems of childhood and adolescence: Prospects, pitfalls, and progress in understanding the development of anxiety and depression. *Development and Psychopathology, 12*, 443-466.

