

Measures of risk for challenging behaviors: A comparison between the CBC and BDI*

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Abstract: A growing body of evidence indicates that for some children, early incidences of challenging behaviors are predictors of later difficulties. These incidences of challenging behaviors may predict mental health issues, social adjustment issues and/or increased challenging behaviors that will impede school success and impact transition to adult life (Lipsey & Derzon, 1998; Wagner, Cometo & Newman, 2003; Walker, Ramsey & Gresham, 2005). This study seeks to explore the relationship between two commonly used assessments in early childhood settings, the Battelle Developmental Inventory (BDI) (given by caregivers/teachers) (Newborg, 2005) and the Child Behavior Checklist (CBC) (given by both parents and caregivers/teachers) (Achenbach, 2000). Two significant correlations that linked the use of the BDI and the CBC were found. Further research is needed with larger sample sizes.

Key words: early childhood education; challenging behavior; Head Start programs; behavior and cognitive development

1. Introduction

Many young children engage in challenging behaviors at various times during their early development. Children experiment with different behaviors in order to differentiate between behaviors that are acceptable and those that are not. Typically, these behaviors are short-term and decrease with age and use of appropriate intervention strategies (Magee & Roy, 2009). However, there is a growing body of evidence indicates that for some children, early incidences of challenging behaviors are predictors of later difficulties. For example, research has found that challenging behaviors of children at age of two often persist into the school years causing difficulties that may lead to school failure (Kaiser, 2007). "A review of longitudinal studies revealed that approximately 50% of preschool children with externalizing problems continued to show problems during their school years, with disruptive behavior diagnosis showing the highest rates of persistence" (Dunlap, Fox & Powell, 2002, p. 2). Additionally, the prevalence rate for young children at risk for or with behavioral disorders has been estimated to be

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10%-15% of preschool children, and 6% of Head Start children (Conroy & Brown, 2004). These incidences of challenging behaviors may predict mental health issues, social adjustment issues and/or increased challenging behaviors that will impede school success and impact transition to adult life (Lipsey & Derzon, 1998; Wagner, Cometo & Newman, 2003; Walker, Ramsey & Gresham, 2005). Some children seem to outgrow these behaviors with intervention, while others continue to have challenging behaviors that further develop into social/emotional and potentially mental health difficulties in both school and community (Sandall, Swartz & Joseph, 2001).

Estimates of the number of children with behavior disorders serious enough to cause difficulties in school vary, but Epstein and Cullinan (1998) suggested that approximately 33% of all children will experience behavior problems that concern their teachers at some time during any given school year and that about one-third of those children (10% of the school age population) will require intervention or assistance of school personnel outside the regular classroom (Sugai, Sprague, Horner & Walker, 2000).

The increase in preschoolers with behavioral issues as reported by the National Head Start Program, is currently listed as approximately 30% of the over 1,000,000 children served in 2006/2007 (National Head Start Program). However, in early intervention programs, there are difficulties identifying children for services and especially those who may have future behavior problems.

2. Characteristics of children with emotional and behavioral disorders

Serious challenging behaviors in early childhood have been associated with problems in socialization, school adjustment, school success and problems in further education and jobs in later life (Campbell, 1995; Hemmeter, Ostrosky & Fox, 2006).

It has been found that students with emotional disorders have poor academic records (Heward, 2006; Wagner, Cameto & Newman, 2003). Two-thirds of these students were unable to pass competency exams for their grade level. In previous surveys, these students had the lowest grade point at average of any group of students with disabilities. They also had the highest absentee rate of any group of students (Wagner, Cameto & Newman, 2003). Only 20%-25% of them left high school with a diploma or certificate of completion compared to 50% of all students with disabilities and 76% of all youth in the general population. More than 50% of these students were found to drop out of high school (Heward, 2006). The sooner an intervention can be started, the better will the success rate be. The problem that remains is how to identify children with challenging behaviors at an early age since all young children engage in challenging behaviors at various times during their early development.

Characteristics of challenging behaviors in preschoolers might include the following: “interferes with children’s learning, development and success at play; is harmful to the child, other children or adults; puts a child at risk for later social problems or school failure” (Kaiser & Rasminsky, 2003, p. 9). Children with emotional or behavioral disorders have been characterized primarily by the behavior that is significantly different from the norms of their cultural and age group on the dimensions of externalizing and internalizing behaviors (Heward, 2006; LIU, 2004). Externalizing behaviors include classroom behaviors of getting out of their seats, yelling, talking out and cursing, disturbing peers, hitting or fighting, ignoring the teacher, complaining, arguing excessively, stealing, lying and destroying property (Campbell, Shaw & Gilliam, 2000; Heward, 2006).

The development of children’s challenging behaviors is complex and there is no single factor that accounts for these behaviors, since children do not develop in a vacuum (Dunlap, et al., 2006). However, research has shown that there are broad categories of factors that may contribute to the development of challenging behaviors (Hester,

Baltodano, Hendrickson, Hester & Tonelson, 2004). The first contributory category revolves around the child. A child may have developmental delays or a certain temperament that does not match those of the primary caregivers or teachers. This may lead to the start of a challenging behavior. A second contributory category deals with the family and parenting styles. A parent's education level, degree of situational stress or depression, or punitive/negative style of interaction can have a significant influence on the development of behavioral issues (Bagnato, Blair, McNally & Slater, 2004). Some families simply do not have the time or resources to care for a child the way he or she needs.

The third contributory category identified by Hester, et al (2004) includes the impact of poverty. Poverty and its resulting features can lead children to feel "socially disorganized" (Hester, et al., 2004, p. 2) from others, they may have little experience socializing and becoming close to others in the neighborhood, which consequently negatively affects them in other realms such as school. If children have not had proper socializing experiences, they may feel out of place and separate from others (Bagnato, Blair, McNally & Slater, 2004). As a reaction to this discomfort, children may lash out or display challenging behaviors. Other factors related to poverty include exposure to violence, abuse and inadequate childcare. Each of these features can be a possible factor in the development of a challenging behavior for a child (Dunlap, Fox & Powell, 2002; Kaiser & Rasminsky, 2003).

With this in mind, the current researchers began to view early behavior problems as a valuable topic for study. By examining early behavior difficulties in young children, this research may be able to pinpoint areas of concern early so as to develop curricular interventions that prevent or curtail these same early behavior problems, thus preventing difficulties in later life such as delinquency and dropping out of school. The three contributory factors can be examined most efficiently through studies of children in Head Start programs where child behavior, parenting styles and the impact of poverty are closely linked as part of Head Start guidelines and programming. With this in mind, the researchers of this study have begun examining the connections between measures currently used to evaluate behaviors in young children.

3. Methodology

3.1 The purpose of this study

The purpose of this pilot study is to explore the relationship between behavior and cognitive development in students at risk for challenging behaviors in Head Start using the first three factors identified by Hester, et al (2004) as a framework for examining the start of challenging behaviors: developmental delay, family and poverty. In addition, the researchers wanted to explore whether parents and caregivers/teachers would view behaviors in the same way. Behavior and cognitive development were operationally defined using scores from the BDI (Battelle Developmental Inventory) (administered by caregivers/teachers) (Newborg, 2005) and the CBC (Child Behavior Checklist) (given by both parents and caregivers/teachers) (Achenbach & Rescorla, 2000). A common basis for defining behavior difficulties in young Head Start children was needed to make comparisons between parent and caregiver observations of children.

3.2 Design

A within subjects post-test design without control group was used for this pilot study. All tests were administered to all of the students. Descriptive statistics were used to summarize the data and due to the small, non-random sample, Spearman's rho was used to examine the relationships between scores on the BDI (Newborg, 2005) and the CBC (Achenbach & Rescorla, 2000), as well as the relationship between parents and caregivers/teachers views of behaviors.

3.3 Participants

The sample consisted of twenty-eight, 4-5 years old children who were enrolled in early childhood Head Start classrooms and were identified by their teachers as having challenging behaviors. The Head Start classrooms were located in both rural and urban settings in northeastern and north central Pennsylvania. Within each setting, 8 urban and 20 rural children were evaluated after permission was given by parents for the study. Demographic information indicated that, of these children, 3 were female and 25 were male from mainly Caucasian families. Cultural backgrounds, according to parent report, included children from Hispanic (1), African American (1), Caucasian (19) and mixed racial backgrounds (7).

3.4 Materials/measures

Two assessments were administered to the selected children in this preliminary study. They were the CBC for ages 1½ to 5, which is a sub-test of the Achenbach System of Empirically Based Assessment (Achenbach & Rescorla, 2000) and the BDI (Newborg, 2005).

The CBC was developed to systematically assess maladaptive behavior in preschoolers. Content validity of the different CBC scales has been determined; almost all items were found to discriminate between children who had been referred because of behavioral problems and those who had not been referred (Achenbach & Rescorla, 2000). Criterion-related validity of the scales was also “supported by significant discrimination between referred and non-referred children” (Achenbach & Rescorla, 2000, p. 100). This assessment has two groups of sub-tests that overlap so that scores link directly from the CBC to the *Diagnostic and Statistical Manual* (1994), on both internalizing and externalizing behaviors (DSM-oriented scale). For this reason, the items on the CBC can be used in the diagnosis of severe behavior disorders.

The BDI was designed to assess typical child development across adaptive, personal/social, communication, motor and cognitive domains. Internal consistency reliability for 13 sub-domains and the total score was determined through split-half reliability. Mean reliabilities for all sub-domains were above 0.85, the mean reliability for the total score was 0.91 (Newborg, 2005, pp. 109, 111). Newborg (2005) reported that, “... content-, criterion- and construct-related evidence of validity has been documented” (p. 141).

3.5 Procedure

Head Start programs in both urban and rural Pennsylvania were recruited through direct contact made by the researchers to participate in the study. A total of 15 classrooms/teachers volunteered and recommended child participants. Teachers also recruited families for the study after discussion regarding behavior issues with the child participants in the Head Start setting. Family demographic information was obtained and the CBC (Achenbach & Rescorla, 2000) parent form was completed by family members under the guidance of the researchers. In three cases, the form was read to family members. Teachers then completed the CBC teacher form for each child. Identified children with challenging behaviors were then assessed by the researchers using BDI (Newborg, 2005) for personal/social, cognitive and communication abilities. Results were then analyzed.

4. Results

4.1 Relationship between CBC and BDI

Results showed two significant relationships between cognitive development and behavioral issues, one with the entire sample, and the other with the rural subset. The first was a significant positive correlation between the Battelle cognitive score and the CBC attention problems score given by caregivers/teachers ($r_s=0.44$, $p<0.05$) for

the entire sample ($N=28$). In this case, the higher the cognitive score on the CBC, the more likely the child presents clinical problems in attention. The second finding was a significant negative correlation between the Battelle personal-social score and the CBC emotional/reactive score given by caregivers/teachers ($r_s=-0.66$, $p<0.05$) for the rural sample ($N=11$).

4.2 Relationship between parents and caregivers/teachers scores

In terms of the relationship between parents and caregivers/teachers assessments of behaviors, as can be seen in Table 1, there was a significant, positive correlation between parent and caregiver scores on all CBC domains, except anxious-depressed. Whereas most of these correlations were strong ($r_s>0.60$), there were three domains (two tied directly to the DSM-4) where the correlations were moderate: CBC somatic complaints ($r_s=0.47$, $p<0.050$); CBC, DSM-oriented scale affective problems ($r_s=0.43$, $p<0.050$); and CBC, DSM-oriented scale, anxiety/problems ($r_s=0.48$, $p<0.05$).

Table 1 Correlations between parents and caregivers/teachers assessments of behaviors

Sub-domain CBC	Correlation coefficient	<i>p</i> -value
Emotional/reactive	0.77	0.000
Anxious/depressed	0.31	0.111
Somatic complaints	0.47	0.014
Withdrawn	0.67	0.000
Attention problems	0.72	0.000
Aggressive behavior	0.87	0.000
DSM-oriented scale— affective problems	0.43	0.027
DSM-oriented scale— anxiety problems	0.48	0.012
DSM-oriented scale— pervasive developmental problems	0.63	0.000
DSM-oriented scale— attention deficit/hyperactivity problems	0.74	0.000
DSM-oriented scale— oppositional defiant problems	0.89	0.000

5. Conclusions

The Battelle Developmental Inventory (Newborg, 2005) personal social score is based on the measurement of 100 items dealing with adult interactions, peer interactions, self-concept and social role. The CBC emotional/reactive score (Achenbach & Rescorla, 2000) is designed to determine the kinds of problems that form a specific behavioral syndrome. This syndrome may reflect early manifestations of mood disorders (such as depression, anxiety, emotional reactive disorder) (Achenbach & Rescorla, 2000, p. 117). The higher the score on the Battelle, the better the child’s social skills. The lower the total score of the domain on the CBC, the more the child functions in the normal as opposed to clinical range. The significant negative correlation that was found between the Battelle personal-social score and the CBC emotional/reactive score given by teachers/caregivers, showed that children with higher social skills were less likely to present a clinical manifestation of a mood disorder. This supports the findings of previous researchers (Arnold, et al., 2006; Fantuzzo, et al., 1999, 1995) that: “Young children who are persistently sad, withdrawn, or disruptive have been found to have fewer opportunities to learn from peers and to be less actively engaged and less positive about their role as learners” (Arnold, et al., 2006, p. 332).

A moderate positive correlation was found between the BDI (Newborg, 2005) total cognitive score and the CBC (Achenbach & Rescorla, 2000) attention problems domain, which is composed of three sub-domains. These three sub-domains are attention and memory, reasoning and academic skills, and perception and concepts. Thirty items are tied to this attention and memory sub-domain. The attention problems section is composed of behaviors

like an inability to be still, difficulty with directions and fidgeting, etc. The findings in the current study indicated that those with higher cognitive scores also had higher scores on attention problems, and vice versa. This positive relationship seems unusual and in need of further study, as it is generally thought that the more cognitively capable the child is, the less there should be attention difficulties.

There could be a number of explanations for this unusual finding. First, since attention is also considered as part of the cognition score on the BDI (Newborg, 2005), it is possible that the positive correlation found is a relationship between attention factors on both assessments. Second, it could be argued that children doing well cognitively at a young age might still be fidgety, inattentive, etc. because of immaturity, so attention problems may be viewed as developmental rather than behavioral issues. There may be a greater developmental expectation of attention problems when children are younger so their occurrence would not be viewed as an issue affecting cognition. Bright young children could be bored with the activities in the typical Head Start classroom and their behaviors could be viewed as showing inattention, but there is little research to support this theory.

Future research should examine the relationship between the sub-domain scores on the cognitive section of the BDI (Newborg, 2005) and the CBC attention problems (Achenbach & Rescorla, 2000) as well as use qualitative methodologies to determine how and when Head Start teachers see attention problems as behavioral rather than as developmental issues.

Moderate to strong, positive correlations between parents' and caregivers/teachers' assessments of behavior showed that both of them tended to view children's behaviors in the same way, except for the anxious/depressed CBC sub-domain. This sub-domain falls under the withdrawn category, which includes behaviors that are covert rather than overt. Quiet, subdued behaviors are less obvious than overt behaviors such as acting out. Parents might see a quiet child as positive, whereas a teacher might see a quiet child as unusual in a group of active preschoolers. The generally strong positive correlations between parents' and caregivers/teachers' assessments indicates that in general, the CBC (Achenbach & Rescorla, 2000) can be used by both parents and caregivers/teachers to accurately assess children's behaviors.

5.1 Limitations

There were two key sampling limitations in this pilot study, the lack of a random sample or random assignment to groups, and the small sample size. Researchers attempted to compensate for these limitations by using non-parametric correlations which can be used with smaller, non-random samples (Huck & Cormier, 1996). Future studies should consider random assignment to groups and larger samples. Larger, random samples would better show the relationship between the scores on the two assessments and allow for a more thorough comparison between rural and urban settings.

5.2 Implications

The increase in preschoolers with behavior issues, in conjunction with previous research on the categories of factors (Hester, et al., 2004) would indicate a need to identify children whose challenging behaviors may lead to later emotional behavioral disorders as quickly as possible. This pilot study examined the relationships among factors identified by Hester, et al (2004) as impacting the initiation of challenging behaviors. Results from this pilot study showing that child behavior (Battelle and CBC results), parenting (parents' perceptions of their children), as well as the impact of poverty (need for Head Start programs) support Hester, et al's (2004) view that there is both need and measures to identify children who are at risk of behavior problems/disorders. Future research should continue this examination in an effort to find a standardized way of looking for indicators of challenging behaviors and their effect on child development.

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