

**Evaluation of an Assessment-based Intervention for Preschoolers
and their Parents**

Final Outcomes Report

Prepared by:

Michèle Preyde, PhD, RSW
University of Guelph

Laura Bickle, M.A.
Grand River Hospital

Pat Chevalier, MSW, RSW
Grand River Hospital

Susan Gross, M.A., C. Psych. Assoc.
Grand River Hospital

April 30, 2007

Executive Summary

Three unique programs designed to provide psychological assessments for preschool-aged children and their caregivers are offered by Preschool Diagnostic and Treatment Services (PDTS), through Psychiatry and Mental Health Services at Grand River Hospital. These programs are based on a clinician-caregiver collaborative model of intervention in which psychological assessment forms the basis for developing an understanding of the child's behaviour. The traditional model of psychological assessment views the clinician as the expert whose role it is to provide caregivers with assessment data and associated interpretations at the conclusion of the assessment. The current model, which utilizes a more collaborative approach to psychological assessment, involves caregivers throughout the assessment process so that their understanding of their children's challenges can evolve throughout the intervention.

The programs offered by PDTS were developed to fill a distinct need in the community: assessment-based intervention for preschoolers and their caregivers when the presenting problem is clearly due to the child's challenges, as opposed to an active case of maltreatment, domestic violence, normal adjustment issues (e.g., divorce, birth of a new sibling, etc.) or other causes external to the child. In this assessment-based intervention, caregivers are involved and supported (not blamed) in the process of assessment and understanding of the child's challenges.

Each of these three programs is designed to provide a continuum of assessment and consultation services depending on the needs of the preschoolers and their caregivers. Outpatient Assessment involves the child and his or her caregiver attending several sessions with a member of the psychology staff over a number of weeks. Preschool Assessment Placement involves the child attending a community preschool at Grand River Hospital for two to three mornings per week for several weeks with a resource teacher and member of the psychology staff. The third program is the Segregated Assessment Partnership Program (SAPP) which is a joint program with the Waterloo Region District School Board. Eight children in kindergarten are placed in SAPP for eight to nine weeks. Four resource teachers and a member of the psychology staff are involved, and consultation with speech/language therapists, occupational therapists and psychiatrist is also available.

In this program evaluation, standardized measures of child behaviour (caregiver and teacher CBCL), parental stress (PSI) and management of child behaviour (MCBS) were obtained at pre-test and post-intervention. Caregivers' and teachers' perception of knowledge gained through this assessment-based intervention was also assessed at post-intervention. Psychological assessment results indicated that the main challenges of the preschoolers involved a diagnosable disorder (e.g., several children were diagnosed with PDD), or a risk for developing certain challenges (e.g., monitor for ADHD, or Learning Disorder). Results revealed clinically important differences from pre- to post-intervention on standardized measures of child behaviour and parental stress. At post-intervention, teachers reported less problematic child behaviour ($t=2.78$, $p=0.013$) and parents reported less stress (trend toward significance; $t=1.53$, $p=0.140$). Caregivers and teachers were also quite satisfied with the knowledge they gained by participating in these programs.

This evaluation begins to shed light on the benefits of assessment-based intervention for preschoolers with inherent emotional, behavioural or developmental challenges. It is hoped that intervention with preschoolers will facilitate an optimal developmental trajectory.

Project Summary

The purpose of the evaluation was to assess three programs for preschool children and their caregivers offered through Preschool Diagnostic and Treatment Services (PDTS) at Grand River Hospital's Psychiatry and Mental Health Services. These programs were designed to meet the unique needs of preschoolers with emotional, behavioural or developmental problems that appear to arise from the genetic or neurobiological contributions of the child; that is, the problems do not appear to be due to active problems external to the child such as child maltreatment or domestic violence. The intervention delivered within these programs is assessment-based, utilizing a clinician-caregiver collaborative assessment model in which the goal is to help caregivers and teachers participate in developing a better understanding of the children's behaviour. The questions asked in this program evaluation were: (1) Do caregivers think they better understand their children after their involvement in one of the three assessment-based programs? (2) Will caregivers' and teachers' perceptions of the children's behaviour (as reported with the Child Behaviour Checklist) change (or improve) after the children undergo assessment-based intervention? (3) Will caregiver involvement in the program reduce their perceived stress (as measured by a standardized self-report scale)? (4) Will caregivers' management of their children's behaviour change after their involvement in this intervention?

The target population for these programs is children aged 2.5 to 5 years with emotional, behavioural or developmental challenges that appear to have an inherent or neurobiological basis. The caregivers of this collaborative intervention are involved in the assessment and development of understanding of the children. The relevant stakeholders for this evaluation project include clients of the program (both current and future, and their families), mental health clinicians, teachers of preschoolers in public and private elementary schools, teachers in daycare settings, school boards, community partners (e.g., KidsLink, KidsAbility), Waterloo Region Children's Mental Health Planning and Advisory Committee, Preschool Speech/Language Advisory Committee of the Waterloo Region, Ministry of Child and Youth Services, and Grand River Hospital Board of Directors and Senior Management team.

Introduction

The preschool years can have a significant impact on an individual's developmental, psychosocial and educational outcomes. There is credible evidence (Mustard & McCain, 1999) that the early years of development, particularly of the brain in the first three years of life, heavily influence the competence and coping skills that will have pervasive effects on the developing child and on their future behaviour, health and learning. By virtue of their physical, social and cognitive status, infants and preschoolers tend to be greatly affected by their environment and are therefore highly vulnerable to the impact of early experiences. Although the onset of disruptive behaviours is often in the preschool years (Lahey et al., 1992), some evidence suggests that these behaviours are less entrenched (Keenan & Wakschlag, 2000) and therefore may be more malleable to prevention or intervention efforts. Since many mental health disorders persist into adulthood (Kesler et al., 2005) efforts to prevent their onset may be worthwhile. Therefore, optimal benefits may occur if mental health problems are identified and addressed in early childhood.

From the perspective of early identification and intervention, it is important to have an understanding of both normative and atypical development. It may be difficult to distinguish between normative kinds of behaviour for preschoolers, such as tantrums and non-compliance, and early indicators of problematic behaviour (Keenan & Wakschlad, 2000). As toddlers develop more cognitive, language and regulation skills, they can better manage developmental challenges (Campbell, 2002). Some behaviour, such as tantrums, may be considered normative for children aged 2 - 4 years. If these behaviours persist beyond 7 or 8 years of age, however, they might be considered problematic, and may become severe and entrenched, perhaps also resulting in the development of many other secondary problems. Furthermore, there is some indication that children who exhibit earlier manifestation and severe presentation are at greater risk for the later development of serious mental health problems. That is, having an emotional or behavioural disorder diagnosed in the preschool years is a strong risk factor for later diagnosis (Lavigne et al., 1998). For example, early-onset of externalizing behaviour problem has been shown to be a risk factor for the development of more serious problems (Campbell, 2002). The stability of psychiatric disorders with onset in the preschool years suggests that the focus of prevention should concentrate on infants and preschoolers.

The understanding of the development of problematic behaviours appears to be improving, resulting in earlier identification of problematic behaviours currently than in the past. While many children are not identified until their elementary school years, early identification of emergent mental health issues is now possible for children as young as two years of age (Egger & Angold, 2006). Early detection and intervention may be crucial in helping children and families identify, understand and redirect developmental trajectories, and in maximizing the chance that children will reach their highest developmental potential. Although access to infant and toddler screening within Canada's universal health care system is possible, many children are not assessed or identified as having emerging psychiatric or developmental problems as infants or preschoolers. Assessment programs may be important resources for teachers and caregivers to help distinguish typical from atypical behaviours and to help identify behaviours which may be indicative of potential mental health challenges.

With regard to the prevalence of emergent mental health challenges in children, it has been estimated that at least 20% of children experience some form of mental health disorder (Angold & Costello, 1995); however, approximately 14% of Canadian children are estimated to have clinically important mental health disorders with impaired functioning or distress (Waddell, et al., 2002). In a six-month prevalence study in a German town, 12.4% of preschoolers were estimated to have behavioural and emotional symptoms, with a significantly greater proportion experiencing internalizing symptoms than those experiencing externalizing symptoms (Furniss, Beyer, & Guggenmos, 2006). Similarly, in the U.S., the prevalence rates of behaviour problems in preschool children was 8.3%, while the probable occurrence of Axis I DSM (III-R) disorder was 21.4%, with 9.1% rated as severe (Lavigne, et al., 1996). In addition to the large numbers of children affected by mental health disorders, almost half are estimated to experience more than one disorder. For example, almost 50% of a sample of preschoolers with ADHD also had clinically significant co-occurring deficits in two or more areas (Yochman, Ornoy & Parush, 2006). Accordingly, these figures translate into the knowledge that many children experience mental health disorders with ranges in severity, co-morbidity, distress and impairment.

The most common mental health disorders children experience are anxiety, behavioural, and depressive disorders (Costello, et al., 2003; Egger & Angold, 2006), and of these anxiety is most common affecting an estimated 6 – 18% of children (CMHO, 2002). In younger children, separation anxiety is common; however, phobias and generalized anxiety disorder are experienced more by girls than boys (CMHO, 2002). Common behavioural problems identified in children less than six years of age are Attention Deficit/Hyperactivity Disorder (ADHA), Oppositional Defiance Disorder (ODD) and Conduct Disorder (CD). Prevalence estimates for ADHD suggest that 3-5% of all children meet criteria for ADHD, while 10-15% of children are “difficult to control”; however, childhood onset CD is present predominantly in boys affecting an estimated 3-5% of children (CMHO, 2002). It is estimated that depressive disorders occur in 2-4% of children, while severe depression is estimated to occur in less than 1% of preschoolers and 2% of school-aged children (CMHO, 2002). Two other common challenges for preschool children are Pervasive Developmental Disorder, (PDD) and Learning Disorder (LD). Several studies have recently been published to document the prevalence of PDD and the prevalence rates vary widely from 30 to 67 per 10,000 (Bertrand et al., 2001; Chakrabarti & Fombonne, 2001; Fombonne, 2003). The lifetime prevalence of learning disability in US children was estimated to be 9.7%, however, the prevalence is lower (5.4%) among normally developing children (Altarac & Saroha, 2007).

Numerous factors are associated with emotional and behavioural problems in preschool children. In a follow up study of children from preschool-age to adolescence, it was found that although parental traits predicted adolescent status, child-centred skills at ages 4-7 years were better predictors than were parental traits (Thomas, 1990). Other factors associated with children’s mental health problems are socioeconomic status, parental stress, minority status, and parenting practices or parental management of children’s behaviour (CMHO, 2002; Crnic, Gaze & Hoffman, 2005; Lavigne et al, 1996), bidirectional influence of temperament (Rettew et al., 2006), household chaos (Coldwell, 2006), community differences (Simons et al., 2002), and genetic and environmental influences (Derks, et al., 2004). In some cases gender differences are evident. For example, predictors for girls with chronic-clinic profile of externalizing behaviour were poor emotional regulation and inattention; whereas for boys, predictors were socio-economic status and inattention (Hill, et al., 2006). Barkley and colleagues (2002) also describe the presence of adaptive disability (i.e., “a significant discrepancy between intelligence and daily adaptive functioning” (p. 36) as a predictor of later developmental challenges in preschool children with disruptive behaviour. Finally, preschool children with intellectual disabilities are at increased risk for behaviour problems (Baker, 2002), which can place further burden, such as parental stress, on families (Baker, et al., 2003). For example, Merrell and Holland (1997) assessed socio-emotional behaviour of preschool-age children with and without developmental delays (DD), and found that preschoolers with DD were four to five times more likely to have significant deficits in social skills and excessive problem behaviour. Thus a complex array of factors and interactions affect the developing child in a variety of ways.

The relationships between parental stress, parental practices and child behaviour are also of interest. While positive parenting practices have been linked to prosocial skills in children (Koblinsky et al., 2006); some researchers have focussed on less optimal parenting practices. Less positive parenting practices with respect to nurturing and discipline appear to be linked to child behavioural problems. For example, maternal low self-efficacy (Sanders & Woolley, 2005) and a low sense of competence (McLaughlin & Harrison, 2006) were significantly related to

parenting practices such as negative discipline style in mothers of children with behavioural problems. One might wonder if parental self-perceptions of not being capable or feelings of disempowerment may increase stress and in turn lead to less favourable parenting practices or interactions with offspring. In fact, it has been shown that mothers with low perceived power respond to their infants' and toddlers' difficult behaviour (temperament) with an increase in parental stress (as measured by cortisol reactivity) which leads to greater use of harsh control practices (Martorell & Bugental, 2006). These findings suggest the important contribution of parental stress to parental practices employed with children's difficult behaviour, and perhaps shed light on strategies for preventing or minimizing the severity of child behavioural problems.

In addition to personal and environmental factors associated with mental health problems, the interplay between genetics and the environment is also intriguing. The understanding of the genetic contributions to childhood mental health disorders is growing rapidly (e.g., Cloninger, 1999; Stoolmiller, 1999). Multiple genes may be involved in both complex human behaviours (Plomin, 1990; Plomin et al, 1994), as well as in specific disorders such as autism (Happé et al, 2006) and emotional disorders (Eley & Plomin, 1997). The understanding of the contributions of both genetics and the environment to developmental psychopathology is also rapidly increasing (Plomin et al, 1997), including the genetic contributions to the family environment, the importance of non-shared environmental experiences, person-specific environmental influences (O'Connor et al., 1998; Pike & Plomin, 1996; Plomin, 1995; Plomin, Asbury, & Dunn, 2001), active and evocative person-environment interactions (Rutter et al, 1997), and evocative genotype-environment correlation (O'Connor, et al., 1998). That effects of genetic and environmental contributions are inseparable is understood (Reiss, Plomin, Hetherington, 1991); however, there is less understanding of person-specific effects of the environment on the organism (Rutter et al, 1997). The behaviour of children with behavioural problems, then, appears to influence parental interactional behaviour negatively, which in turn negatively affects child behaviour. While there is an appreciation of the important contributions of genetics and the environment to the understanding of mental health disorders in childhood, the prevention and intervention strategies currently available are aimed at the modification of environmental contributions to child development.

Developmental psychopathology concerns the pathways associated with the onset of mental health disorders. Numerous risk factors for mental health issues have been identified, including adverse early experiences, parental mental illness, family dysfunction, stress including stressful events and chronic stress, chronic medical illness, poverty, learning disorders and residential instability (Angold & Costello, 1995; Costello, et al., 2001). While the exact result from each risk factor is not known (Sonuga-Barke et al, 2005), some research has begun to shed light on some of these pathways. For example, positive emotional expression (e.g., happiness) in three to four year olds is associated with social competence in kindergarten (Denham et al, 2003), and negative emotions in children are associated with difficult interactions. Similarly, traumatic experiences in early life can have an impact on children's neurodevelopment and are related to neuropsychiatric symptoms following the trauma (Perry et al., 1995). Other research on children with ADHD (e.g., Barker, 1997; Dalen et al, 2004) highlight cognitive developmental pathways, including a deficit in behavioural inhibition and the inhibition of executive neuropsychological functions, and the subsequent effect on working memory, regulation of motivation, and motor control. Pathways between family functioning, children's emotional insecurity in the interparental relationship and children's psychological adjustment have been studied. Children in

enmeshed and disengaged families appear to exhibit greater insecurity than children in cohesive and adequate families. Furthermore, this insecurity is related to internalizing and externalizing symptoms (Davies, Cummings, & Winter, 2004).

Similarly, the disorders themselves may also be described as following particular pathways. That is, disorders can progress to a wide range of possible outcomes. Multifinality is a term used to describe the diverse outcomes produced by disorders (Cicchetti & Toth, 1998; Harrington et al., 1998). For example, the onset of ODD in the preschool years has been associated with several outcomes in later years including a single diagnosis of ODD, a single diagnosis of ADHD, a comorbid diagnosis of ODD with ADHD, and anxiety or mood disorder (Lavigne et al., 2001). Thus, there are many unique pathways associated with the onset of mental health disorders in childhood, and with the progression of disorder.

There is a substantial body of research on the effectiveness of prevention and intervention programs with children (for example, see Barker, 2002). Likewise, some effectiveness studies of preventive strategies with preschool-aged children (for example see Turner & Sanders, 2006; Rapee et al., 2005) suggest preschool-aged children benefit significantly from these strategies. There does, however, appear to be less published evidence of assessment-based intervention for preschoolers. Assessment-based intervention is a psychological approach that employs the application of psychological assessments to gain insights into the child's behaviour. In this collaborative approach, caregivers participate in the assessment process. Therapeutic benefits result through the knowledge caregivers and teachers gain from the feedback session which enhances their understanding of the children's behaviour. The benefits of involving caregivers in processes related to their children and knowledge sharing have been shown to be effective strategies in other spheres (e.g., Bond & Burns, 2006; Ramey & Ramey, 1998; Sprigle & Schaefer, 1985). The assessment-based intervention evaluated in this report resembles Therapeutic Assessment (e.g., Fine, 1996) but differs in that it has less emphasis on psychoanalytic techniques and employs psychodynamic tests less frequently.

Based on the research described in the preceding paragraphs, it is clear that our knowledge and understanding of developmental psychopathology and early mental health challenges are increasing. Indeed, early identification of mental health issues is currently the topic of considerable attention in mental health research and public policy (Mrakotsky and Heffelfinger, 2006) However, despite recognition of the importance of early intervention and studies suggesting that preschool-age children benefit significantly from preventive strategies (for example see Turner & Sanders, 2006; Rapee et al., 2005), there is a paucity of research on *assessment*, not only as a means of informing diagnosis and intervention strategies, but also as an intervention in itself (i.e., assessment-based intervention). There is also very little research on models of assessment that are developmentally appropriate for preschoolers (Mrakotsky and Heffelfinger, 2006). Thus, the purpose of the current program evaluation project was to evaluate three models of assessment-based intervention offered through Preschool Diagnostic and Treatment Services at Grand River Hospital. In order to examine the impact of assessment, standardized measures of child behaviour, parental stress and parental management of child behaviour were administered both before and after the child's assessment. The knowledge gained by caregivers and teachers about the children's strengths and difficulties was also examined.

Method

Three service delivery models within the Preschool Diagnostic and Treatment Services Programs were evaluated. Preschool Diagnostic and Treatment Services is an early intervention program that focusses on assisting children 2 1/2 to 5 years of age. It is under the umbrella of Psychiatry and Mental Health Services at Grand River Hospital, Kitchener, Ontario. The overarching goal of Preschool Diagnostic and Treatment Services is to increase caregiver and teacher understanding of the child, primarily through the process of psychological assessment with support from the multidisciplinary team. Children are eligible if they display moderate to severe behavioural, social, emotional or developmental challenges at home and/or at school, preschool, or daycare. Triage occurs by telephone. When it is determined during triage that there may be an inherent basis for the difficulties the child is experiencing, the case will be eligible for the process of intake. Cases where the presenting problem appears to be due to caregiver problems, or other problematic interpersonal or environmental problems are referred to another, more appropriate agency. At intake, caregivers meet with a clinician separately and are asked to thoroughly describe the child's problem while the child participates in cognitive, behavioural and speech/language screening. Caregivers are provided feedback from this initial appointment, and are given recommendations. If they are accepted for further assessment, then options for service are described (see below for details). Caregivers are provided with information (e.g., pamphlets on stress in children) to help them cope and caregivers know they can contact the clinician if need be.

There are three options for further service from Preschool Diagnostic and Treatment Services:

1. Outpatient Assessment (OA) involves the child and caregivers attending several sessions with a member of the psychology staff over a number of weeks. The goal of outpatient assessment is to understand the child's cognitive, behavioural, and socio-emotional development through seeing the child and/or parent once per week for several weeks. The length of the assessment is dictated by the needs of the child and family. An observation within a structured setting in which the child is enrolled (if appropriate) also informs this process.
2. Preschool Assessment Placement (AP) involves the child attending Grand River Hospital Preschool (an integrated, community preschool) for several weeks, two or three mornings per week. During that time, assessment and/or consultation takes place. There is involvement with a resource teacher and member of the psychology staff. The goal of placement into a Preschool group setting is to assess children with limited or no experience in a structured setting with peers, thereby enabling a comprehensive assessment of variables such as social development, and adaptability. In some situations, it also encourages caregivers to take the first important step toward separation from their 'special needs' child within a supportive, clinical setting.
3. The Segregated Assessment Partnership Program (SAPP) is a joint program between Preschool Diagnostic and Treatment Services and the Waterloo Region District School Board. Children who attend a school within that school board may be placed in the SAPP program for eight to nine weeks, four afternoons per week, for psychological assessment and consultation purposes. There are eight children and four resource teachers dedicated to classroom support and re-integration of the children back into their home school with a comprehensive plan of care. Speech/language and occupational therapy assessments are also available, as is consultation with

psychiatry. The goal of placement is to encourage an understanding of the child and to strategize how that information can assist the school system to develop the best behavioural and learning strategies possible for that child within their system.

The decision regarding which program to place the child into is dependent on the child's current setting, presenting challenges, case complexity, and goals of assessment. The assessment-based intervention used within all three programs utilizes a collaborative approach to psychological assessment, involving caregivers throughout the assessment process so that their understanding of their children's challenges can evolve throughout the intervention. This may differ from the traditional model of psychological assessment in which the clinician conducts testing with the child (e.g., see Sattler, 1988), and then provides an "expert" opinion to caregivers at the conclusion of the assessment.

With regard to the process of psychological assessment, the following procedures are common to all three programs offered by PDTS: caregiver interview; teacher interview (when the child is involved in another structured setting); standardized testing of the child (which might include cognitive, memory, language, visual-spatial, and academic testing); completion of standardized rating scales of the child's socio-emotional, behavioural, adaptive, and executive functioning by caregivers and teachers; and observation of the child (during testing and in another structured setting if available; possibly at home as necessary). During the testing phase of the assessment, ongoing feedback is provided to caregivers regarding testing results, clinical observations, and preliminary formulations of the child's difficulties. Distinct within the SAPP and Preschool-based assessment programs, caregivers and teachers also participate in a "guided observation" of the child. This entails the clinician accompanying the caregiver or teacher behind a one-way mirror for the purpose of describing strengths and weakness, progress, strategies being implemented, and observations that are important in developing the formulation.

Common to all programs, at the completion of the assessment phase, the clinician(s) involved with the child meet with caregivers for a final interpretive feedback in which the results of the assessment (including diagnosis if applicable) are provided. The main thrust of this feedback is to provide a solid formulation of the child's challenges and strengths, and recommendations stemming from that formulation. Caregivers are also given a written report that details the assessment results, formulation, and recommendations. With caregiver consent, the clinician(s) also attend a feedback meeting with the child's school (or daycare) to explain the formulation and discuss recommendations. Reports are distributed to other agencies as requested by the caregivers.

Through a pre-post evaluation model, caregiver and teacher responses to the children's difficulties were assessed. Given that the service is assessment-based in that the primary purpose is to seek understanding of (versus provide treatment for) the child, one outcome examined was the level of understanding of the child generated by each service delivery model described above. Related to an increased understanding of the child, changes in parental stress, the ability to manage challenging behaviour, and perceptions of the child's behaviour as pathological were also evaluated.

Procedure

The caregivers and teachers of all preschool children referred to and receiving these services between January 2007 and March 2007 were invited to participate. A research assistant who was not involved in the delivery of services obtained informed consent, and distributed and collected the questionnaires at pre-test from caregivers and teachers. Due to the timing of the funding for this program evaluation, pre-test data were collected after intake; that is, after caregivers had already been given information about their child and about issues their child may be experiencing (e.g., stress), but prior to their involvement in the more comprehensive assessment programs. At the end of the programs (post-test), questionnaires were distributed at the final caregiver or teacher meeting, along with an addressed, stamped envelope for returning the questionnaire. The research assistant contacted participants by telephone to remind them to return the questionnaires one week following distribution, and collected two directly from participants who had difficulty mailing them.

Measures consisted of standardized scales of child and parental behaviour and parental stress that were collected at pre-test (T1) and at the conclusion of program services (post-intervention; T2). The Parent and Teacher versions of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000) for ages 1.5 to 5 years of age were used as an index of child functioning. This scale includes items measuring externalizing and internalizing behaviours, and seven subscales: emotionally reactive, anxious/depressed, somatic complaints, withdrawn, sleep problems, attention problems, and aggressive behaviour. Parental stress was assessed with the Parenting Stress Index – Short Form (PSI; Abidin, 1995) which measures the amount of parental stress arising from parent-child system. The Management of the Children's Behavior Scale (MCBS; Percepetchikova & Kazdin, 2004) was used to evaluate parental practices associated with their children's behaviour. At the post-test data collection period an additional questionnaire was used to assess caregivers' and teachers' perceptions regarding the extent to which they thought the program helped them to better understand the child's strengths and difficulties and to better manage the children's difficulties. They were also asked to rate their satisfaction with program services.

Data Analysis

Demographic and pre-test data were analysed with descriptive statistics. The main purpose was to examine change in symptoms and understanding, therefore the main analysis was a paired t-test (pre- to post-intervention). Pearson Correlation was used to identify relationships between variables.

Results

Nineteen children were enrolled in all three programs during the evaluation period (Outpatient n=8, SAPP n=7, and Preschool Assessment Placement n=4). Reports for eighteen of the children were provided by parents and one was provided by grandparents. Reports for eighteen children were provided by teachers. One child did not have a teacher. Most caregivers (89.47%) reported being in a coupled relationship (See Table 1), and had between one and four children (mean 1.9). Eleven caregivers (58%) self-reported their ethnicity as Canadian, five (26%) indicated European ethnicity, and one caregiver reported ethnicity was Irish/Native Canadian. There was considerable diversity in occupations. Fathers' occupations included roofing, factory work,

mechanic, accountant, administration, business owner, and so forth. Mothers' occupations included homemaker (n=7), nursing, administration or management, clerical.

The mean age of the children was 4.6 years (SD 0.51), with a greater presentation of boys (n=13) than girls (n=6). Five children were reported by caregivers as having a previously identified disability; while 6 children were reported by teachers as having a previously identified disability. There was only one reported disability (cleft palate) for one child that was reported by both the parent and teacher; that is, there was no other congruence between parent and teacher reports of disability at baseline. Combined, caregivers and teachers reported an illness or physical disability, such as, cleft lip/palate, hearing loss, allergies and asthma. Three children were reported to have some previously identified developmental challenges namely cognitive, language and speech delays, and one child was reported to have a previously identified learning challenge.

In terms of their clinical assessment, this diverse sample appears to resemble a typical cohort of participants in the Preschool Diagnostic and Treatment Services. The psychological assessments conducted during the evaluation period revealed the following diagnoses/formulations: Pervasive Developmental Disorder (n= 3 possibly 4), Learning Disability (n=2), Reactive Attachment Disorder (n=2), Attention-Deficit/Hyperactivity Disorder (n=3), Receptive-Expressive Language Disorder (n=1), and many challenges such as underdeveloped social and emotional regulation skill (n=4), speech/language issues (n=2), lower cognitive functioning, impaired memory functioning, and complex gross and fine motor concerns. At least 16 of the 19 children exhibited a clearly identifiable diagnosis or challenge, and several will continue to be monitored for ADHD, LD, mood challenges, anxiety challenges and language issues.

There were 17 teachers and one daycare worker (referred to hereafter as a teacher) who reported years of experience as a mean of 14 years (SD 11.30; range 0.3 to 40 years; median = 12 years), and class sizes of an average of 19.39 (SD 1.38) children. Teachers indicated that they knew the children for an average of 6.52 months (SD 4.39). Eleven teachers (61%) indicated that they knew the child moderately well, while seven (39%) knew the child very well. Children spend an average of 12.5 hours (SD 5.57) at the school / daycare.

In terms of caregiver completion of the CBCL at T1, the mean scores on the emotionally reactive and withdrawn subscales were in the borderline range, and the means of all other subscales were below this range. However, several individual children were in the borderline range and a few were in the clinical range (Table 2). Given the small sample size, boys and girls were analyzed together for the teacher report of CBCL. The mean scores on the emotionally reactive, withdrawn, attention problems and aggressive behaviour subscales fell within the borderline range (spanning boys and girls cut off levels). There was no statistically significant difference between parent and teacher reports of child behaviour ($t=0.999$, $p = 0.332$).

With respect to the parental stress scores, seven of the 19 caregivers (37%) would be considered to have clinically significant levels of stress using both raw scores and an adjustment for missing values (Abidin, 1983), and the overall mean score (85.84; SD 27.99) falls below this clinical cut off. Only one caregiver scored higher than 24 on the Defensive Responding (DR) subscale; however, for this sample, the low scores on DR are likely because the caregivers are competent and parent in a supportive environment (Abidin, 1983). Additionally, there was a statistically

significant correlation between parental stress and caregivers' report of the CBCL ($r=0.58$, $p<0.01$).

Caregivers' scores on the MCBS (mean 36.84; SD 4.36; range 28-50) suggest that caregivers seem to be using appropriate parenting practices. Contrary to Perepletchikova and Kazdin's (2004) report, there was no statistically significant relation between scores on the MCBS and caregivers' report on the CBCL. The procedure Perepletchikova and Kazdin used for adjusting for missing data could not be used due to the small sample size and the fact that missing data in this sample appear to be due to the inapplicability (e.g., items on allowances, tests, chores, etc.) of many items for this sample of preschool children (i.e., not randomly missing).

At post-intervention, the caregivers of three children were lost to follow up. The teacher of one of these children provided T2 data, one child had no teacher (was not yet in school or daycare), and the teacher of the third child did not provide T2 data. Therefore 16 of 19 (84.2%) caregivers and 17 of 18 (94%) teachers completed the evaluation.

At post-intervention, there were notably fewer children in the borderline and clinical ranges on the CBCL (Table 2). Similarly, only four caregivers reported clinically significant levels of stress on the PSI (compare to 7 at pre-test). This movement from a borderline or clinically significant threshold to within the normal range is evidence of clinically important change for both children and their caregivers.

There was a statistically significant difference in mean scores on the Teacher Total CBCL from pre-test to post-intervention [$t=2.78$ ($df=16$), $p=0.013$]. There was also a trend toward statistical significance on the PSI [$t=1.52$ ($df=15$), $p=0.140$]. These findings are truly remarkable given the small sample size. There was no statistically significant difference on the Caregiver version of the CBCL from pre-to post-intervention; however, it is quite possible that statistical differences in total scores would be evident with a larger sample size. Interestingly, at post-intervention the scores of the caregiver CBCL correlated with the PSI ($r=0.889$, $p<0.01$) and were not statistically different than the Teacher CBCL Total score ($t=-.161$, $p=0.875$), which further suggests that a larger sample would likely have yielded a statistically significant result for the Caregiver CBCL. There was also no statistically significant difference on the MCBS; however, this scale may not have been an appropriate scale for this sample given that it measures poor parenting practices and the screening process employed at Preschool Diagnostic and Treatment Services would have screened out dysfunctional care giving. If anything, the scores on the MCBS confirm that the triage process is working well.

At post-intervention only, a satisfaction questionnaire using a 5 point Likert scale was also administered to caregivers and teachers (Table 3). Caregivers and teachers indicated the greatest satisfaction with the information/services they received (4.6/5 for both), followed by better understanding of the children's difficulties and strengths, and the degree to which the program helped facilitate communication between the caregivers and the children's schools. The lowest score for both caregivers (3.94) and teachers (3.75) was on an item regarding helping them manage the children's difficulties. Although one caregiver indicated that there were no problems managing the child's behaviour pre-intervention (i.e., the item was not applicable) and there were no negative comments provided by caregivers or teachers, it does seem to be a program area that might require strengthening. Similarly, caregivers (3.94), but not teachers (4.47)

indicated less satisfaction with the extent to which they felt more confident as a caregiver than with their gain in knowledge. The mediocre satisfaction with change in their confidence may be related to their high functioning; however the reasons for this score on this item could be explored in the future.

There were only positive qualitative comments about the programs and clinicians. Many caregivers and teachers were relieved when they better understood the children. For example one caregiver indicated “this program did nothing but bring the good out of [the child]. It’s hard as a parent to constantly hear bad things about [the child].” Another stated that the program “helped me not to feel so helpless.” Both caregivers and teachers indicated their great appreciation for the helpful and “wonderful” program of “tremendous value” that aided their development of insight into the children’s difficulties, and that the services were delivered in a “very professional” manner.

Discussion

In this evaluation the extent to which various models of service delivery facilitated an understanding of young children with potential mental health difficulties, as well as the extent to which such an understanding led to the corollary benefits of lowered parental stress, the ability to manage challenging behaviour, and perceptions of the child’s behaviour as pathological were examined. Statistically significant and clinically important differences were found on standardized measures of child behaviour and caregiver stress from pre-test to post-intervention.

Clinically important differences in caregivers’ and teachers’ perceptions of individual children were demonstrated in this program evaluation. Both caregivers and teachers indicated that they were quite satisfied with the information and services they received. They also indicated that they had a much better understanding of the children’s strengths and especially of their difficulties. Statistically significant improvements in the children’s behaviour were also noted by teachers. There was also a trend toward significance in the reported level of parental stress.

There are a number of clinically important implications of these data. These data suggest that the assessment itself acted as an intervention in that there were significant changes in the level of understanding of the child (as measured by informal questionnaire results), perception of problematic child behaviour (as measured by the Teacher Report Form), and parental stress (as measured by the Parenting Stress Index). Beginning with the changes measured in level of understanding of the child, the primary goal of assessment is to explain and demystify the child’s challenges. That is, prior to assessment, caregivers and teachers often feel at a loss as to how to make sense of the difficulties the child is experiencing. Consequently, one of the primary purposes of assessment is to provide a solid formulation of the child and his or her strengths and weaknesses.

Regarding the finding of statistically significant change on the Teacher Report Form, this result indicates that the teacher’s perception of the child’s level of problematic behaviour changed as a result of assessment. There are a couple of possible explanations for this change. First, it is possible that there has, in fact, been a reduction in the child’s problematic behaviour following the assessment. Alternatively, given that the post-assessment measure was completed by the teacher immediately following the assessment, it is unlikely that there would have been sufficient

time for behavioural change to have occurred. Thus, the teachers' rating may be more an indication of a shift in perception versus in behaviour. This is important in that, given the direction of the rating shift, the perceptions post-assessment were less pathologically oriented, indicating that perhaps the teacher now has a more sympathetic, supportive view of the child. Likewise, although not statistically significant, caregiver ratings of child problematic behaviour also shifted in a more positive direction. Psychological theory (e.g., see Beck, 1983) suggests that a first step in managing and altering behaviour is a change in perception; thus, teachers and caregivers may, as a result of this change, alter how they behave and interact with the child, perhaps in a direction that enables them to be more effective and positively supportive of the child in their development.

The significant change that emerged in the degree of parental stress is an important clinical implication in demonstrating that an intervention that occurs at the level of the child can have an impact on the system (i.e., the family) as a whole. Ecological theory (Bronfenbrenner, 1979) espouses that the child exists within a complex ecological framework in which there are different levels and systems all of which interact with each other in influencing the development of the child. Thus, having a reduction in stress in one level of the system (e.g., parental stress) will impact positively on other levels (e.g., the child).

There were four main limitations with this program evaluation. The MCBS is a good scale for determining problematic parental behaviours. The mandate of PDTS, however, is to provide assessment-based intervention for caregivers and children where the presenting problem is clearly not resulting from an active case of problematic parenting; therefore, the MCBS could not provide as meaningful information as perhaps a measure of the quality of the parent-child relationship might. The constraints of funding and particularly the timeframe for funding are related to the several issues. The sample reflects one cohort of participants in each of the three programs; therefore the sample size is small. At least two cohorts of participants would be needed to have a sample size of sufficient size to discern program effects. Furthermore, only pre-test and post-intervention data collection periods were possible, and it would be helpful to know the long-term effects. Most importantly, the timing of T1 administration of the measures of child behaviour and parenting stress occurred after triage and intake. It is speculated that if T1 data collection had occurred before intake, there may have been even greater statistical difference between T1 and T2 scores.

Ongoing program evaluation activities would seek to address some of the limitations noted above. That is, extending the timeframe of the evaluation would allow for a larger sample size, making it more likely that any significant effects would be discerned. Likewise, it would allow for evaluation of the longer-term impact of the intervention. Also, a larger sample size would make it possible to compare the three service delivery models (i.e., outpatient, SAPP, Preschool Placement) in terms of their relative contributions to change. The inclusion of control groups (e.g., wait list control) would also be helpful in future activities so that one could discern the specific impact of the intervention versus maturation, history, and so forth.

In terms of gains in learning afforded by the current program evaluation, by engaging in this process the members of this program have acquired a specific set of skills in how to conduct a program evaluation. In conducting this program evaluation, it became apparent how important it was to balance the needs of acquiring information for the purposes of the evaluation with the

(primary) goal of conducting clinically useful assessments. While program evaluation is important in program development, it was also important to recognize that the evaluation activities could not compromise clinical activities and rapport with the client, and that it was important to remain sensitive and true to the philosophy of clinical work. If the clinical process were compromised in some way, the data derived from the program evaluation would be less meaningful as it would not truly have spoken to the clinical work that typically occurs within the program.

Regarding the impact of the evaluation on the clients themselves, several parents expressed a gain in insight and understanding of their child as a result of having completed the questionnaires. Furthermore, some parents expressed satisfaction at having had the opportunity to “give back” to the program. The impact of the evaluation on the clinicians within PDTS was a feeling of excitement at the opportunity to embark on a new area of investigation and skill development. The program evaluation was also valuable in that it encouraged PDTS staff to reflect on the clinical process and model of assessment which has evolved within this service. The outcome of the program evaluation confirms the value and impact of the services provided, and the manner in which they are delivered. During the initial phases of a client’s involvement with PDTS, clinicians will now be better able to speak to not only the process of assessment itself, but the larger impact of the information that an assessment may provide (e.g., increased understanding of the child, shift in teacher perception of the child, reduction in parental stress).

By engaging in this process, the profile of PDTS within Grand River Hospital was increased in a positive manner. GRH has committed to participate in evidence-based practice, and thus was highly supportive of this program evaluation. The results stemming from such an evaluation may prove important in confirming and justifying the value of resource allocation within Child and Adolescent Services, which may facilitate and support ongoing funding

Conclusion

One ultimate plan for improving mental health care services in our communities is to develop evidence-based “best practice” for children aged 2 ½ to 6 years. Alarming, one estimate is that 80 – 85% of the mental health programs for young children in Europe could NOT be considered as evidence-based approaches (cited in Jane-Llopis, 2006; Mental Health Europe, 2000). A similar statistic might be true for Canada. The results of this program evaluation begin to establish such an evidence-base for intervention where the mandate is developing understanding through assessment in a collaborative manner for preschool children with inherent or neurobiological challenges.

It is important to develop a child-focussed strategy in Canada to identify children with mental health problems in an attempt to reduce the prevalence and severity (McEwan et al., 2007). There is a strong rationale for targeting young children: their problems may be less entrenched than in older children (Keenan & Wakschlag, 2000) and they may be most receptive to prevention or intervention efforts (Kirby & Keon, 2006). Of greater significance is the inclusion of prevention efforts in a continuum of services (Waddell, et al., 2005) that include the promotion of healthy development for all children, prevention of mental disorders and / or the reduction of the secondary effects of distress and impairment, treatment of mental disorders and the monitoring of outcomes.

Kirby and Keon (2006) report that the governments should “take immediate steps to address the shortage of mental health professionals who specialize in treating children and youth” and that seamless access to mental health services should be provided. Here is an opportunity to meet both of these recommendations by funding and possibly expanding these programs.

Kirby and Keon call for new intervention for the treatment of mental health disorders; however, prevention should be the goal in preschool children – at or before the time of onset. The programs evaluated here are consistent with Kirby and Keon’s call for investment in the prevention of mental disorders in children, and the promotion of social and emotional health, as well as the increased collaboration with caregivers and teachers

Knowledge Exchange Plan

The results of this program evaluation will be widely disseminated. A report of the findings will be posted on websites for the University of Guelph and Grand River Hospital, and Children’s Mental Health Ontario will be approached for the same purpose. The intention is to present the findings to Grand River Hospital Senior Team, and to the Child Mental Health Planning Committees of Waterloo Region and of Wellington County, and at appropriate conferences. A copy of the final report will also be disseminated to the Governance Boards of Grand River Hospital and the Local Health Integrated Network. An attempt will be made to publish the results in an appropriate peer-review journal, such as the Journal of Child Psychiatry.

Acknowledgement

Sincere gratitude is extended to the caregivers and teachers who participated in this program evaluation.

References

Abidin, R.R. (1995). Parenting Stress Index (3rd ed.). Lutz, FL: Psychological Assessment Resources, Inc.

Achenbach, T.M., & Rescorla, L.A. (2000). Manual for the ASEBA Preschool Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

Angold, A., & Costello, E.J. (1995). Developmental epidemiology. *Epidemiology Review*, 17, 74-82.

Altarac, M., & Saroha, E. (2007). Lifetime prevalence of learning disability among US children. *Pediatrics*, 119(S1), S77-83.

Baker, B.L., Blacher, J., Crnic, K.A., & Edelbrock, C. (2002). Behavior problems and parenting stress in families of three-year-old children with and without developmental delays. *American Journal on Mental Retardation*, 107, 433-44.

Baker, B.L., McIntyre, L.L., Blacher, J., Crnic, K.A., Edelbrock, C., & Low, C. (2003). Preschool children with and without developmental delay: behavior problems and parenting stress over time. *Journal of Intellectual Disability Research*, 47, 217-30.

Barkley, R.A. (1997). Behavioral inhibition, sustained attention, and executive functions: constructing a unifying theory of ADHD. *Psychological Bulletin*, 121(1), 65-94.

Barkley, R. (2002). Psychosocial treatments for attention-deficit/hyperactivity disorder in children. *Journal of Clinical Psychiatry*, 63 (S12), 36-43.

Beck, A.T. (1983). Cognitive therapy of depression: New perspectives. In P.J. Clayton and J.E. Barret (Eds.), *Treatment of depression: Old controversies and new approaches*. New York: Raven Press.

Bertrand, J., Mars, A., Boyle, C., Bove, F., Yeargin-Allsop, M., & Decoufle, P. (2001). Prevalence of autism in a United States population: the Brick Township, New Jersey, investigation. *Pediatrics*, 108(5), 1155-61.

Bond, L.A., & Burns, C.E. (2006). Mothers' beliefs about knowledge, child development, and parenting strategies: expanding the goals of parenting programs. *Journal of Primary Prevention* 27(6), 555-71.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA.: Harvard University Press.

Campbell, S.B. (2002). *Behavior problems in preschool children: Clinical and developmental issues* (2nd ed.). New York: Guilford Press.

Children's Mental Health Ontario (2002). Children's Mental Health Services for Children Zero to Six: Review of the Literature and Practice Guide. CMHO: Toronto, ON.

- Chakrabarti, S., & Fombonne, E. (2001). Pervasive developmental disorders in preschool children. *Journal of the American Medical Association*, 285(24), 3093-9.
- Cicchetti, D., & Toth, S.L. (1998). The development of depression in children and adolescents. *American Psychology*, 53, 221-41.
- Cloninger, C.R. (1999). A new conceptual paradigm from genetics and psychobiology for the science of mental health. *The Australian and New Zealand Journal of Psychiatry*, 33(2), 174-86.
- Costello, E.J., Keeler, G.P., & Angold, A. (2001). Poverty, race/ethnicity, and psychiatric disorder: a study of rural children. *American Journal of Public Health*, 91(9), 1494-8.
- Costello, E.J., Mustillo, S., Erkanli, A., et al., (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives in General Psychiatry*, 60, 837-44.
- Crnic, K.A., Gaze, C., & Hoffman, C. (2005). Cumulative parenting stress across the preschool period: Relations to maternal parenting and child behaviour at age 5. *Infant and Child Development. Special Issue: Parenting Stress and Children's Development*, 14(2), 117-32.
- Dalen, L., Sonuga-Barke, E.J., Hall, M., & Remington, B. (2004). Inhibitory deficits, delay aversion and preschool AD/HD: implications for the dual pathway model. *Neural Plast.* 11(1-2), 1-11.
- Denham, S.A., Blair, K.A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S., & Queenan, P. (2003). Preschool emotional competence: pathway to social competence? *Child Development*, 74(1), 238-56.
- Derk, E.M., & Hudziak, J.J., van Beijsterveldt, C.E.M., Dolan, C.V., & Somsma, D.I. (2004). A study of genetic and environmental influences on maternal and paternal CBCL Syndrome scores in a large sample of 3-year-old Dutch twins. *Behavior Genetics*, 34(6), 571-83.
- Egger, H.L., & Angold, A. (2006). Common emotional and behavioural disorders in preschool children: presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*, 47(3-4), 313-37.
- Eley, T.C., & Plomin, R. (1997). Genetic analyses of emotionality. *Current Opinion in Neurobiology*, 7(2), 279-84.
- Fombonne, E. (2003). Epidemiology surveys of autism and other pervasive developmental disorders: an update. *Journal of Autism Developmental Disorders*, 33(4), 365-82.
- Furniss, T., Beyer, T., & Guggenmos, J. (2006). Prevalence of behavioural and emotional problems among six-years-old preschool children: baseline results of a prospective longitudinal study. *Social Psychiatry Psychiatric Epidemiology*, 41(5), 394-9.
- Happé, F., Ronald, A., & Plomin, R. (2006). Time to give up on a single explanation for autism. *Nature Neuroscience*, 9(10), 1218-20.

Harrington, R., Rutter, M., & Fombonne, E. (1996). Developmental pathways in depression: multiple meanings, antecedents, and endpoints. *Developmental Psychopathology*, 8, 601-16.

Hill, A.L., Degnan, K.A., Calkins, S.D., & Keane, S.P. (2006). Profiles of externalizing behavior problems for boys and girls across preschool: the roles of emotion regulation and inattention. *Developmental Psychology*, 42(5), 913-28.

Jane-Llopis, E. (2006). From evidence to practice: mental health promotion effectiveness. Guest Editorial. *Australian e-Journal for the Advancement of Mental Health*, 5(1), 1-11.

Kazdin, A.E., & Rogers, A. (1985). *Management of Children's Behavior Scale*. Pittsburgh, PA: Western Psychiatric Institute and Clinic, University of Pittsburgh School of Medicine.

Keenan, K., & Wakschlad, L.S. (2000). More than the terrible twos: The nature and severity of behavior problems in clinic-referred preschool children. *Journal of Abnormal Child Psychology*, 28, 33-46.

Kesler, R.C., Berglund, P., Delmer, O., et al., (2005). Lifetime prevalence and age of onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593-602.

Kirby, M.J.L., & Keon, W.J. (2006). *Out of the shadows at last: transforming mental health, mental illness and addiction services in Canada*. Ottawa: Standing Committee on Social Affairs, Science and Technology.

Klobinsky, S.A., Kvalanka, K.A., Randolph, S. (2006). Social skills and behaviour problems of urban, African American preschoolers: role of parenting practices, family conflict and maternal depression. *American Journal of Orthopsychiatry*, 76(4), 554-63.

Lahey, B.B., Loeber, R., Quay, H.C., Frick, P.J., & Grimm, J. (1992). Oppositional defiant and conduct disorders: Issues to be resolved for DSM-IV. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31(3), 539-46.

Lavigne, J.V., Arend, R., Rosenbaum, D., Binns, H.J., Christoffel, K.K., & Gibbons, R.D. (1998). Psychiatric disorders with onset in the preschool years: I. Stability of diagnosis. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37(12), 1246-54.

Lavigne, J.V., Cicchetti, C., Gibbons, R.D., Binns, H.J., Larsen, L., & DeVito, C. (2001). Oppositional Defiance Disorder with onset in preschool years: Longitudinal stability and pathways to other disorders. *Journal of the American academy of child and Adolescent Psychiatry*, 40(12), 1393-1400.

Lavigne, J.V., Gibbons, R.D., Christoff, K.K., Arend, R., Rosenbaum, D., Binns, H., Sawson, N., Sobel, H., & Isaacs, C. (1996). Prevalence rates and correlates of psychiatric disorders among preschool children. *American Academy of Child and Adolescent Psychiatry*, 35(2), 204-14.

- Martorell, G.A., & Bugental, D. (2006). Maternal variations in stress reactivity: implications for harsh parenting practices with very young children. *Journal of Family Psychology*, 20(4), 641-7.
- Mental Health Europe (2000). *Mental Health Promotion for children up to 6 years*. Brussels: Mental Health Europe.
- McCain, M., & Mustard, F. (1999). *Early years study final report*. Toronto: Publications Ontario.
- McEwan, K., Waddell, C., & Baker, J. (2007). Bringing children's mental health "out of the shadows". *Canadian Medical Association Journal*, 176(4), 471-2.
- McLaughlin, D.P., & Harrison, C.A. (2006). Parenting practices of mothers of children with ADHD: The role of maternal and child factors. *Child and Adolescent Mental Health*, 11(2), 82-8.
- Merrell, K.W., & Holland, M.L. (1997). Social-emotional behavior of preschool-age children with and without developmental delays. *Research on Developmental Disability*, 18(6), 393-405.
- Mrakotsky, C., & Heffelfinger, A. (2006). Neuropsychological Assessment. In J. Luby (Ed.), *Handbook of preschool mental health: Development, disorders, and treatment* (pp. 283-310). New York: The Guilford Press.
- O'Conner, T.G., Deater-Deckard, K., Fulker, D., Rutter, M., & Plomin, R. Genotype-environment correlations in late childhood and early adolescence: antisocial behavioural problems and coercive parenting. *Developmental Psychology*, 34(5), 970-81.
- Percepetchikova, F., & Kazdin, A.E. (2004). Assessment of parenting practices related to conduct problems: Development and validation of the Management of Children's Behavior Scale. *Journal of Child and Family Studies*, 13(4), 385-403.
- Perry, B.D., Pollard, R.A., Blakely, T.L., Baker, W.L., Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits". *Mental Health Journal*, 16(4), 271-291.
- Pike, A., & Plomin, R. (1996). Importance of nonshared environment factors for childhood and adolescent psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(5), 560-70.
- Plomin, R. (1990). The role of inheritance in behaviour. *Science*, 248(4952), 183-8.
- Plomin, R. (1995). Genetics and children's experiences in the family. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 36(1), 33-68.
- Plomin, R., Ashbury, K., & Dunn, J. (2001). Why are children in the same family so different? Nonshared environment a decade later. *Canadian Journal of Psychiatry*, 46(3), 222-33.
- Plomin, R., Owen, M.J., & McGuffin, P. (1994). The genetic basis of complex behaviors. *Science*, 264(5166), 1733-9.

Ramey, C.T., & Ramey, S.L. (1998). Early intervention and early experience. *American Psychologist* 53, 296-309.

Rapee, R., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2002). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting and Clinical Psychology*, 73(3), 488-97.

Reiss, D., Plomin, R., & Hetherington, F.M. (1991). Genetics and psychiatry: an unheralded window on the environment. *American Journal of Psychiatry*, 148(3), 283-91.

Rettew, C.C., Stanger, C., McKee, L., Doyle, A., & Hudziak, J.J. (2006). Interactions between child and parent temperament and child behaviour problems. *Comprehensive Psychiatry*, 47(5), 412-20.

Rutter, M., Dunn, J., Plomin, R., Simonoff, E., Pickles, A., Maughan, B., Ormel, J., Meyer, J., & Eaves, L. Integrating nature and nurture: implications of person-environment correlations and interactions for developmental psychopathology. *Developmental Psychopathology*, 9(2), 335-64.

Sanders, M.R., & Woolley, M.L. (2005). The relationship between maternal self-efficacy and parenting practices: Implications for parent training. *Child: Care, Health and Development*, 31(1), 65-73.

Sattler, J.M. (1988). *Assessment of children's intelligence and special abilities* (2nd ed.). San Diego: J.M. Sattler.

Shelton, T., Barkley, R.A., Crosswait, C. Moorehouse, M., Fletcher, K., Barrett, S., Jenkins, L., & Metevia, L. (2002). Multimethod psychoeducational intervention for preschool children with disruptive behavior: Two year post-treatment follow up. *Journal of Abnormal Child Psychology*, 28(3), 253-66.

Simons, R.L., Lin, K., Gordon, L.C., Brody, G.H., Murry, V., & Conger, R.D. (2002). Community differences in the association between parenting practices and child conduct problems. *Journal of Marriage and Family*, 64(2), 331-45.

Sprigle, J.E., & Schaefer, L. (1985). Longitudinal evaluation of the effects of two compensatory preschool programs on fourth-through sixth grade students. *Developmental Psychology*, 21, 702-8.

Stoolmiller, M. (1999). Implications of the restricted range of family environments for estimates of heritability and nonshared environment in behaviour-genetic adoption studies. *Psychological Bulletin*, 125(4), 392-409.

Sonuga-Barke, E.J., Auerbach, J., Campbell, S.B., Daley, D., & Thompson, M. (2005). Varieties of preschool hyperactivity: multiple pathways from risk to disorder. *Developmental Science*, 8(2), 141-50.

Thomas, K. (1990). Early identification of developmentally disabled and at-risk preschool children. *Exceptional Children*, 56(6), 528-38.

Turner, M.T., & Sanders, M.R. (2006). Help when it's needed first: A controlled evaluation of brief, preventive behavioural family intervention in a primary care setting. *Behavior Therapy*, 37, 131-42.

Waddell, C., Offord, D.R., Shepher, C.A., Jua, J.M., McEwan, K. (2002). Child psychiatric epidemiology and Canadian public policy-making; the state of the science and the art of the possible. *Canadian Journal of Psychiatry*, 47, 825-32.

Waddell, C., McEwan, K., Shephard, C.A., et al., A public health strategy to improve the mental health of Canadian children. *Canadian Journal of Psychiatry*, 50, 226-33.