EXTERNALIZING BEHAVIORS OF LOW INCOME AND HIGH INCOME PRESCHOOL CHILDREN: A STUDY OF INCOME AS A PREDICTOR OF OBSERVER AND TEACHER RATINGS OF EXTERNALIZING BEHAVIORS

by

Angelica Dunbar

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Bachelor of Arts in Psychology with Distinction.

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by

Angelica Dunbar

Approved:  

Carroll Izard, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved:  

Brian Ackerman, Ph.D.
Committee member from the Department of Psychology

Approved:  

Nancy Jordan, Ph.D.
Committee member from the Board of Senior Thesis Readers

Approved:  

Ismat Shah, Ph.D.
Chair of the University Committee on Student and Faculty Honors
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TABLE OF CONTENTS

LIST OF FIGURES .................................................................................................................. v
ABSTRACT ...................................................................................................................... Error! Bookmark not defined.

Chapter

1 INTRODUCTION ................................................................................................................. 1

1.1 Present Study .................................................................................................................. 6

2 METHODS ......................................................................................................................... 9

2.1 Participants ..................................................................................................................... 9

2.2 Measures ....................................................................................................................... 10

2.3 Procedure ...................................................................................................................... 12

3 RESULTS .......................................................................................................................... 13

4 DISCUSSION ...................................................................................................................... 16

REFERENCES ...................................................................................................................... 26
APPENDIX ............................................................................................................................ 28
LIST OF FIGURES

1. Means and standard deviations of all variables………………………………………29
2. Correlations between outcome variables and predictor variables………………30
3. Correlations between outcome variables and predictor variables by Income
   Level…………………………………………………………………………………………31
ABSTRACT

The present study examined the association between income and externalizing behaviors in preschool children based on observer and teacher reports of behavior. We assessed 32 children of lower income and 25 children of higher income using the Direct Observation Form (DOF) and the Caregiver-Teacher Report Form (C-TRF). Using independent-samples T-tests, we examined the degree to which income predicted reports of externalizing behaviors in children as measured by each method. Additionally, we examined systematic discrepancies between teacher ratings and independent observers’ data for children of lower income families compared to children of higher income families. We hypothesized and found an inverse relationship between income and externalizing behaviors and additionally a lower inter-informant reliability between observers and teachers in the lower income population. Implications call for preventive programs designed to help children manage behavior problems and increasing teacher training on the accurate observation and assessment of the problem behaviors of young children at risk for psychopathology.
Chapter 1

INTRODUCTION

Development of effective preventative interventions for childhood behavior problems requires accurate assessment and early identification. The range of childhood behavioral problems varies but can range from problems characterized by inattention, poor concentration, aggression, and oppositional behavior to problems related to anxiety and depression (Nock & Kurtz 2005). Many of the former behavior problems can be grouped into a construct known as externalizing behavior problems. Externalizing behaviors refer to a child outwardly and negatively acting upon the external environment (Campbell, Shaw, & Gilliom, 2000; Eisenberg et al., 2001). Externalizing behaviors are marked by hyperactivity, opposition or non-compliance, conduct problems, low impulse control, and aggression (Campbell, et al., 2000).

Early emergence of externalizing behaviors in toddlers and preschoolers may serve as a developmental precursor predictive of later behavior problems carried into middle childhood and adolescence. Some childhood disorders defined by externalizing behaviors include attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD). In some cases, externalizing behaviors in young children may persist into adolescence and are
associated with the manifestation of delinquency, unemployment, high school drop out, and drug and alcohol abuse (Campbell et al., 2000). Negative outcomes are especially profound with the co-occurrence of two or more childhood externalizing disorders (Campbell et al., 2000).

Although a significant number of young children who display externalizing behavior may remain stable and persistent in their behaviors throughout childhood and even through adolescence, most do not (Campbell et al., 2000). Many young children exhibit signs of externalizing behaviors; the challenge is to disentangle normative transitional development from early emergence problem behaviors that could escalate into more serious problems.

Children from families of low income are at an increased risk of developing behavior problems that may persist into late childhood and adolescence. In a comprehensive literature review of the behavior problems of preschool children from low income families, Qi and Kaiser (2003) found that 30% of low income children were reported to have behavior problems compared to 3% to 6% of children from the general population. Specifically, externalizing behavior reports ranged on average from 16% to 30% in low income children. A study of low income children by Kaiser et al. (2000) found that 21% of boys and 13% of girls fell in the clinical range for externalizing behaviors. A similar study by Randolph et al. (2000) found that 27% of girls and 40% of boys had externalizing behavior problems.
There are multiple risk factors associated with behavior problems in young children of low socioeconomic status (SES) that place them at an increased risk. These factors include child characteristics such as language functioning, social skills, attachment style, cognitive ability, and gender; parent characteristics such as harsh discipline, maternal stress, depression, and an absent father; and sociodemographic factors such as family conflict, marital disorder, family instability, negative parenting styles, and community violence (Qi & Kaiser, 2003).

Post hoc analyses of recovered and maladaptive adolescents reported to display externalizing problems as young children revealed certain risk factors associated with persistently maladaptive adolescents. Studies found that adolescents still facing serious problems, compared to recovered adolescents, came from environments with high family stress and adversity, and ineffective parenting strategies (Moffitt et al., 1996; Campbell et al., 2000). Post hoc studies of maladaptive adolescents are in line with the previously discussed studies of at risk children revealing several similar risk factors. In order to employ primary or secondary intervention, early identification is imperative for children at increased risk for early emergent behavior to be exacerbated throughout the life course. By the time children are diagnosed during late elementary school or middle school they are often already resistant to treatment (Campbell et al., 2000).

To assess child behavior, researchers and clinicians utilize three dominant methods: parent, teacher, and independent observer reports. However, the literature
continually shows only modest agreement among informants (Campbell et al., 2000). There are a number of explanations for the disagreements between parents and teachers such as differences in perspective of child behavior, varying standards for what constitutes problem behaviors, and also inconsistencies in behavior across the home and school contexts (Campbell et al., 2000).

With high levels of inter-informant disagreement between teachers and parents, direct observation of children by independent observers has proved useful. Given that virtually all children in the US and other industrialized nations are required to attend school, many externalizing behavior problems are manifested in the school setting and bear a powerful impact on child development, social, and school performance (Nock & Kurtz, 2005). Therefore most observations take place in the classroom setting. The Individuals with Disabilities Education Act of 2004 requires school observation as a component of evaluation for students displaying behavior problems (Nock & Kurtz, 2005). Direct observation allows for the assessment of behaviors as they occur in their natural environments and has proven to be a better predictor of adjustment than parent and teacher ratings alone (Nock & Kurtz, 2005).

Theoretically, direct observation is the ideal and preferred method of behavior assessment, providing the most objective view of child behavior by capturing behavior as it is happening. Practically, however, direct observations are both timely and costly, thus professionals rely heavily on parent and teacher reports. Direct observation has its own limitations as do parent and teacher evaluations. In doing
direct observation, observers evaluate children on several occasions each for a short period of time. Behaviors that are not manifested in that short period are not captured, whereas teachers and parents gain a more general idea of the child’s behavioral patterns from continual interaction throughout the school day and at home. Therefore it is important to use multiple evaluation measures, collecting parent and teacher evaluations as well as direct observations. In some cases, inter-informant disagreement may be ascribed to structural differences between measures. In the current study we use the Direct Observation Form (DOF) (McConaughy & Achenbach, 2009) and the C-TRF (Achenbach & Rescorla, 2000), measures developed by the same authors and that have similar questions, in order to eliminate some of these issues. Although parent reports are important, for the purposes of this study we only focus on teacher reports and direct observation.

Disagreement between informants seems attributable not simply to measurement error but more to systematic differences in the perspectives and biases of the raters (Youngstrom, Loeber, & Magda, 2000). Teacher perspectives and ratings of children’s externalizing behaviors may be biased by the demographic characteristics of children in the classroom. Demographic factors including race, SES, and educational background of the informant have shown to correlate with level of inter-informant agreement (Youngstrom, Loeber, & Magda, 2000).

Demographic differences between teachers and children may affect teachers’ perception of what behaviors are seen as problematic. In a study comparing
observers’ and teachers’ reports on African American and Jamaican children, Puig, Lambert, Rowan, Winfrey, Lyubansky, Hannah, et al. (1999) found that U.S. teachers (primarily Caucasian) rated their African American students (living in the U.S.) almost twice as high as on the scales of aggression and delinquency than Jamaican teachers did their Jamaican students (living in Jamaica). Because teachers of the African American children were primarily European American, Puig et al. (1999) concluded that U.S. teachers may have had a lower tolerance toward the problem behaviors of African American children compared to Jamaican teachers who were of the same ethnicity as their students. Difference in tolerance due to cultural differences between U.S. teachers and African American children were thought to account for the higher problem ratings given by teachers (Puig et al., 1999). Ethnic similarities between the Jamaican teachers and children and the lack of ethnic similarities between European American teachers and their African American pupils had an effect on the level of problem behaviors perceived by teachers (Puig et al., 1999).

1.1 Present Study

Although there is much research on children and the evaluation of their externalizing behaviors, there is less information on how income relates to ratings of externalizing behaviors of young children by observers and teachers. A search of the literature revealed few empirical studies evaluating informant agreement on the behavioral ratings of ethnic minority and low income children. And only one study
was found (Phillips & Lonigan, 2010) making a comparison of informant agreement between low income (predominately minority) and high income (predominantly White) preschool children. While race and income are highly convergent demographic variables, there is little research evaluating teacher biases and child income as it relates to ratings of externalizing behaviors. Like race, income could similarly influence teachers’ perspectives of their students. In the current study, teachers of the lower income children, who might be aware of their students’ economic status, may be more biased than teachers of the higher income children. It is possible that teachers may have a lower tolerance level toward the problem behaviors of their lower income students, and thus rate them higher in externalizing behaviors.

The goal of the current study was to examine the degree to which income predicts reports of externalizing behaviors in children using two measures: the DOF and the C-TRF. In addition, we examined systematic discrepancies between teachers’ ratings and data from independent observers for children of lower income families compared to children of higher income families. First, we hypothesized that family income would have a negative correlation with the presence of externalizing behaviors in children on both measures. Children of families with lower income will show more externalizing behaviors. Second, we hypothesized that there would be lower inter-informant reliability between observers and teachers in the lower-income population than in higher income population. We expected teachers of the lower-income sample to rate their students higher in externalizing behaviors when compared to the ratings of
independent observers, and in the higher income sample we expected higher agreement between teachers and independent observers.
Chapter 2

METHOD

2.1 Participants

The participant sample included 57 children ranging from ages three to five. The sample included 32 children of lower income families and 25 children of higher income families. The sample was taken from two populations, a suburban preschool and several urban Head Start preschools. Although most of the suburban preschoolers were from higher income families, six children qualified for the Purchase of Care program in which the government pays for their education because their families cannot afford it. We interpreted this information as evidence of lower income status and included these families in the lower income group for analyses. The Head Start program is nationally funded and serves children from families who meet federal poverty guidelines or receive some form of public assistance. In the lower income group, 50% of the children were male. Seventy-two % were identified as African American, 25% as Hispanic, 6% Bi-racial, and 19% unknown. In the higher income group, the children were 48% male. Sixty-four % were identified as White, 20% Asian, 16% Black, and 4% Hispanic.
2.2 Measures

The Direct Observation Form (DOF) is a measure that rates children’s behaviors on several dimensions including attention, opposition, aggression, intrusion, immature/withdrawn behaviors, sluggish cognitive tempo, ADHD symptomatology, and total problems. According to the manual, trained observers should observe each child for 10 minute sessions in a classroom setting on 3-6 different occasions. During the 10 minute session, observers write a descriptive narrative noting the occurrence, duration, and intensity of specific behaviors, including antecedent and precedent events that may affect the child’s behavior. In addition, at the end of each minute, observers note whether the child is on task or off task. After the 10 minutes of observation, the observer rates the child on a scale of 0-3 for 89 itemized behaviors which reflect the previously stated dimensions of behavior. The scale reflects the duration and intensity of each observed behavior. The DOF is designed to capture a wide range of possible behavior problems in children (McConaughy & Achenbach, 2009).

In the current study, we modified the DOF to include 41 items across the four dimensions of behavior that best capture externalizing problems: attention, opposition, aggression, and intrusion. The DOF is a standardized measure usually used to assess elementary school children; however, for the purposes of this study, we used a modified version to assess preschool aged children. We observed children during free
play only. We believed this would allow more opportunity to capture externalizing behaviors for the preschool age group as opposed to structured time.

We used the Caregiver-Teacher Report Form (C-TRF) to obtain teacher and parent ratings of child externalizing behaviors. The C-TRF is a 99 item standardized problem checklist for measuring externalizing and internalizing behaviors (Achenbach & Rescorla, 2000). The C-TRF includes two dimensions for measuring externalizing behaviors: aggressive behavior and attention problems. Teachers rate items on a scale from 0 to 2 reflecting how true the behavior is of the child (Achenbach & Rescorla, 2000).

The Peabody Picture Vocabulary Test—Third Edition (PPVT-III) (Dunn & Dunn, 1997) provided a measure of receptive vocabulary and an estimate of cognitive ability. The PPVT-III is individually administered, norm-referenced assessments for which raw scores can be standardized. The PPVT-III (α = .94) correlates .90 with a measure of general intelligence in children (Dunn & Dunn, 1997). Each page of the PPVT-III test booklet has four pictures on it. The examiner says a word and asks the child to point to the picture that the word represents. Verbal ability is a known correlate of externalizing behavior and was thus included in analyses as a control variable (Cook et al., 1993).
2.3 Procedure

We randomly selected and observed 32 lower income children and 25 higher income children at a suburban preschool and several urban Head Start preschools. Independent observers assessed all children using the DOF in the classroom setting during free play only. Each child was observed for 10 minutes on two separate occasions. We also collected teacher ratings of each child on the C-TRF.
Chapter 3

RESULTS

All the means and descriptive statistics for this study are in Table 1. We conducted t-tests to look for differences between the groups on verbal ability and age, both of which are variables that are known to relate to externalizing behavior (Cook et al., 1993; need on for age). The means for these two variables, for each income level, broken down by income are in Table 1. A t-test revealed that on average, children in the lower income sample were older than those in the higher income sample ($t(54) = 3.03, p=.004$). A t-test measuring differences on verbal ability between groups revealed that on average, children in the lower income sample scored lower in verbal ability than those in the high income sample ($t(48) = -4.63, p<.001$).

As a result of the differences in age and verbal ability between the two income groups, correlations were conducted in order to evaluate relations among the predictor/demographic variables and the two outcome variables. Correlations among all variables for the total sample are in Table 2. Correlations among all variables for each income group separately are in Table 3. Pearson correlations were used for all analyses of continuous variables. The spearman correlation was used with gender, ethnicity, and income, the dichotomous variables. Although, as discussed previously,
t-tests revealed a significant difference in age and verbal ability between the two groups, neither age nor verbal ability correlated with either of the ratings of externalizing behavior. We found no significant correlations between predictor variables (age, gender, verbal ability, and ethnicity) and either outcome variable (DOF or C-TRF). Therefore these variables were not included in later analyses.

Income was then correlated with externalizing behavior to examine the overall relation between SES and behavior. Income was significantly correlated with the DOF scale ($r=-.30, p=.02$). There was an inverse relationship in which higher income was associated with lower externalizing scores on the DOF and lower income was associated with higher scores. However, income was not significantly correlated with the C-TRF ($r=.40, p=\text{ns}$), indicating no relation between teacher-rated externalizing scores and income.

We then looked at relations between the DOF and the C-TRF, overall and by income. There was a moderate positive correlation between the DOF and the C-TRF ($r=.38, p=.004$). When the two income groups were split, correlations revealed that for the lower income sample the DOF and the C-TRF were not significantly correlated ($r=.24, p>.05$). However, for the higher income sample there was a significant correlation between the DOF and the C-TRF ($r=.50, p=.01$). Children in this sample were rated similarly in externalizing behavior on both scales.

T-tests were conducted to examine differences in externalizing scores on both measures related to income. A t-test revealed a significant difference between low-
income (M=8.89) and middle/high income (M=6.95) children for the DOF, \( t(54) = 2.28, p=.03 \), where lower income children were rated higher in externalizing behavior than were higher income children. A t-test using C-TRF scores as the outcome variable revealed no significant difference between lower-income (M=9.37) and higher income (M=9.65) children \( (t(55) = -.85, p>.05) \).

A MANOVA was used to examine whether income significantly related to the different externalizing scores of the DOF and C-TRF. Correlations were used to determine potential confounding variables. None of the potential confounding variables, other than income (age, verbal ability, sex, and ethnicity), were significantly correlated with either outcome variable (DOF or C-TRF) as reported above and therefore they were not included in the model. A MANOVA revealed that income significantly predicted the DOF \( (F(1,55) = 5.214, p<.05) \) but not the C-TRF \( (F(1,55)= 1.079, p=\text{n.s.}) \).
According to previous research, children from lower income families are at greater risk of developing behavior problems that could persist into late childhood and adolescence than children of higher income. Specifically, children of lower income families tend to exhibit higher rates of externalizing behaviors than those of higher income (Qi & Kaiser, 2003). Teacher and parent assessments are the primary methods used to assess child behavior. Although observation by independently trained observers is the ideal method of evaluation, they can be quite expensive and time consuming. Research indicates only modest agreement among informants (Campbell et al., 2000), and less agreement particularly for children of low income and ethnic minority backgrounds (Phillips & Lonigan, 2010). There is little research evaluating informant agreement on behavioral ratings of low income and ethnic minority children, and only one study to our knowledge comparing agreement between low income and high income children. The present study sought to address some of these issues and has yielded some significant findings.

In accordance with literature on the externalizing behaviors of children, we hypothesized that children of lower income would exhibit higher rates of externalizing
behavior than children of higher income. The findings from the current study provided partial support for our first hypothesis that income would be negatively related to the presence of externalizing behaviors in young children. As supported by the literature, independent observers identified more externalizing behaviors in children of lower income than they did in children of higher income (Qi & Kaiser, 2003; Kaiser et al., 2000).

However, analysis of teacher reports did not support our first hypothesis. We expected that low income children would have higher scores of externalizing behavior according to the ratings of observers as well as teachers. However, teachers saw no significant difference between the externalizing behaviors of lower income children and higher income children. Teachers of the lower income population of children did not rate their students any differently than teachers of the higher income sample of children. The literature indicates that children of lower income do tend to exhibit higher levels of externalizing behaviors (Qi & Kaiser, 2003; Kaiser et al., 2000; Randolph et al., 2000), and data form the DOF supports this. The fact that independent observers using the DOF found behavior differences by income while teachers using the C-TRF did not poses some concern.

One of the main reasons for inter-informant disagreement, particularly between teachers and parents, includes the varying perspectives and standards of what constitutes problem behaviors in young children (Campbell et al., 2000). With such varying perspectives that could also be highly subjective, some researchers have
implemented the use of direct observation by independent raters (not familiar with the children or their backgrounds). Direct observation is the ideal form of observation, providing the most objective assessment of behavior and proven to be a better predictor of adjustment than teacher and parent ratings (Nock & Kurtz, 2005). Because independent observers in this study used the DOF, a standardized measure capturing behavior duration, frequency, and intensity, we believe observer ratings were more accurate and reliable than teacher ratings.

Research evaluating the phenomenon of disagreement between informants has found that teacher perspectives may be biased by demographic characteristics of the child, such as race and SES. Thus, knowledge of a child’s background may influence how a teacher views his/her behavior, and in turn, systematically bias ratings of externalizing behaviors (Youngstrom, Loeber, & Magda, 2000).

Our second hypothesis was based on the first hypothesis that teachers would rate children of lower income higher in externalizing behavior than children of higher income. In addition, building upon the first hypothesis and previous research, we predicted that teacher’s mean externalizing ratings of lower income children would be significantly higher than the ratings of independent observers. That is, we expected less agreement between teacher and observer ratings in the lower income group (with teachers rating students higher in externalizing behavior) and greater agreement in the higher income group.
We did find partial support for the second hypothesis. Significant correlations between observer and teacher ratings of externalizing behavior for the higher income group indicated inter-informant agreement, while there was no significant correlation between observer and teacher ratings in the lower income group. Thus, as expected, we found better agreement between teachers and observers for the higher income sample and less agreement between informants for the lower income sample.

Although results support stronger agreement between teacher and observer ratings for the higher income population than the lower income population, the difference between informants in the lower income population was in the opposite direction than predicted. Previous research supports that teachers may have more bias and lower tolerance to the problem behaviors of African American children, rating them higher in behavior problems (Puig et al., 1999; Phillips & Lonigan, 2010). Like race, income could produce similar biases in which teachers of lower income children may hold different behavioral expectations than teachers of higher income children. Based on this research we expected teachers of the lower income children in our study to rate children significantly higher in externalizing behavior than observers. In contrast, the findings revealed that teachers of the lower income children rated the children lower in externalizing behaviors than observers. Perhaps, when comparing children with similar levels of externalizing behavior, teachers become less sensitive to behaviors that are actually problematic. Future research should examine this further.
There are some limitations to this study. Previous research suggests the importance of similarities or differences between teachers and their students both in income and race (Puig et al., 1999; Phillips & Lonigan). Unfortunately, we were unable to ascertain information about teacher income or race. Although teachers’ perspectives of a child may be shaped by knowledge of the child’s income level regardless of the teacher’s own personal background, we do not know this for sure. Future research should take teacher income as well as child income into account when looking at inter-informant disagreement. Furthermore, race and class are highly convergent variables. Knowledge of child income may have an influence on teacher perspectives; however race of both the teacher and the child could play a determining role. It is important to note that the majority of children from our lower income sample were either African American or Hispanic, while the children in the higher income sample were mostly Caucasian and Asian. We did not measure similarities and differences of teacher and children by race.

Previous research shows that cultural differences and similarities between teachers and students could influence teacher perceptions of what behaviors are seen as problematic (Puig et al., 1999). Teachers tend to view the behaviors of their students as more problematic when they do not share a cultural background and teachers are reported to have more tolerance towards problem behaviors when they do have shared cultural background with their students (Puig et al., 1999). Perhaps our sample of children were culturally similar to their respective teachers which could
potentially explain why teachers saw no significant difference between the externalizing behaviors of lower income children and higher income children. Future studies should measure income and race of both teacher and children to investigate this possibility.

Several factors need to be taken into consideration when interpreting these results. Education on the questionnaire used to assess externalizing behavior could influence how teachers complete the form and could impact the accuracy of the assessment. Given differences in the resources of higher income preschools versus lower income preschools, teachers of the higher income preschools could have more training on how to properly use the measures to assess children than teachers of lower income.

Another factor to consider is how differences in the way teachers and observers assess children could also influence how children are rated. Teachers evaluate children with a more holistic view of general behavior while observers evaluate child behavior as it happens based on the duration and intensity of specific behaviors. However, in the current study, observations were only made during free play. It might be beneficial for future research to observe during different types of play including more structured time with the teacher. As we have seen in our study, externalizing ratings of children by independent observers provided support to the literature that lower income children do indeed exhibit more of these behaviors (Kaiser et al., 2000; Randolph et al., 2000)
These findings could have significant implications for the improvement of current intervention and preventative programs for young children at risk for psychopathology and maladjustment. Early emergent externalizing behavior in preschoolers may be predictive of later psychopathology, particularly in children of low income (Campbell et al., 2000). It is imperative to capture these behaviors early before they are exacerbated and less susceptible to treatment (Campbell et al., 2000). Some current programs include Family and Friends Together or FAST Track and the Incredible Years Series (Youth Violence, 2001). FAST Track targets children identified as disruptive in kindergarten and strives to strengthen links between the home, school, and child in order to prevent more serious and persistent conduct problems. Initial evaluations of FAST Track show no long term effect on children’s antisocial behavior although there are some short term improvements of children’s aggressive, disruptive, and oppositional behavior (Youth Violence, 2001). The Incredible Years Series targets at risk children age 3 to 8 and incorporates curricula for parents, teachers, and children aimed at preventing, reducing, and treating conduct problems. The teacher-training component seeks to improve classroom behavior management. Evaluations of this intervention show positive effects on child conduct at home (Youth Violence, 2001).

This study addressed some questions about inter-informant reliability on the accurate assessment of externalizing behavior problems in preschoolers. Compared to Fast Track, The Incredible Years Series targets younger children, and also places
emphasis on teacher-training. However neither program puts emphasis on teacher-training on the assessment of children. Our search revealed no studies that evaluated the effects of the training of teachers on the use of behavioral measurement instruments in the assessment of young children. Our findings support the use of direct observation in addition to teacher ratings of behavior. Direct observation is particularly important with low income children at risk for later psychopathology. Considering we found evidence for substantial inter-informant disagreement for this group it will be beneficial for future studies to examine possible contributing factors.

To this point research has focused more on the theory that teachers may have lower tolerance towards the behaviors of minority or lower income children. However, our findings suggest that teachers may actually have a higher tolerance towards this group of children, therefore rating them too low in externalizing behaviors when compared to direct observation ratings. Future study, taking into account the race and SES of both teachers and children should explore these different theories more in depth. Given the differences in teacher and observer ratings, our findings suggest that preventative programs should place a higher emphasis on training teachers for the accurate identification and assessment of at-risk children. Informant agreement on the externalizing behaviors of preschool children is a potentially significant issue for at-risk children of ethnic minority and low income families. The accurate assessment of behavior is imperative especially for this group who are at a greater risk to develop
later behavioral and psychological problems. The present study yielded some
important findings on this topic, which remains in great need of additional research.
REFERENCES


APPENDIX

TABLES
Table 1. Means and standard deviations of all variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
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</tbody>
</table>

Note. Externalizing behavior, Direct Observation Form (DOF) Externalizing Behavior scale score; Externalizing behavior, Caregiver-Teacher Report Form (C-TRF) Externalizing Behavior Scale score; Verbal Ability, Peabody Picture Vocabulary Test-III; Age, child age at middle of data collection.
Table 2. Correlations between outcome variables and predictor variables

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>DOF</th>
<th>CTRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Verbal Ability</td>
<td>-.164</td>
<td>.175</td>
</tr>
<tr>
<td>2. Age</td>
<td>.214</td>
<td>.004</td>
</tr>
<tr>
<td>3. Ethnicity</td>
<td>-.254</td>
<td>-.121</td>
</tr>
<tr>
<td>4. Sex</td>
<td>.157</td>
<td>.107</td>
</tr>
<tr>
<td>5. Income</td>
<td>-.304*</td>
<td>.107</td>
</tr>
</tbody>
</table>

*Note. Externalizing behavior, Direct Observation Form (DOF) Externalizing Behavior scale score; Externalizing behavior, Caregiver-Teacher Report Form (C-TRF) Externalizing Behavior Scale score; Verbal Ability, Peabody Picture Vocabulary Test-III; Age, child age at middle of data collection. Correlations between the DOF with sex, ethnicity, and income are Spearman correlations. All correlations with age and verbal ability are Pearson correlations.
Table 3. Correlations between outcome variables and predictor variables by Income level

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>DOF Low Income</th>
<th>DOF High Income</th>
<th>CTRF Low Income</th>
<th>CTRF High Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictor Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Verbal Ability</td>
<td>.072</td>
<td>-.140</td>
<td>.234</td>
<td>.288</td>
</tr>
<tr>
<td>2. Age</td>
<td>156</td>
<td>.068</td>
<td>-.217</td>
<td>.103</td>
</tr>
<tr>
<td>3. Ethnicity</td>
<td>-.118</td>
<td>-.146</td>
<td>-.105</td>
<td>-.035</td>
</tr>
<tr>
<td>4. Sex</td>
<td>.180</td>
<td>.115</td>
<td>-.247</td>
<td>-.036</td>
</tr>
</tbody>
</table>

*Note.* Externalizing behavior, Direct Observation Form (DOF) Externalizing Behavior scale score; Externalizing behavior, Caregiver-Teacher Report Form (C-TRF) Externalizing Behavior Scale score; Verbal Ability, Peabody Picture Vocabulary Test-III; Age, child age at middle of data collection. Correlations between the DOF with sex, ethnicity, and income are Spearman correlations. All correlations with age and verbal ability are Pearson correlations.