Reliability and Validity of the Parents' Management of Child Problem Behaviour Questionnaire 1.0 in Preschoolers with or at risk for Developmental Delays.

by

Nicole E. Rielly

A thesis submitted to the Department of Psychology
in conformity with the requirements for
the degree of Master of Arts

Queen's University
Kingston, Ontario, Canada

August, 1998

Acknowledgements

I would like to thank the families who generously donated their time to invite researchers into their homes and participate in this study.

A number of people have assisted in the development of this project. I would like to thank my supervisor, Dr. Maurice Feldman, for his many contributions in terms of knowledge, guidance, and support over the last two years. I would also like to thank my committee members, Dr. Patricia Minnes and Dr. Kevin Parker, for their generosity with their time, support, and valuable feedback. Two undergraduate students, Christie Hancock and Katherine Ford, worked on coding questionnaires and videotapes. Thank you both for doing an excellent job. Colleen Cairns and Dwight Weisman also played an important role in the collection and maintenance of the majority of the data presented in the present study.

A number of people assisted in locating interested families for participation in this project. I would like to thank Dr. Adrienne Perry and Carol Haddad at the Thistletown Regional Treatment Centre, Dr. Marjory Phillips at Hotel Dieu Hospital, and Drew Kennedy and Shirley Hicks at the Frontenac County School Board for their assistance in this regard.

I would also like to thank Jenny Demark and Lianne Fisher for their assistance in the pilot work for this project, and their invaluable support.

Table of Contents

Acknowledgements....i

Table of Contents....ii

List of Tables....v

List of Appendices....vii

Abstract....1

Introduction....3

Prevalence and Stability of Developmental Disabilities....4

Prevalence and Stability of Behaviour Problems....4

Need for Instruments to Assess Behaviour Problems in Preschoolers with Developmental Disabilities....6

Importance of Including Parenting Strategies in an Assessment of Child Behaviour Problems....7

Current Instruments....10

Introduction to the Parents' Management of Child Problem Behaviour Questionnaire....12

Approaches to Test Development and Standards for Establishing Properties of a New Test....13

Purpose of the Present Study....14

Predictions....14

Method....16

Participants....16

Measures....18

Results....26

Sample Descriptives....26

Characteristics of the Children....26

Characteristics of the Families....31

Testing of Appropriate Assumptions....32

Group Differences....35

Reliability and Validity of the PMCPB Problem Behaviour Checklist....40

Reliability and Validity of the PMCPB Effectiveness Ratings....45

Reliability and Validity of the PMCPB Management Strategies....48

The Second Version: PMCPB Questionnaire Problem

Behaviour Checklist 2.0....58

Discussion....63

Sample Descriptives....63

PMCPB Problem Behaviour Checklist 1.0....64

PMCPB Mean Effectiveness Ratings 1.0....67

PMCPB Management Strategies 1.0....68

Summary of Reliability and Validity Evidence....70

Research Implications....75

Clinical Implications....77

Limitations and Suggested Improvements for the PMCPB 2.0....79

Future Research and Suggested Plan for Phase Two of Development of the PMCPB 2.0 82

Conclusions 84

References 86

Appendices 95

Curriculum Vita 142

List of Tables

Table 1

Frequencies of Primary Diagnoses of Participants, Based on Parent Report.....27

Table 2

Frequencies of Extent of Delay, Based on Parent Report.....29

Table 3

Means and Standard Deviations of Child Behavior Checklist Subscale Scores.....37

Table 4

Means and Standard Deviations of the Reiss Scales for Children's Dual Diagnosis Subscale z-scores.....39

Table 5

Predicted and Observed Correlations Between PMCPB Total Problem Behaviour T Scores and Major Dependent Measures.....44

Table 6

Predicted and Observed Correlations Between PMCPB Mean Effectiveness Scores and Major Dependent Measures.....47

Table 7

Management Strategies and Corresponding Mean Effectiveness Ratings, Two year-olds.....49

Table 8

Management Strategies and Corresponding Mean Effectiveness Ratings, Three to Five year-olds.....50

Table 9

Intra-Rater Reliability of Management Strategies.....53

Table 10

Inter-Rater Reliability of Management Strategies.....55

Table 11

Relationship Between Management Strategies Demonstrated During Videotaped Observations and Those Endorsed on the PMCPB Supplemental Checklist by the Primary Informant.....57

Table 12

Item Selection for Version 2 of the PMCPB Problem Behaviour Checklist.....59

Table 13

Selected Standards for Educational and Psychological Testing addressed for the Parents' Management of Child Problem Behaviour 1.0, Child Behavior Checklist/4 - 18, and Reiss Scales for Children's Dual Diagnosis.....72

List of Appendices

Appendix A

Consent Form.....95

Appendix B

Parents' Management of Child Problem Behaviour Questionnaire.....99

Appendix C

Inter-rater Agreement of Management Strategy Coding.....112

Appendix D

Family Information Questionnaire.....114

Appendix E

Objective Scoring Criteria for the Use of the Vineland Adaptive Behavior Scales - Survey Form as a Research Tool Using Questionnaire Administration.....120

Appendix F

Caldwell HOME Inventory

Infant-Toddler Version.....122

Preschool Version.....125

Appendix G

Video Coding Form.....128

Appendix H

Agreement Between Raters on Coding of Videotaped Observations.....130

Appendix I

Testing of Appropriate Assumptions

Table 1: Evaluation of Univariate Skew and Kurtosis for Reliability and Validity Measures.....133

Table 2: Proportions of Management Strategies endorsed by Primary Informants on the PMCPB Questionnaire, and on the PMCPB Supplemental Questionnaire, By Group.....134

Table 3: Proportions of Management Strategies endorsed by Primary Informants on the PMCPB Supplemental Questionnaire, and those endorsed by Second Informants Regarding the Strategies used by Primary Informants, By Group.....135

Table 4: Proportions of Management Strategies endorsed by Primary Informants on the PMCPB Supplemental Questionnaire, and Observed during Videotaped Observations, By Group.....136

Appendix J

Tables for Conversion of PMCPB Raw Total Scores to T Scores.....137

Abstract

The purpose of the present study was to evaluate the psychometric properties of a newly developed instrument: the Parents' Management of Child Problem Behaviour Questionnaire (PMCPB) 1.0. This instrument was evaluated with preschoolers with or at risk for developmental delays, and included questions about parenting strategies. A secondary goal was to provide suggestions for the next stage of test development. Ninety-one preschoolers with or at risk for developmental delays from Southern and Eastern Ontario and their care providers participated in interviews and videotaped observations. Primary informants (usually the child's mother) completed four questionnaires pertaining to their child's behaviour: the PMCPB 1.0, the Child Behavior Checklist, the Reiss Scales for Children's Dual Diagnosis, and the Vineland Adaptive Behavior Scales - Survey Form. The PMCPB 1.0 consists of three parts: a Problem Behaviour Checklist, Parent Management Strategies, and Effectiveness Ratings for those management strategies. For these purposes the sample was divided according to age into two groups (54 two year-olds and 37 three to five year-olds). The PMCPB Problem Behaviour Checklist 1.0 was found to have adequate internal consistency (.91 to .92), inter-rater reliability (.58 to .82), and convergent validity. The presence or absence of problem behaviours demonstrated during videotaped observations was not significantly related to scores from the PMCPB Problem Behaviour Checklist 1.0. The PMCPB Effectiveness ratings demonstrated low inter-rater reliability and convergent validity was only found on some measures for the older group of children (three to five year-olds). The PMCPB Management Strategies were classified into eleven categores by two

independent raters: 1) Physical/Mechanical Restraint, 2) Nothing/Ignore, 3) Time Out, 4) Positive Verbal, 5) Positive Physical/Tangibles, 6) Proactive, 7) Negative Verbal, 8) Distraction/Change Location, 9) Models/Teaches Appropriate Behaviour, 10) Corporal Punishment, 11) Other strategy (85% overall agreement achieved). A form of intra-rater reliability and validity coefficients for the PMCPB Management strategies were generally low and nonsignificant. Adequate inter-rater reliability was found for a minority of these strategies. Results are discussed in terms of reliability, validity, and utility of the PMCPB1.0 . A revised version, the PMCPB 2.0 is developed and suggested for phase two of test development.

Reliability and validity of the Parents' Management of Child Problem Behaviour Questionnaire 1.0 in preschoolers with or at risk for developmental delays.

Introduction

The development of reliable and valid instruments for the early detection of behaviour problems in children with or at risk for developmental disabilities is crucial to early intervention efforts. It has long been recognized that a number of environmental and parental factors can influence the development of behaviour problems in a bidirectional or transactional manner (Schaffer & Collis, 1986). Therefore it is important to include measures of parenting influences in any assessment of behavioural difficulties in children. A new measure, the Parents' Management of Child Problem Behaviour Questionnaire (PMCPB), includes both a problem behaviour checklist and a section on parent management strategies. The results of the present study report the initial findings of reliability and validity for this measure, and suggest improvements for the next stage in the development of this instrument.

The following review outlines research on the prevalence and stability of developmental disabilities and behaviour problems, and explains the need for adequate measures to detect these behaviour problems in very young children with developmental disabilities. Furthermore, the importance of including assessments of parenting strategies in an assessment of child behaviour problems is discussed. A critical review of current instruments highlights the need for new measures in this area. The PMCPB Questionnaire is then introduced in more detail. A brief review of approaches to test development is

then presented. Finally, the purpose and predictions of the present study are presented.

Prevalence and Stability of Developmental Disabilities

The prevalence of developmental disabilities in the United States has been estimated at 1.1% (Fujiura & Yamaki, 1997). The prevalence of severe developmental delay in preschoolers in Australia has been estimated at four in 1000, with males more likely than females to have a general developmental delay (Stevenson & Richman, 1976). A similar prevalence rate of mental retardation (approximately four in 1000) was found in a Canadian study of seven to 10-year-old children (McQueen, Spence, Garner, Pereira, & Winsor, 1987). In a study of the stability of DSM-III (Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition; American Psychiatric Association, 1987) diagnoses in children attending a therapeutic preschool program, developmental delay was one of the most likely diagnoses to be stable at a five-year follow-up (Beitchman, Wekerle, & Hood, 1987). The diagnosis of a developmental disability therefore seems to apply to a significant proportion of people, and seems to be relatively stable.

Prevalence and Stability of Behaviour Problems

In children without developmental disabilities, the most recent epidemiological study of psychiatric disorders in Ontario found that the prevalence estimate for one or more disorders was 18% (Offord et al., 1987). Another study of children aged 4 to 16 years without developmental disabilities found that problem behaviour scores predicted disturbance three years later (Stanger, Achenbach, & McConaughy, 1993). In this study disturbance was defined in terms of academic and behaviour problems at school, receipt of mental health services, suicidal behaviour, and police contacts.

Studies comparing rates of behaviour problems in children with and without developmental disabilities have found that the factor structure of behaviour problems in groups of children with developmental disabilities is similar to that found in the general population and in other clinical subgroups (Thompson, 1984). Children with developmental disabilities generally evidence higher levels of behaviour problems than control groups of children without developmental disabilities, but less than the levels demonstrated by children with primary behaviour problems referred for mental health services (Cullinan, Epstein, & Dembinski, 1979; Curry & Thompson, 1979; Thompson, Curry, & Yancy, 1979). Children with developmental disabilities were rated higher than typically developing control groups on measures of aggression, inhibition, activity level, somatization, and social problems (Thompson, Curry, & Yancy, 1979).

More recent surveys seem to confirm that children with developmental disabilities are at risk for and show an increased prevalence of behaviour disorders (Atkinson, Feldman, & Condillac, 1998; Grizenko, Cvejic, Vida, & Sayegh, 1991). A recent survey of people with developmental disabilities in Ontario found that 52.9% of children aged four to eleven years showed clinically significant aberrant behaviour (Atkinson et al., 1998). Among the most common behaviour problems were anger and lack of self-control, attention deficits, autism, withdrawal, enuresis and encopresis, and pica (Atkinson et al., 1998). A higher prevalence of risk behaviours, or those that may result in injury, have also been found in children with developmental disabilities between the ages of four and 18 (Sherrard, Tonge, & Einfeld, 1997). This study found only minimal sex differences for these potentially harmful behaviour problems.

The increased risk for behaviour disturbances has also been investigated in younger children. Preschool-aged children with developmental delays have been found to be four to five times more likely to show behaviour problems or "excesses" than an age-matched comparison group (Merrell & Holland, 1997). This higher prevalence of behaviour problems in children with developmental disabilities may have implications for early intervention, as an association between behaviour problems and speech and language delay has been found in children as young as 2 years of age (Jenkins, Bax, & Hart, 1980).

Studies of children with and without developmental disabilities suggest that behaviour problems may not disappear as children age. Behaviour problems in early childhood often persist and may predict further behaviour disturbances later in life (Patterson, DeBaryshe, & Ramsey, 1989). A difficult temperament very early in life is strongly associated with behavioural disorder, especially if the child also has a cognitive impairment (Chess & Korn, 1970). In a longitudinal study of young children with developmental delays, levels of behaviour problems at ages 3 and 4 persisted and were similar at ages 6 and 7 (Bernheimer, Keogh, & Coots, 1993). The sample used in this study, however, may not be representative of children with developmental disabilities, as children with syndromes or genetic disorders were excluded.

Need for Instruments to Assess Behaviour Problems in Preschoolers with Developmental Disabilities

Given the relative frequency and persistence of these behaviour problems it is surprising that behaviour problems in children, especially young children, with developmental disabilities have received relatively little research attention. Further, the

early identification of behaviour problems in children with developmental disabilities is essential for the implementation and effectiveness of early intervention strategies (Guralnick & Bricker, 1987). It has been suggested that there is a growing need for high-quality measures to assist in clinical decision making and to assess the effects of early intervention efforts (Spiker, Kraemer, Constantine, & Bryant, 1992). It may be important to identify behaviour problems at an even earlier age than are included in most instruments available for children with developmental disabilities, if early interventions are to be properly implemented.

Importance of Including Parenting Strategies in an Assessment of Child Behaviour Problems

A study of the involvement of parents in programs for their children with disabilities indicated that 94% of programs used parent training, 89% involved parents in child assessment, and 85% involved parents in direct teaching of their children (Karnes, Linnemeyer, & Myles, 1983). Parents are their children's first teachers, are usually the first to notice behaviour problems, and are in a unique position from which to influence their child's behaviour (Peterson & Cooper, 1989). Anecdotally, when parents are asked what they need from professionals in early intervention programs they often call for a professional to first listen to their needs (Peterson & Cooper, 1989). Including questions about parent management strategies in an assessment of child behaviour problems gives parents opportunities to discuss what they are currently doing to manage their child and any difficulties they may be having.

The importance of parenting strategies when evaluating child behaviour and

planning intervention is often overlooked, and these strategies play an important role in child behaviour (Brockman, Morgan, & Harmon, 1988; Lamb, Ketterlinus, & Francasso, 1992). Family management practices such as poor monitoring and poor parental discipline strategies contribute to the development of behaviour problems and antisocial characteristics (Patterson et al., 1989; Patterson & Stouthamer-Loeber, 1984). Parenting characteristics such as maternal unresponsiveness in interactions with children as young as one year old have been found to be predictive of aggressive child behaviour at ages two and three years (Shaw, Keenan, & Vondra, 1994). Behavioural or temperamental characteristics of the child and parenting characteristics interact in a bidirectional manner to produce child behaviour (Lerner, Castellino, Terry, Villarruel, & McKinney, 1995; Wachs & Sheehan, 1988).

The identification of specific behaviour management problems and successes could aid clinicians in assessing behavioural difficulties, treatment planning, and implementation (Chamberlain & Patterson, 1995). Two theoretical positions about effective parenting skills have been investigated (Chamberlain & Patterson, 1995). The first is the behavioural position which focuses on contingent interactions. The second is the developmental perspective which posits that some combination of assertive parental control and warm responsiveness is associated with child competence (Chamberlain & Patterson, 1995). Management strategies that have been successfully applied in the home by parents to handle difficult child behaviour include: differential attending, time out, and token economies (see Williams, Williams, & McLaughlin, 1991, for a review). There is also some evidence that proactive strategies are related to child compliance and lowered

discipline confrontations (Holden, 1983). Such behavioural procedures and have been evaluated and found to be effective in managing child problem behaviour. They are typically introduced to parents by professionals, and are commonly included in parent education programs (e.g., Dangel & Polster, 1988).

The effectiveness of these management strategies may differ considerably, depending on the context in which it is used. Parents identified as well-functioning and effective have been shown to use a relatively wider repertoire of discipline strategies (Chamberlain & Patterson, 1995). The type of management strategy used may depend on situational demands, and correlations have been found between certain types of child problem behaviours and parental discipline responses (Chamberlain & Patterson, 1995). It has been suggested that a number of third factors, such as the organization of the home environment, may also influence the relationship between parenting and child behaviour (Sanson & Rothbart, 1995). The quality of young children's home environments has been related to child behaviour problems in previous research, such that lower ratings of the quality of the home environment predict higher problem behaviour scores (Spiker et al., 1992). To some extent, what "good" parenting is will depend on characteristics of the situation and the child (Sanson & Rothbart, 1995). Given that successful early interventions require a high level of parent involvement (Karnes et al., 1983), it may be beneficial to ask parents what they find effective before introducing them to a behaviour management program.

The importance of including parent management strategies in an evaluation of child behaviour problems or in planning intervention may be particulary relevant in working

with families of children with developmental disabilities. Mothers of children with developmental disabilities more often consider their interactions with their children to be teaching sessions than mothers of children without developmental disabilities (Hodapp, 1995). Mothers have been shown to be more didactic, directive, and intrusive when interacting with their children with developmental disabilities than mothers of children without developmental disabilities (Hodapp, 1995). There has also been some suggestion that the directiveness of parent interactions with their children may be related to the level of their child's developmental delay (Girolametto & Tannock, 1994). It is therefore important to consider parenting strategies when assessing child behaviour, and this may be particularly true of children with developmental disabilities (McDevitt, 1988).

Current Instruments

One reason that young children with or at risk for developmental disabilities are somewhat understudied may be the inadequacy of current instruments to identify behaviour problems in these children. Few instruments have been standardized on children with developmental disabilities, and those that have been usually do not have normative data that extends to the preschool years. For example, the Child Behaviour Checklist (CBCL; Achenbach, 1991, 1992) is a widely used and well-established instrument for identifying behaviour disturbances, even in young preschool children. This instrument, however, was standardized on a sample of typically developing and clinic-referred children, and it may not be appropriate to generalize the use of this instrument to children with developmental disabilities. Children with developmental disabilities were excluded from the normative sample for the CBCL for Ages 2 - 3, and children with known

syndromes or identified developmental disabilities were also excluded from the clinical sample used in the development of this measure (Achenbach, Edelbrock, & Howell, 1987). The CBCL for Ages 4 - 18 also excluded children with developmental disabilities (Achenbach, 1991). The Preschool Behavior Questionnaire (PBQ) also excluded children with developmental disabilities from the original standardization sample (Behar & Stringfield, 1974). A later study provided some reliability and validity data on the use of the PBQ with children with developmental disabilities, but these results were based on a small (n=34) group of children ranging in age from three to six years (Aman & Rojahn, 1994).

The validity of tests for populations other than those which a test was standardized on can not be assumed (Kaplan & Saccuzzo, 1993). The validity of the Child Behavior Checklist in groups of children with chronic physical illnesses (Perrin, Stein, & Drotar, 1991) and children born prematurely and at a low birth weight (Spiker et al., 1992) has been questioned. It has been suggested that problem behaviour checklists may be capturing developmental immaturity rather than behavioural disorder in children born prematurely (Spiker et al., 1992). It is possible that problem behaviour checklists that excluded children with developmental disabilities from their standardization process may also be measuring some immaturity, or another construct related to disability, rather than behaviour problems in children with developmental disabilities.

Other problem behaviour questionnaires have been developed for use with children with developmental disabilities. The Reiss Scales for Children's Dual Diagnosis (Reiss & Valenti-Hein, 1990) were standardized on a sample of children with developmental

disabilities. Normative information for this instrument has only been provided for children aged four and older. As discussed above, accurate identification of behaviour problems in children younger than the age of four years is needed for the effective implementation of early intervention. It is also notable that none of the problem behaviour questionnaires reviewed here include measures to address parent management strategies, which can have considerable impact on child behaviour problems.

Introduction to the Parents' Management of Child Problem Behaviour Questionnaire 1.0

The Parents' Management of Child Problem Behaviour Questionnaire 1.0 (PMCPB) is a newly developed instrument that includes parenting strategies, as well as items intended to identify behaviour problems in young children with or at risk for developmental disabilities (Feldman & Minnes, 1995). The behaviour items on this questionnaire are based on the responses of careproviders of persons with developmental disabilities in the Ontario Aberrant Behaviour and Treatment Survey (Atkinson et al., 1998). Parents are also asked to describe their management strategies and rate the effectiveness of their strategies on the PMCPB (Feldman & Minnes, 1995). These parent management strategies have the potential to inform early intervention strategies. That is, knowledge of what parents are currently using to manage their children's problem behaviour, and what strategies are effective, may indicate which strategies should be taught to families having difficulty managing their children's behaviour. This questionnaire fills an important gap in the research on behaviour disturbances in children with developmental disabilities. The PMCPB questionnaire has many potential applications beyond the early identification of behaviour problems. It may have some

utility in monitoring the effectiveness of interventions, such as formal programs to modify child behaviour and parent education programs. Normative data, as well as evidence of the reliability and validity of this new instrument must be established before its research and clinical utility can be determined.

Approaches to Test Development and Standards for Establishing Test Properties

The American Psychological Association (APA; 1985) has published a set of standards and criteria for establishing the reliability and validity of a new instrument. Evidence of validity of an instrument should be presented for the recommended use or intended inferences of the test. All procedures used to obtain samples and the characteristics of those samples should be described when presenting reliability evidence. In addition, when a judgment process is used in scoring a test (as it is in the PMCPB) evidence on the agreement between independent scorings should be presented (American Psychological Association, 1985).

A stringent test of convergent and discriminant validity uses the multitrait-multimethod approach (Campbell & Fiske, 1959; Hoge, Meginbir, Khan, & Weatherall, 1985). In this approach more than one trait and more than one method must be employed (Campbell & Fiske, 1959). The present investigation strives to address the above Standards, as well as to employ independent methods (questionnaire and videotaped observations) to evaluate the properties of the PMCPB Questionnaire. Properly establishing the reliability and validity of a new questionnaire may require a series of studies and a number of years, and this study attempts to report on only the first phase of PMCPB Questionnaire development.

Purpose of the Present Study

The proposed study aimed to begin the process of test development by examining the reliability and validity of scores on the Parents' Management of Child Problem Behaviour Questionnaire 1.0, an instrument with the potential to contribute to our knowledge of behaviour problems in young children with developmental delays or disabilities. The objectives of this research were therefore to evaluate the properties of the PMCPB 1.0 in a sample of preschoolers with or at risk for developmental disabilities. As this is a new questionnaire, a secondary goal of this study was to not only evaluate this first version of the PMCPB Questionnaire, but also to suggest directions for further development of this instrument (version 2.0).

Predictions

The PMCPB Problem Behaviour Checklist 1.0. It was predicted that the problem behaviour score of the PMCPB Questionnaire would have high internal consistency and adequate inter-rater reliability. Convergent validity of this measure was also evaluated. It was predicted that the mean problem behaviour score of the PMCPB would be significantly highly correlated with other measures of global and externalizing measures of behaviour problems (i.e., Child Behavior Checklist total and externalizing scores, Reiss Scales for Children's Dual Diagnosis total score). In addition, the problem behaviour score of the PMCPB Questionnaire would be significantly and highly correlated with behaviour problems demonstrated on the videotapes. It was expected that the quality of the children's home environments would be associated with ratings of child behaviour problems. It was therefore predicted that higher scores on measures of the quality of the

child's home environment as measured by the Caldwell HOME Inventory (Caldwell & Bradley, 1984) would be related to lower scores on the PMCPB Problem Behaviour Checklist. It was also predicted that the PMCPB Problem Behaviour Checklist would demonstrate discriminant validity. It was expected that the problem behaviour score of the PMCPB would not be significantly correlated with internalizing behaviour problems on the CBCL and Reiss Scales.

PMCPB Effectiveness Ratings 1.0. It was predicted that the mean effectiveness ratings of the PMCPB questionnaire would have high internal consistency and adequate inter-rater reliability. It was predicted that higher effectiveness ratings would be related to lower problem behaviour scores. Effectiveness ratings on the PMCPB would be significantly negatively correlated with global and externalizing problem behaviour scores on the CBCL and Reiss Scales and behaviour problems on the PMCPB. It was also predicted that PMCPB effectiveness scores would be highly correlated with ratings of the quality of the home environment as measured by the Caldwell HOME Inventory (Caldwell & Bradley, 1984). It was predicted that effectiveness ratings on the PMCPB would not be significantly correlated with internalizing behaviour problems on the CBCL and Reiss Scales.

PMCPB Management Strategies 1.0. It was predicted that the management strategies described by raters on the PMCPB questionnaire would be reliably and accurately classified by independent coders. Further, the management strategies would have adequate intra-rater and inter-rater reliability. It was predicted that the management strategies endorsed by careproviders on the PMCPB Supplemental Checklist would be

significantly correlated with the management strategies demonstrated on videotapes of the primary careprovider and child interacting in home situations.

Method

Participants

Participants were recruited from hospitals and community agencies in Ontario. The majority of participants in this study were participating in an on-going study on the resiliency and vulnerability of preschoolers with or at risk for developmental delays to behaviour problems (Feldman & Minnes, 1995). This longitudinal study followed children at risk for developmental delays from ages two to four, and employed measures on a large number of child, parent, and family variables. Infant development programs, early intervention programs, child development programs, community behaviour management services, child treatment facilities, child outpatient clinics, and a school board in Southern and Eastern Ontario were contacted to identify potential families. All families with the need in Ontario have the right to access these services. Agencies in large urban centres (e.g., Toronto), suburbs (e.g., Richmond Hill), medium-sized cities (e.g., Kingston, St. Catharines), and small cities and rural areas (e.g. Chatham) were contacted.

Those centres that agreed to participate were given information letters to distribute to eligible families. All children between the ages of two and five years old who qualified for early intervention and preschool services for children with or at risk for developmental problems qualified to participate in the study. Families interested in participating in the study or obtaining more information had the option of granting the contact person permission to release their name and phone number to the researchers, or contacting the

researchers directly. Of those families who were contacted or initially expressed interest in this research, approximately 10% subsequently declined participation.

Written consent was obtained from all parents in the study before the interview began and questionnaires were administered (see Appendix A). A copy of the consent form was given to parents for their records. Interviews were conducted in the homes of participating families. The interviews and completion of questionnaires took approximately two hours. Those families who consented to videotaping spent an additional forty to sixty minutes being videotaped in their homes by the interviewer.

It was originally proposed that data would be collected from families with children at ages two, three, and four years (and older if necessary to improve sample size). Further, the reliability and validity of the Parents' Management of Child Problem Behaviour Questionnaire 1.0 (PMCPB) would be investigated at these three age levels. A small number of families with children in the oldest age group (four and five year-olds; n=6) participated in the present investigation. Due to concerns about lack of power to detect a significant effect using such a small group, data from the three year-old group and four to five year-old group were combined. Participants who did not complete the PMCPB Questionnaire were excluded, as this measure was the focus of the current investigation. Sample size did vary with questionnaire, as some participants declined filling out the occasional questionnaire, or items within a questionnaire. Due to concerns about power, data were retained for those participants who completed the PMCPB but omitted other items or questionnaires. An apriori power analysis indicated that at least 80 to 100 participants would be needed to detect a significant medium-sized correlation

(r=.30; Faul & Erdfelder, 1992). The final sample size in the present study was 91.

The present sample was therefore divided into two groups according to age. The two year-old group consisted of 54 children (36 boys and 18 girls). The mean age for this group was 28.4 months (SD = 4.0). The age range for this group was 19 to 35 months. The three to five year-old group consisted of 37 children (20 boys and 17 girls), with a mean age of 44.2 months (SD = 8.2). The age range for the 3 to 5 year old group was 36 to 66 months.

Measures

Parents' Management of Child Problem Behaviour Questionnaire (PMCPB) 1.0. The focus of the present study was the psychometric properties of the PMCPB as a research tool. This questionnaire is comprised of three sections: a problem behaviour checklist, a management strategy questionnaire, an effectiveness rating scale, and a supplemental checklist was added for the purposes of the present study. This questionnaire is a modification of the Current Management Strategies Inventory used in the Ontario Aberrant Behaviour and Treatment Survey (Atkinson et al., 1998). This questionnaire has been adapted for use with parents, and to include behaviour items that were reported by careproviders of children with developmental delays and disabilities. (Please see Appendix B.)

A) Problem behaviour checklist. The first section is a problem behaviour checklist containing 42 items that parents rate on a seven point scale (1 = "never a problem", 2 = "rarely a problem", 3 = "occasionally a problem", 4 = "sometimes a problem", 5 = "usually a problem", 6 = "frequently a problem", 7 = "always a problem"). This section yields a

total and mean problem behaviour score. Missing items were imputed according to the following formula:

$$\frac{\text{Mean behaviour rating for item X Mean behaviour rating for subject}}{\text{Overall mean rating (across subjects and items)}}$$

B) Management strategy questionnaire. For each behaviour rated as five or greater on the previous checklist, the primary caregiver and another adult who knows the child well (a second parent where possible) was asked to describe what they do to handle the problem behaviour. Informants who did not rate any behaviours five or greater (i.e., no problem behaviours) are also asked what they do to manage child behaviour. These verbatim descriptions were categorized into one of eleven categories of management strategies. The eleven mutually exclusive categories were developed through the use of a Q-sort procedure. In a pilot study, a random sample of 45 parent responses to the PMCPB were sorted into progressively better defined and more specific categories by two independent raters (graduate students in psychology, knowledgeable regarding treatments used with persons with developmental disabilities). Over 90% agreement was reached in sorting parent management strategies into the final eleven categories. (Percent agreement refers to the number of "hits" or agreements divided by the sum of the hits and "misses" (disagreements), multiplied by 100.) These categories are: (1) physical or mechanical restraint; (2) nothing/ignore; (3) time out; (4) positive verbal; (5) positive physical or tangibles (for appropriate or inappropriate behaviour); (6) proactive (i.e., preventative strategies); (7) negative verbal; (8) distraction or change location; (9) models/teaches appropriate behaviour (includes reasoning and instructions); (10) corporal punishment;

and (11) other. For example, if an informant described spanking a child when the child has a temper tantrum, their management strategy would be classified as corporal punishment. Only the first management strategy for each behaviour problem the informant described was classified by an independent rater. 23% (48/207) of these judgements were selected in a nonsystematic way to assess reliability. Agreement with a second independent rater on these classifications was 85%. Percent agreement for individual management strategy classifications ranged from 50 to 100. For a detailed breakdown of agreement by management strategy, please see Appendix C.

C) Effectiveness rating scale. Informants were then asked to rate the effectiveness of their approaches to the child's behaviour problems on a seven point scale (from 1 = "not effective", 4 = "moderately effective", to 7 = "very effective"). For those raters who did not score any behaviours five or greater (i.e., the rater reports no behaviour problems), the management strategies described were given the highest effectiveness rating (7), as space was not provided on the PMCPB 1.0 for informants to provide this information. This section yields a mean effectiveness rating. Informants were also asked where they learned about the strategies they use, whether the strategies were recommended and evaluated by a clinician as part of a formal treatment program, and whether the child was receiving any kind of medication or special diet for the problem behaviour.

D) Supplemental Checklist. Informants were asked to fill out a supplemental management strategy checklist, after they had completed describing their own management strategies. The eleven management strategy classifications described above were presented as possible ways to deal with problem behaviours, and parents were asked

to indicate whether they ever used each strategy (Yes / No). This checklist was a supplement to the open-ended questions regarding management strategies in the PMCPB. Although respondents are likely to provide more information and important qualitative information when asked open-ended questions (Sparrow, Balla, & Cicchetti, 1984), this structured checklist was designed to facilitate comparisons to be made with the videotaped sessions during the validation process. Each rater was also asked to indicate whether the child's other rater (a second parent where possible) used each of the above management strategies. Each rater was then asked to evaluate the effectiveness of the strategies used by the child's other rater (a second parent where possible).

Family Information. Demographic information such as parent education levels and family income was collected with the Family Information Questionnaire. Items regarding the child's disability and birth history were also included in this questionnaire. (Please see Appendix D.)

Adaptive Behaviour. The Vineland Adaptive Behavior Scales (VABS) - Survey Form is a widely used general assessment of adaptive behaviour, useful for determining areas of strength and weakness (Sparrow, Balla, & Cicchetti, 1984). The Survey Form contains 297 items that measure adaptive behaviour in the areas of communication, daily living skills, socialization, and motor skills. This form is completed through a semi-structured interview with an informant who knows the subject of the assessment well, and through informal observations. The VABS is a well-standardized instrument, and the manual provides normative data on large samples of handicapped and nonhandicapped individuals from birth to age 18 years, 11 months (Sparrow et al., 1984). Split-half reliability

coefficients for domains range from 0.70 to 0.95, and for the adaptive behaviour composite score these coefficients range from 0.89 to 0.98. The test-retest reliability coefficients for the Survey form range from 0.81 to 0.88. Interrater reliability coefficients for the Survey form range from 0.62 to 0.78 (Sparrow et al., 1984). The majority of VABS Survey forms completed for this study were distributed as questionnaires. Objective scoring criteria were developed for the use of the VABS as a research tool using questionnaire administration (see Appendix E).

Home Environment and Mother-Child Interactions. The Caldwell HOME (Home Observation for Measurement of the Environment) Inventory (Caldwell & Bradley, 1984) is a reliable interview/observational measure of the quality of the home environment and mother-child interactions. The two forms of this inventory (Infant-Toddler and Preschool) used in the present investigation have been shown to have adequate construct and criterion validity for use with children with disabilities (Bradley, Rock, Caldwell, & Brisby, 1989). The majority of children in the standardization group used for comparisons in the present study had cognitive delays, and many had multiple handicaps (Bradley et al., 1989). This inventory yields several subscale scores (e.g., emotional and verbal responsivity of parent, learning stimulation, parent involvement with child) and a total score. Alpha coefficients for this version of the scale ranged from .50 to .85 for subscale scores, and .89 to .92 for the total score (Bradley et al., 1989). (Please see Appendix F.)

Videotaped Observations. Children and their primary careproviders (usually mothers) were videotaped in four different situations. These were playtime, mealtime, during a compliance task (e.g., dressing, cleaning up), and a distraction condition. The distraction

condition involved engaging the parent in an activity (e.g., filling out a questionnaire) while the parent was managing the child. Each session was approximately ten minutes in duration, for a total of forty minutes of videotaped observations. Families who did not wish to be videotaped were still invited to participate in the questionnaire portion of the study. Six families in the two year-old group and five families in the three to five year-old group declined participation in the videotaped observations. The videotapes were coded for whether or not the child displayed any behaviour problems, and whether any parental child management strategies were used during the entire observation period. For purposes of the present investigation, analyses of the four situations were combined to provide maximum opportunities for parents to display child management strategies. The list and definitions of behaviour problems used to record child behaviour were the same as those presented in the PMCPB 1.0 Problem Behaviour Checklist (see Appendix B). The parent management strategies shown on the videotapes were classified into one of eleven management categories: physical or mechanical restraint; nothing/ignore; time out; positive verbal; positive physical or tangibles; proactive; negative verbal; distraction or change location; models/teaches appropriate behaviour; corporal punishment; and other. These are the same categories used in the supplemental management strategies checklist described above. If a parent was observed to hug a child in response to a temper tantrum during the videotaped observation, the strategy would be coded as positive physical or tangibles. Please see Appendix G for the video coding form. These classifications were made by a coder who was blind to the management rating on the PMCPB. Inter-rater reliability was evaluated by an independent rater on 23.8% percent of these judgments.

Percent agreement on presence or absence of behaviour problems over the entire tape was 100%. Percent agreement on presence or absence of the eleven categories of parental management strategies was 91% overall. For a detailed breakdown of agreement by individual management strategies demonstrated during videotaped observations, and agreement on presence of behaviour problems, please see Appendix H.

Other Child Problem Behaviour Rating Scales.

The Child Behavior Checklist for Ages 2 - 3, and The Child Behavior Checklist for Ages 4 - 18 (CBCL). These well-researched checklists (Achenbach, 1991, 1992) were designed for children aged two years and up, but do not provide separate norms for children with developmental disabilities. Children with developmental disabilities were excluded from the normative sample for the CBCL 2 - 3, and children with known syndromes or identified developmental disabilities were also excluded from the clinical sample used in the development of this measure (Achenbach et al., 1987). The CBCL contains 100 child behaviour items in the version normed on children two and three years of age, and 113 items in the version for children aged four to 18, that parents rate as either "not true," "somewhat or sometimes true," or "very true or often true" of their child now or within the past two months. This questionnaire yields a number of scores, including: a total behaviour (T) score, a total internalizing behaviour (T) score, a total externalizing behaviour (T) score, and total subscale scores. Syndrome subscales on the CBCL/2-3 are: Anxious/Depressed, Withdrawn, Sleep Problems, Somatic Problems, Aggressive Behavior, and Destructive Behavior (Achenbach, 1992). Syndrome subscales on the CBCL/4-18 are: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems,

Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior (Achenbach, 1991). High inter-rater reliability (0.99 for behaviour problems), and test-retest reliability (0.84 at a 3-month interval) have been demonstrated for this measure (Achenbach & Edelbrock, 1981).

The Reiss Scales for Children's Dual Diagnosis. This questionnaire was designed specifically for children with developmental delays (Reiss & Valenti-Hein, 1990). Its scores can be interpreted according to DSM-III-R diagnostic classifications (American Psychiatric Association, 1987). The Reiss Scales have not been normed on children less than four years of age. Normative data for children between the ages of four and 21 who have developmental disabilities are available. The normative sample for this measure is divided into children younger than 11 years of age (n=89) and children aged 11 or older, and the number of young children (e.g., 4 year olds) included in this sample is not provided in the manual (Reiss & Valenti-Hein, 1990). This questionnaire contains 60 child behaviour items that raters mark as currently no problem, a problem, or a major problem in the child's life. The Reiss Scales yield a total score and scores on ten psychometric scales: Anger/Self-Control, Anxiety Disorder, Attention-Deficit, Autism/Pervasive, Conduct Disorder, Depression, Poor Self-Esteem, Psychosis, Somatoform Behavior, and Withdrawn/Isolated (Reiss & Valenti-Hein, 1990). High internal reliability (0.91) and moderate interrater agreement (averaged 0.46) have been previously demonstrated for the total score of this measure (Reiss & Valenti-Hein, 1994).

Results

Sample Descriptives

Characteristics of the Children. As noted above, the sample was divided into two groups according to age. These two groups did not differ significantly on most demographic measures. Exceptions to this statement are noted below (see Group Differences). The primary diagnoses of participating children are summarized in Table 1 below. These diagnoses were based on parent report (as told to them by a professional), and independent diagnoses were not obtained. Each group included children of multiple births. The two year-old group included two sets of twins, one set of triplets, and one set of quadruplets. One set of twins was also included in the three to five year-old group. The majority of children in both groups were first (35% in two year-old group, 40% in three to five year-old group) or second (37% in two year-old group, 35% in three to five year-old group) in birth order in their respective families. The mean length of pregnancy for the target child in the two year-old group was 34.74 weeks (SD = 5.70; n = 53) with a minimum of 24 and maximum of 42 weeks. In the three to five year-old group, the mean length of pregnancy was 37.50 weeks (SD = 4.94; n = 34) with a minimum of 24 and a maximum of 42 weeks.

Table 1

Frequencies of Primary Diagnoses of Participants, Based on Parent Report.

Diagnosis	2 year-old Group (%)	3 to 5 year-old Group (%)
Mental Retardation (non-specific)	1 (1.9)	2 (5.4)
Learning Disability	2 (3.7)	2 (5.4)
Down Syndrome	11 (20.4)	9 (24.3)
Cerebral Palsy	7 (13.0)	1 (2.7)
Spina Bifida	1 (1.9)	0
Epilepsy	3 (5.6)	0
Brain damage (congenital)	1 (1.9)	1 (2.7)
Autism	1 (1.9)	3 (8.1)
Fetal Alcohol syndrome	2 (3.7)	2 (5.4)
Other organic/genetic syndrome	3 (5.6)	2 (5.4)
Other condition (e.g., prematurity, language delay)	8 (14.8)	8 (21.6)
No formal diagnosis / Diagnosis unknown	14 (25.9)	7 (18.9)

Two measures were used to assess the extent of developmental delay of the participants in the sample. Firstly, parents reported the extent of their child's delay, as told to them by a professional (see Table 2). Secondly, the Survey Form of the Vineland Adaptive Behavior Scales was completed by parents of the participants. The mean Adaptive Behavior Composite standard score (mean = 100, SD =15) of the two year-old group was 73.2 (SD = 10.8; n = 46). The mean Adaptive Behavior Composite standard score of the three to five year-old group was 68.8 (SD = 20.5; n = 35). These scores were significantly lower than the mean standard score of the standardization group ($t(45) = -16.67$, $p<.05$; $t(34) = -8.88$, $p < .05$). Supplementary norms for special populations are included in the VABS manual, but no children younger than six years of age are included in these norms (Sparrow et al., 1984). This prevented comparison of the performance of the present sample with a similar population on this measure.

Table 2

Frequencies of Extent of Delay, Based on Parent Report.

Extent of delay	2 year-old Group (%)	3 to 5 year-old Group (%)
No delay	4 (7.4)	3 (8.1)
Borderline	2 (3.7)	1 (2.7)
Mild	14 (25.9)	7 (18.9)
Moderate	10 (18.5)	11 (29.7)
Severe	1 (1.9)	4 (10.8)
Profound	2 (3.7)	0 (0.0)
Unknown	21 (38.9)	11 (29.7)

Children in the two year-old group had a mean total T score on the Child Behavior Checklist for Ages 2 - 3 of 50.41 (SD=12.74). 20.7% of the children in this age group scored above the borderline and clinical cutoffs for this measure. The mean internalizing and externalizing T scores for this group on the CBCL were 48.65 (SD=13.00) and 48.64 (SD=12.22), respectively. On the internalizing scale, 17.0% of this group scored above the borderline and clinical cutoff points. On the externalizing scale, 22.6% of this group scored above the borderline and clinical cutoffs. The mean score for the two year-old group on the Reiss total z-score was -0.68 (SD=.48). None of the children in this group scored above the clinical cutoff on the total score for the Reiss Scales for Children's Dual Diagnosis. The standardization group for this measure did not include children of this age.

Children in the three to five year-old group had a mean total T score on the Child Behavior Checklist for Ages 2 - 3 of 53.00 (SD=11.94, n=30). 33.3% of the children in this age group scored above the borderline and clinical cutoffs for this measure. The mean internalizing and externalizing T scores for this group on the CBCL for Ages 2 - 3 were 51.27 (SD=12.07) and 51.27 (SD=11.74), respectively. On the internalizing scale, 30.0% of this group scored above the borderline and clinical cutoff points. On the externalizing scale, 26.7% of this group scored above the borderline and clinical cutoffs. There were a small number of children (n=6) in this group for whom the Child Behaviour Checklist for Ages 4 - 18 was used. The mean total T score for this group was 53.29 (SD=6.70). The mean internalizing and externalizing T scores for this group were 47.57 (SD=4.50) and 48.57 (SD=9.03), respectively. In this small group, none of the children scored above the borderline and clinical cutoffs for the internalizing and externalizing behaviour T scores,

and one child (14.3%) was rated above the borderline cutoff on the total T score. The mean score for the three to five year-old group on the Reiss Scales for Children's Dual Diagnosis total z score was -0.35 (SD=.65). Only 8.3% of the children in this group scored above the clinical cutoff on the total Reiss score. Most of the children in this group were younger than children in the standardization group. The mean total Reiss z-score for those children who were represented in the standardization group was -0.28 (SD=.23, n=6).

Characteristics of the Families

The majority of families in both groups had annual incomes equal to or greater than $30 000 (73.2% in the two year-old group, n = 48; 73.3% in the three to five year-old group, n = 30). The median annual income level in the two year-old group was $45 000 to $49 999, and in the three to five year-old group it was $40 000 to $44 999. The majority of fathers in both groups worked full-time (84.6% in the two year-old group, n=53; 83.3% in the three to five year-old group, n=36). In the two year-old group 32.1% (n=53) of mothers worked full-time. In the three to five year-old group 27.0% (n=37) of mothers worked full-time. The majority of parents in both groups were married or living together (88.7% in the two year-old group, n = 53; 91.9% in the three to five year-old group; n = 37). Three or fewer children were living in the majority of the participating homes (88.9% in the two year-old group, 94.6% in the three to five year-old group). In both groups, the majority of families owned their own homes (75.6% in two year-old group, 73.0% in three to five year-old group). The mean total z-score on the Caldwell HOME Inventory, Infant-Toddler Version for the two year-old group was 1.06 (SD=.85,

n=41), and for the three to five year-old group was 1.05 (SD=.68, n=23). The Preschool Version of the Caldwell HOME Inventory was appropriate for a small number (n=9) of children, and the mean total z-score for this group was .72 (SD=.90).

The primary caregiver was the informant in all cases. In the two year-old group, 53 of these informants identified herself as the child's mother, and 1 informant identified himself as the child's father. In the three to five year-old group, all 37 informants identified themselves as the child's mother. The mean age of mothers in the two year-old group was 34.1 years (SD = 6.4, n = 53), and 84.2% (n = 38) had achieved a college diploma or a higher level of education. In the three to five year-old group, mothers had a mean age of 35.3 years (SD = 6.0), and 65.7% (n = 35) had achieved a college diploma or higher level of education. The mean age of fathers in the two year-old group was 35.5 years (SD = 6.7), and 37.3 years (SD = 7.2; n = 35) in the three to five year-old group. The majority of fathers in both groups had also achieved a college diploma or higher level of education (79.0% in the two year-old group, n = 38; 57.2% in the three to five year-old group, n = 28).

Testing of Appropriate Assumptions

Univariate normality was assessed for the major reliability and validity measures by an examination of single-variable histograms, and by dividing Skewness by the Standard Error of Skewness, and Kurtosis by the Standard Error of Kurtosis. If each of these values is less than the absolute value of 3, skew and kurtosis are not such that they violate normality (Tabachnick & Fidell, 1989). Skew and kurtosis values for all major reliability measures, by group, are reported in Table 1 of Appendix I.

As Table 1 in Appendix I indicates, most of the major reliability and validity measures were positively skewed. The total z-scores for the HOME Inventory were negatively skewed. PMCPB total scores (ratings of the primary caregiver) were normalized by applying T scores (mean = 50, standard deviation = 10) according to the percentile of the raw score (see Achenbach, 1991, 1992). Tables for conversion of PMCPB total scores to T scores for both groups are presented in Appendix J. Natural logarithmic transformations (base e) were applied to the CBCL for Ages 2 -3 total, internalizing, and externalizing T scores, Reiss total z-scores, and VABS composite standard scores to approximate normal distributions. Skewness in the Reiss subscale scores and HOME Inventory total scores was likely due to insufficient variance. These scores were not transformed. Nonparametric statistics (Spearman rank correlations) were used when the normality assumption was violated, and the scores could not be adequately transformed. This was the case with four measures: the Reiss subscale z-scores (Anxiety Disorder, Poor Self-Esteem, and Withdrawn) and the total z-score of the HOME Inventory.

Phi coefficients were used to evaluate the reliability of management strategies. The phi coefficient is appropriate in cases where the item and criterion variables are scored dichotomously (Ferguson & Takane, 1989). Phi will be artificially restricted when the proportions in the two dichotomies are not equal (Crocker & Algina, 1986). The proportions of raters who reported the use of different management strategies on the PMCPB, and those who endorsed the use of different management strategies on the PMCPB supplemental questionnaire are reported in Table 2 of Appendix I. These values

will be used to evaluate the intra-rater reliability of the management strategies reported on the PMCPB Questionnaire. Similarly, proportions of primary informants who endorsed the use of the different management strategies, and the corresponding proportions of second raters who reported the first informants' use of the management strategies, are reported in Table 3 of Appendix I. The dichotomous variable of presence or absence of the management strategies as seen during videotaped observations were also used. Table 4 of Appendix I displays the proportions of endorsement of these classifications, and the proportions of management strategies endorsed by the primary informant on the PMCPB Supplemental Questionnaire. As Tables 2 through 4 of Appendix I indicate, the proportions in the two dichotomies in each table are generally different. It should also be noted that Phi coefficients were attenuated when the proportion of endorsement was very different from .50, because correlations will be deflated when there are very uneven splits in dichotomous variables (Tabachnick & Fidell, 1989). The phi coefficients and kappas for these measures were therefore artificially restricted, except for those measures which have been set in bold typeface.

To assess the assumption of linearity between the target variable and measures of reliability and validity, bivariate scatter plots of each pair of variables were examined. These scatter plots confirmed the presence of linearity and ruled out the presence of other trends (e.g., curvilinear) in the relationships in most cases. In some scatter plots, no relationship between the variables was seen, and a curvilinear relationship between the PMCPB total T score and the Reiss Anxiety Disorder subscale z-score was seen. This relationship was likely the result of the low variability of the Reiss anxiety scores, and the

fact that the PMCPB total score was transformed into a normally distributed variable. As stated above, a Spearman rank correlation was used with the Reiss Anxiety Disorder z-subscale score, as the assumptions for a Pearson correlation were not met.

The Bonferroni correction (Stevens, 1996) was applied to all planned statistical tests (see Predictions above). This Bonferroni correction resulted in a significance level of .005 required for significance at the .05 level after the correction. Missing items on problem behaviour checklists were dealt with by replacing the missing value with the participant's mean item rating for that measure.

Group Differences

As the groups were created on the basis of age, the mean age of the two groups was significantly different ($t(89) = -12.14$, $p < .05$). The two groups did not differ on the proportion of boys and girls in the groups. They also did not differ on the extent of the child's delay (according to parent report) or the Adaptive Behavior Composite standard score of the Vineland Adaptive Behavior Scales - Survey form. The groups were not significantly different on age of mothers, age of fathers, the total z-score of the Caldwell HOME Inventory, Infant-Toddler Version, or annual family income.

Parents' Management of Child Problem Behaviour Questionnaire. The three to five year-old group did not score significantly differently on the PMCPB total T score than the two year-old group ($t(89) = .08$, $p = .93$). The total T score for the two year-old group was 50.04 (SD=9.52), and the total T score for the three to five year-old group was 49.87 (SD=9.50). No sex differences were found for this measure. The mean number of problem behaviours (rated 5 or higher on a 7-point scale) for the two year-old group was

2.76 (SD=3.90), and for the three to five year-old group the mean was 4.43 (SD=4.34). The mean number of problem behaviours reported for these two groups was not significantly different ($t(89)=-1.92$, $p=.029$, not significant after Bonferroni correction). The most commonly reported behaviour problems (rated 5 or higher on a 7-point scale) in the two year-old group were: Eating (24%), Sleeping (17%), Transitions (17%), Oppositional (15%), and Toileting (15%). The most commonly reported behaviour problems in the three to five year-old group were: Toileting (32%), Transitions (29%), Eating (27%), Temper Tantrums (22%), Paying Attention (22%), and Sleeping (22%).

Child Behavior Checklist. The two groups did not differ significantly on the total T score, externalizing T score, or internalizing T score of the Child Behavior Checklist for Ages 2 - 3. Table 3 demonstrates the means of the CBCL subscale T scores across the two groups. This table reports the means for those participants for whom the 2 to 3 year-old version of the CBCL was used and for whom the 4 -18 year old version separately. The scores from older participants (n=6) were excluded from further analyses, as the CBCL version for older children (ages 4 to 18) is comprised of a different number and type of subscale scores than the 2 - 3 version, and only a small number of children in the older age group participated in the present study. The means of the subscale T scores were not significantly different between the two groups. These scores were, however, significantly higher than the standardization sample where indicated with an asterisk.

Table 3

Means and Standard Deviations of Child Behaviour Checklist (Achenbach, 1991, 1992) Subscale Scores.

Subscale	Mean for 2 year-olds (SD)	Mean for 3 yr-olds (SD)	Mean for 4 and 5 yr-olds (SD)
Anxious/Depressed	52.91 (7.59)*	52.83 (5.87)*	50.00 (.00)
Aggressive	53.57 (8.10)*	54.90 (8.87)*	52.00 (3.95)
Sleep Problems	54.06 (8.38)*	56.50 (8.96)*	
Destructive Behaviour	56.15 (8.72)*	57.53 (8.90)*	
Withdrawn	56.15 (9.48)*	58.43 (9.11)*	57.67 (7.81)
Somatic Problems	56.56 (9.38)*	57.87 (7.62)*	50.67 (1.63)
Delinquent Behaviour			52.67 (2.80)
Social Problems			54.83 (6.94)
Attention Problems			56.83 (5.91)*
Thought Problems			59.83 (8.82)*

* = significantly higher than standardization sample at $p<.05$ (Bonferroni correction not applied).

Reiss Scales for Children's Dual Diagnosis. The group differences on this measure of child problem behaviours supported the division of the sample into two groups. The groups scored significantly differently on the Reiss Scales total z-score ($t(82) = -2.71$, $p < .05$), such that the mean for the two year-old group ($M = -.68$) was significantly lower than the mean for the three to five year-old group ($M = -.35$). Means and standard deviations on the Reiss Subscale z-scores are displayed in Table 4. An asterisk in Table 4 indicates that the two year-old group and three to five year-old group were significantly different ($p<.05$).

Table 4

Means and Standard Deviations of the Reiss Scales for Children's Dual Diagnosis (Reiss & Valenti-Hein, 1990) Subscale z-scores.

Subscale	Mean for 2 year-olds (SD)	Mean for 3 - 5 year-olds (SD)
Withdrawn	-.73 (.13)	-.40 (.80)*
Attention Deficit	-.66 (.53)	-.31 (.69)*
Psychosis	-.48 (.61)	-.16 (.75)*
Somatoform Behavior	-.32 (.28)	-.01 (.82)*
Autism/Pervasive	-.43 (.59)	-.39 (.81)
Poor Self-Esteem	-.34 (.46)	-.34 (.36)
Conduct Disorder	-.31 (.53)	-.25 (.84)
Depression	-.31 (.45)	-.17 (.50)
Anger/Self-Control	-.24 (.87)	.03 (.85)
Anxiety Disorder	-.04 (.77)	.04 (.85)

* = groups are significantly different at $p<.05$ (Bonferroni correction not applied).

Reliability and validity of the PMCPB Problem Behaviour Checklist 1.0

Predicted and observed correlations between all major measures and the PMCPB total T score on the problem behaviour checklist can be found in Table 5. The Bonferroni correction (Stevens, 1996) was applied to the reliability and validity of the PMCPB problem behaviour checklist and mean effectiveness scores. Asterisks in Tables 5 and 6 indicate significance after this correction.

Internal Consistency of the Parent's Management of Child Problem Behaviour Checklist. Alpha coefficients according to Cronbach's (1951) method were computed for the two groups separately. For the PMCPB total T score in the two year-old group, an alpha coefficient of .916 was obtained. For the PMCPB total T score in the three to five year-old group, and alpha coefficient of .908 was obtained. Although there is no cutoff value for acceptable alpha (Schmitt, 1996), these values indicate that in these samples, at least 90% of the total score variance is due to true score variance (Crocker & Algina, 1986).

Inter-rater Reliability of the PMCPB Problem Behaviour Checklist. Agreement between two raters (usually mother and father) of children's behaviour on the total T score was moderately high (r=.582, p<.05, n=24) for the two year-old group, and high (r=.823, p<.05, n=26) for the three to five year-old group. Similarly, two raters identified the number of problem behaviours (rated 5 or higher on a 7 point scale) with moderately high reliability (r=.604, p<.05, n=24) in the two year-old group, and high reliability (r=.918, p<.05, n=26) in the three to five year-old group. Inter-rater reliability of individual items was not evaluated in the present investigation, and is not typically

calculated for questionnaires similar to the PMCPB (e.g., CBCL for Ages 2 - 3; Achenbach, 1992).

Convergent Validity of the PMCPB Total Problem Behaviour Score. The total T score from the PMCPB was correlated with other measures of problematic child behaviour to determine whether the PMCPB had convergent validity. As predicted, total PMCPB T scores in the two year-old group were significantly positively correlated with the total (r=.642, p<.05, n=54) and externalizing (r=.660, p<.05, n=54) T scores of the Child Behavior Checklist for Ages 2 - 3, and the total score of the Reiss Scales for Children (r=.424, p<.05, n=42). Similarly, total PMCPB T scores in the three to five year-old group were significantly correlated with the total (r=.864, p<.05, n=30) and externalizing (r=.863, p<.05, n=30) T scores of the Child Behavior Checklist for Ages 2 - 3, and the total z-score on the Reiss Scales for Children (r=.764, p<.05, n=34). These correlations for the older group were also of the predicted magnitude (i.e., high positive correlations).

It was predicted that there would be a negative correlation between problem behaviours as measured by the PMCPB total T score and quality of home environments as measured by the Caldwell HOME Inventory. This predicted correlation was not found to be significant after the Bonferroni correction in the three to five year-old group, and not significant or in the predicted direction in the two year-old group.

The total T score on the PMCPB was evaluated in terms of child behaviour problems as demonstrated during videotaped observations. Videotaped observations were coded for 71% of the two year-old group (of those families who consented to

videotaping) and 66% of the three to five year-old group (of those who consented to videotaping). The videotapes coded for this investigation were not selected in a systematic way. (The PMCPB total T and CBCL total T scores for those subjects included in video coding and those not coded were not significantly different for both age groups.) The majority of children in both age groups demonstrated some form of behaviour problem during the 40 to 60 minute observation period (85.7% for two year-old group; 80.9% for three to five year-old group). The point biserial correlation between the presence or absence of behaviour problems during videotaped observations and the PMCPB total T score in the two year-old group was not significant (r=.06). This correlation was also not significant in the three to five year-old group (r=.07).

Discriminant Validity of the PMCPB Total Problem Behaviour Score. Four measures were originally proposed for use as discriminant validity measures. It was predicted that the total score of the PMCPB would not be related to internalizing behaviour problems, as only a small proportion of the behaviour items on this measure (6/42) seemed to correspond to items on other internalizing scales (e.g., CBCL internalizing). The CBCL for Ages 2 - 3 internalizing T score, Reiss poor self-esteem z-score, Reiss anxiety disorder z-score, and Reiss withdrawn z-score were proposed as discriminant reliability measures. As noted above, the Reiss subscale z-scores were not normally distributed. Spearman rank correlations were therefore used with these measures instead of Pearson correlations.

In both groups, the CBCL for Ages 2 - 3 internalizing T score was significantly related to both the total CBCL T score (r=.890, p<.05, n=54; r=.896, p<.05, n=37), and

the externalizing CBCL T score (r=.701, p<.05, n=54; r=.760, p<.05, n=37). In retrospect, given the high degree of relatedness between the internalizing and externalizing measures on the CBCL, the CBCL internalizing score was not an appropriate measure to use to demonstrate discriminant validity of the PMCPB total problem behaviour score. The CBCL internalizing T score was also found to be correlated with the CBCL total and externalizing T scores in the standardization sample for this measure (Achenbach, 1991).

Correlations between the PMCPB total T score and the four proposed measures of discriminant validity are shown in Table 5. These correlations were not consistently in the predicted direction. Counter to original predictions, the PMCPB total T score was significantly positively correlated with the CBCL internalizing T score in both the two year-old (r=.487, p<.05) and three to five year-old (r=.767, p<.05) groups. The Reiss withdrawn subscale was also positively correlated with the PMCPB total T score in the two year-old group. The Reiss poor self-esteem subscale was also significantly correlated with the PMCPB total T score in the two year-old group. Concordant with predictions demonstrating some discriminant validity were the low correlations between the PMCPB total T score and Reiss poor self-esteem and withdrawn subscale z-scores in the three to five year-old group, and the Reiss anxiety disorder subscale z-score in both groups.

Table 5

Predicted and Observed Correlations between PMCPB Total Problem Behaviour T Scores and Major Dependent Measures.

Measure	2 year-old group		3 to 5 year-old group	
	Predicted	Observed	Predicted	Observed
PMCPB total (with other rater)	high +ve	.582*	high +ve	.823*
Vineland	?	.107	?	-.132
CBCL total	high +ve	.642*	high +ve	.864*
CBCL internalizing	low	.487*	low	.767*
CBCL externalizing	high +ve	.660*	high +ve	.863*
Reiss total	high +ve	.424*	high +ve	.764*
Reiss poor self-esteem	low	.353*	low	.134
Reiss anxiety	low	.082	low	.392
Reiss withdrawn	low	.430*	low	.279
HOME total	high -ve	.168	high -ve	-.406

* = significant at $p<.05$, after Bonferroni correction.

Reliability and validity of the PMCPB Effectiveness Ratings 1.0.

Predicted and observed correlations between all major measures and PMCPB mean effectiveness ratings can be found in Table 6.

Primary careproviders were asked to give a description of what strategies they used to handle their child's problem behaviour (scored 5 or higher on the problem behaviour checklist), and then rate the effectiveness of the strategy they provided on a scale from 1 to 7 (anchors 1=not effective, 4=moderately effective, 7=very effective). The mean effectiveness rating for the two year-old group was 5.30 (SD=1.44; n=29), and the mean effectiveness rating for the three to five year-old group was 4.78 (SD=1.42; n=31). The difference between the two groups on this measure was not significant ($t(58)=1.42$, $p=.08$).

Inter-rater reliability of PMCPB mean effectiveness scores. Inter-rater reliability for this measure was calculated by correlating the mean effectiveness rating from the original PMCPB questionnaire with the rating of the primary careproviders' effectiveness in managing child problem behaviour, as judged by a second rater who knows the child well (in most cases a second parent or another adult living in the home with the child). The inter-rater reliability for this measure for the two year-old group was in the expected direction, but was not significant ($r=.367$, $p=.108$, $n=13$). Inter-rater reliability of the effectiveness ratings for the three to five year-old group was not in the predicted direction ($r=-.297$, $p=.070$, $n=26$).

Validity of the PMCPB mean effectiveness scores. It was expected that higher mean effectiveness ratings would be associated with a lower frequency and severity of

child problem behaviours. As can be seen in Table 6, this measure was significantly related to problem behaviours as measured by the PMCPB Problem Behaviour Checklist in the older group, but not in the younger group. The mean effectiveness ratings were also not significantly related to problem behaviours as measured by the CBCL and Reiss Scales for the younger group. Significant negative correlations between effectiveness ratings and the CBCL total and externalizing T scores, and the Reiss total z-score were found in the older group. It was predicted that higher mean effectiveness ratings would be related to higher ratings of the quality of the home environment, as measured by the Caldwell HOME Inventory. However, the expected correlations between the mean effectiveness scores and the HOME Inventory were not found.

Table 6

Predicted and Observed Correlations between PMCPB Mean Effectiveness Ratings and Major Dependent Measures.

Measure	2 year-old group		3 to 5 year-old group	
	Predicted	Observed	Predicted	Observed
Mean effectiveness (with other rater)	high +ve	.367	high +ve	-.297
PMCPB total T	high -ve	-.280	high -ve	-.559*
CBCL total	high -ve	-.129	high -ve	-.573*
CBCL internalizing	low	.078	low	-.487
CBCL externalizing	high -ve	-.268	high -ve	-.513*
Reiss total	high -ve	-.159	high -ve	-.578*
Reiss poor self esteem	low	-.040	low	-.068
Reiss anxiety	low	.169	low	-.547*
Reiss withdrawn	low	-.122	low	-.117
HOME total	high +ve	.064	high +ve	.345

* = significant at $p<.05$, after Bonferroni correction.

Reliability and validity of the PMCPB Management Strategies 1.0

Management strategies were reliably classified by two independent raters (85% overall agreement). The frequency, percent of respondents reporting each of the various management strategies, and the mean effectiveness rating of the management strategies are shown in Tables 7 and 8 in descending order of frequency. Frequency in these tables refers to the number of times this strategy was reported. As Table 7 demonstrates, Positive Verbal, Distraction/Change Location, and Positive Physical or Tangibles were the three strategies rated most effective in the two year-old group. Physical/Mechanical Restraint, Time Out and Negative Verbal strategies received the three lowest effectiveness ratings. As Table 8 demonstrates, the three strategies rated most effective in the three to five year-old group were Positive Physical/Tangibles, Distraction/Change Location, and Models/Teaches Appropriate Behaviour. Positive Verbal, Other strategies (e.g., prescription medication), and Nothing/Ignore received the three lowest effectiveness ratings in the older group. It should be noted that those strategies identified as Positive Physical/Tangibles were in response to inappropriate behaviour (e.g., rewarding inappropriate behaviour like a temper tantrum with a tangible reward like allowing the child to watch television) in 89% of cases. The Positive Physical or Tangibles strategies were not coded separately in response to appropriate or inappropriate behaviour, in order to facilitate comparisons with the PMCPB Supplemental Checklist.

Table 7

Management Strategies and Corresponding Mean Effectiveness Ratings, Two year-olds.

Management Strategy	Frequency	Percent of Respondents	Mean Effectiveness Rating (n)
Nothing/Ignore	19	37.5	5.36 (14)
Proactive	14	27.5	5.08 (13)
Models/Teaches appropriate	13	27.5	5.44 (9)
Positive Verbal	10	25.0	6.33 (6)
Other strategy	8	20.0	5.57 (7)
Negative Verbal	6	12.5	4.17 (6)
Positive Physical/Tangibles	5	7.5	6.20 (5)
Physical/Mechanical Restraint	4	7.5	5.00 (2)
Distraction/Change Location	3	7.5	6.33 (3)
Time Out	2	5.0	4.50 (2)
Corporal Punishment	1	2.5	------(0)

Table 8

Management Strategies and Corresponding Mean Effectiveness Ratings, Three to Five year-olds.

Management Strategy	Frequency	Percent of Respondents	Mean Effectiveness Rating (n)
Models/Teaches appropriate	22	41.9	4.86 (22)
Nothing/Ignore	21	41.9	3.32 (19)
Proactive	20	48.4	4.47 (19)
Positive Verbal	12	29.0	4.25 (12)
Negative Verbal	11	32.3	4.73 (11)
Time Out	9	19.4	4.33 (9)
Distraction/Change Location	9	29.0	5.44 (9)
Other strategy	9	19.4	3.89 (9)
Positive Physical/Tangibles	6	19.4	6.00 (6)
Physical/Mechanical Restraint	3	9.7	4.33 (3)
Corporal Punishment	0	0	—— (0)

Number of different management strategies reported by informants. The mean number of different management strategies provided by informants in the two year-old group was 1.80 (SD=1.04, n=40), and the mean number in the three to five year-old group was 2.90 (SD=1.51, n=31). A significantly greater number of strategies was reported by informants in the older group ($t(69)=-3.63$, $p<.05$). Informants were asked to provide management strategies for those behaviours rated 5 or higher on the PMCPB problem behaviour checklist.

The mean number of different management strategies provided was significantly related to measures of child problem behaviour. In the two year-old group, the number of management strategies was positively related to: the PMCPB total T score ($r=.555$, $p<.05$), the CBCL total T score ($r=.485$, $p<.05$), the CBCL externalizing T score ($r=.439$, $p<.05$), and the CBCL T internalizing score ($r=.468$, $p<.05$). In the three to five year-old group, the number of management strategies was also positively related to: the PMCPB total T score ($r=.522$, $p<.05$), the CBCL total T score ($r=.586$, $p<.05$), the CBCL externalizing T score ($r=.450$, $p<.05$), and the CBCL internalizing T score ($r=.492$, $p<.05$). All above correlations are positive, indicating that the greater the number of different management strategies provided by the informant, the greater the degree of child problem behaviour. The number of different management strategies was not significantly correlated with mean effectiveness ratings in the two year-old group ($r=.03$), but were significantly correlated in the three to five year-old group ($r=-.38$, $p<.05$). This negative correlation indicates that the greater the number of different management strategies informants reported, the lower their mean effectiveness rating. It should be noted that

because of the way data were collected, a higher number of behaviours above the PMCPB cutoff results in more opportunities for informants to provide management strategies and effectiveness ratings.

Intra-rater reliability of management strategies. A form of intra-rater reliability of the management strategies was evaluated. The management strategies that primary informants' provided in the open-ended format of the original PMCPB 1.0 questionnaire were classified into one of eleven categories according to the procedure described in the above Measures section. These management strategies were then correlated with the primary informants' ratings on the supplemental management strategy checklist. As indicated in the above section of Testing Appropriate Assumptions, assumptions for the phi coefficient and kappa statistic were only met for the management strategy Nothing/Ignore. Table 9 presents percent agreement, phi, and kappa for this form of intra-rater reliability. Overall percent agreement between the primary informants' strategies on the PMCPB and the Supplemental Checklist was 32.5% (range 8% to 71%) in the two year-old group, and 43.6% (range 22% to 70%) in the three to five year-old group. It should be noted that measures of percent agreement do not take into account chance agreement. As Table 9 demonstrates, the phi coefficients for both age groups for this form of intra-rater reliability of Nothing/Ignore were significant at the .05 level. The values of kappa were, however, relatively low.

Table 9

Intra-Rater Reliability of Management Strategies.

Management Strategy	2 year-old group			3 to 5 year-old group		
	% agree	Phi	Kappa	% agree	Phi	Kappa
Physical/Mechanical Restraint	71	----	----	57	.04	.02
Nothing/Ignore	**67**	**.41***	**.36**	**70**	**.42***	**.38**
Time Out	30	.20	.08	30	.18	.06
Positive Verbal	24	----	----	26	----	----
Positive Physical/Tangibles	8	----	----	22	----	----
Proactive	33	.17	.06	57	-.05	-.04
Negative Verbal	17	.08	.01	35	----	----
Distraction/Change Location	8	.04	.00	30	-.06	-.03
Models/Teaches Appropriate	21	----	----	44	-.04	-.02
Corporal Punishment	46	----	----	65	----	----

* = significant at $p<.05$, after Bonferroni correction.

---- = could not be computed because of empty cell values.

Note: Bold typeface indicates assumptions have been met.

Inter-rater reliability of management strategies. Inter-rater reliability of the management strategies was evaluated by correlating the primary informant's ratings on the supplemental checklist with the second informant's evaluation of which strategies the primary informant uses. As indicated in the above section of Testing Appropriate Assumptions, assumptions for the phi coefficient and kappa statistic were met for only four of the 10 management strategies: Physical/Mechanical Restraint, Nothing/Ignore, Time Out, and Corporal Punishment. Inter-rater percent agreement of the management strategies shown in Table 10 are generally high. Percent agreement in the two year-old group ranged from 52 to 100%, with an average of 87.4%. In the three to five year-old group average percent agreement was 87.2% (range 74 to 100%). As Table 10 indicates, the inter-rater reliability (phi coefficient) was significant for both age groups on Physical/Mechanical Restraint, Time Out, and Corporal Punishment strategies. Kappas, however, were generally low. The kappa statistics for the reliability of Restraint in the younger group and Time Out in the older group were at acceptable levels.

Table 10

Inter-Rater Reliability of Management Strategies.

Management Strategy	2 year-old group			3 to 5 year-old group		
	% agree	Phi	Kappa	% agree	Phi	Kappa
Physical/Mechanical Restraint	**95**	**.87***	**.86**	**79**	**.48***	**.46**
Nothing/Ignore	**52**	**-.06**	**-.06**	**75**	**.52***	**.50**
Time Out	**86**	**.58***	**.50**	**95**	**.84***	**.83**
Positive Verbal	100	---	---	100	---	---
Positive Physical/Tangibles	95	---	---	100	---	---
Proactive	95	.79*	.77	74	-.12	-.09
Negative Verbal	95	---	---	90	---	---
Distraction/Change Location	95	---	---	79	-.10	-.09
Models/Teaches Appropriate	86	---	---	100	---	---
Corporal Punishment	**75**	**.55***	**.47**	**80**	**.54***	**.53**

* = significant at $p<.05$, after Bonferroni correction.

--- = could not be computed due to empty cell values.

Note: Bold typeface indicates assumptions have been met.

Validity of management strategies. The primary informants' ratings on the supplemental management strategies checklist were also validated with the management strategies demonstrated during the videotaped observations. The management strategies demonstrated during the videotaped observations were classified into the same categories that were used on the supplemental checklist. If the child did not display any behaviour problems on the videotape, the data were excluded from the following analyses. This resulted in the exclusion of five videotapes in the younger group and four videotapes in the older group. In this way, we selected for the opportunity for informants to display management strategies. Average percent agreement in Table 11 for the two year-old group was 65.5% (range 32 to 95%). Average percent agreement in Table 11 for the three to five year-old group was 58.4% (range 22 to 94%). As indicated in the above section of Testing Appropriate Assumptions, assumptions for the phi coefficient and kappa statistic were met for Nothing/Ignore in both age groups, and Distraction/Change Location for the three to five year-old group. As Table 11 demonstrates, the phi coefficients for the correlations between these management strategies as demonstrated during videotaped observations and those endorsed on the Supplemental Checklist were generally not significant. The Kappa statistics for these relationships also indicated low agreement after taking chance agreement into account.

Table 11

Relationships between Management Strategies Demonstrated during Videotaped Observations and those Endorsed on the PMCPB Supplemental Checklist by the Primary Informant.

Management Strategy	2 year-old group			3 to 5 year-old group		
	% agree	Phi	Kappa	% agree	Phi	Kappa
Physical/Mechanical Restraint	79	.43	.43	56	.32	.19
Nothing/Ignore	**47**	**.13**	**.12**	**28**	**-.56**	**-.51**
Time Out	33	.24	.11	22	.13	.04
Positive Verbal	84	---	---	89	---	---
Positive Physical/Tangibles	79	.38	.26	78	---	---
Proactive	32	.18	.06	28	.13	.04
Negative Verbal	95	---	---	83	---	---
Distraction/Change Location	37	.15	.04	33	**-.42**	**-.27**
Models/Teaches Appropriate	90	---	---	94	---	---
Corporal Punishment	79	---	---	73	---	---

--- = could not be computed because of empty cell values.

Note: Bold typeface indicates assumptions have been met.

The Second Version: PMCPB Questionnaire Problem Behaviour Checklist 2.0.

PMCPB Problem Behaviour Checklist 2.0. In preparation for the next phase in the development of the PMCPB Questionnaire, a number of improvements on the existing 42-item problem behaviour checklist may be suggested. Low variability in the total problem behaviour score of the PMCPB 1.0 necessitated the conversion of total raw scores to T scores. While this conversion normalized the distribution of total problem behaviour scores, it should not be considered the most optimal solution to the problem of low variability at this early stage of test development. To assess the adequacy of individual items, the proportion of informants responding 1 (never a problem) or 2 (rarely a problem) to the original test items (P) are presented in Table 12. For the purposes of the present investigation, if the proportion of informants responding 1 or 2 to an item (P) exceeded .80, this item was judged to have low variability in the present sample. Other criteria that should be kept in mind for selecting items are the length of the test, coverage of the content area, and item-total correlations. For reliability, it has been suggested that approximately twenty to thirty items are needed (Kline, 1986). The higher the correlation between the item and the total, the better the item (Kline, 1986). Item-total correlations (r) are also presented in Table 12. The selection criteria for the PMCPB Problem Behaviour Checklist 2.0 was a P value less than .80, and a significant correlation between the item and the total raw score (r in Table 11) for at least one age group.

Table 12

Item Selection for the PMCPB Problem Behaviour Checklist 2.0.

Item	2 year-old group		3 to 5 year-old group	
	P	r	P	r
Items retained in 2.0 (met selection criteria):				
1 Physical aggression	.61	.55*	.57	.64*
2 Anger	.57	.64*	.51	.61*
6 Screams	.59	.67*	.54	.71*
7 Cries	.68	.71*	.46	.65*
8 Mood swings	.72	.67*	.65	.65*
9 Oppositional	.59	.68*	.38	.75*
10 Temper tantrums	.63	.71*	.43	.76*
11 Property damage	.80	.62*	.78	.68*
12 Throwing objects	.55	.65*	.54	.69*
13 Bangs/slams	.68	.62*	.70	.72*
14 Paying attention	.74	.60*	.35	.48*
15 Hyperactive	.80	.50*	.70	.74*
16 Impulsive	.87	.52*	.65	.52*

Table 12 continues...

Item	2 year-old group		3 to 5 year-old group	
	P	r	P	r
Items retained in 2.0 (met selection criteria) continued:				
17 Manners	.83	.63*	.76	.62*
18 Eating	.43	.42*	.54	.49*
19 Toileting	.76	.50*	.51	.48*
20 Dressing	.74	.63*	.51	.35
21 Sleeping	.67	.63*	.54	.57*
24 Transitions	.63	.46*	.54	.53*
28 Attention-seeking	.80	.67*	.76	.77*
39 Behaviour in public	.76	.49*	.59	.67*
Items retained in PMCPB 2.0 for clinical reasons:				
4 Self-injury	.83	.68*	.86	.28
23 Playing/leisure	.82	.59*	.78	.44
27 Running away	.87	.36	.73	.62*
34 Withdrawn/isolated	.96	.33	.86	.06
35 Fearful/anxious	.83	.13	.76	.40
38 Eating nonedibles	.85	.24	.65	.23
41 Vomiting	.91	.08	.89	-.02

Table 12 continues...

Item	2 year-old group		3 to 5 year-old group	
	P	r	P	r
Items rejected for inclusion in PMCPB 2.0:				
3 Threats	.98	.04	.92	.42
5 Stereotypy	.93	.41*	.78	.35
22 Hygiene	.87	.50*	.70	.36
25 Stealing	.98	.42*	.97	.05
26 Hoarding	.94	.17	.96	.32
29 Obsessive thoughts	1.00	.10	.95	.30
30 Compulsive behaviours	.93	.38*	.84	.44
31 Bizarre talk	1.00	.03	1.00	-.03
32 Self-talk	.96	.46*	1.00	.03
33 Hallucinations	1.00	.28	1.00	.14
36 Touching others	.96	.51*	.89	.15
37 Touching self	.98	.31	.92	.11
40 Stripping	.98	.24	.92	.11
42 Rumination	1.00	—	1.00	-.08

* = significant at $p<.05$, after Bonferroni correction.

P=proportion of informants giving the item the lowest (1 or 2 out of 7) ratings.

r=correlation between item and total. — = could not be computed.

As Table 12 illustrates, only 15 of the original items met the above criteria for both age groups. An additional six items met the criteria for at least one of the groups. Inclusion of other items that did not meet the above criteria should be based on some clinical utility or usefulness. The following items were included in the second version of the PMCPB because they may indicate behaviours that are important in terms of risk to the child: Self-injury, Running away, Eating nonedibles, and Vomiting. The following items were included in the second version of the PMCPB because they may be useful clinical indices for intervention or play a role in some syndromes associated with developmental disabilities (e.g., Autism): Playing/leisure, Withdrawn/isolated, and Fearful/anxious. There were therefore 28 of the original 42 items retained in the PMCPB Problem Behaviour Checklist, Version 2. This length is concordant with published minimum standards for reliability (Kline, 1986). The items selected for inclusion in the PMCPB Problem Behaviour Checklist 2.0 appear to adequately cover the content area.

In Version 2, the mean total problem behaviour raw score for the two year-old group was 57.19 (SD=22.91), and the mean total score for the three to five year-old group was 68.27 (SD=25.65). In contrast to the original PMCPB total raw scores, the total scores for Version 2 did not violate the normality assumption (Skewness/Standard Error of Skewness and Kurtosis/Standard Error of Kurtosis were not greater than the absolute value of 3). The total raw scores on Version 2 Problem Behaviour Checklist were not significantly different between the two age groups ($t(89)=-2.16$, $p=.017$, not significant after Bonferroni correction). The total raw and T scores on the Problem Behaviour Checklist 1.0 were also not significantly different between the two

age groups.

Discussion

The purpose of the present investigation was to evaluate the reliability and validity of the Parents' Management of Child Problem Behaviour 1.0 (PMCPB) as a research tool, and suggest improvements to the PMCPB 1.0 for future stages of test development. Reliable and valid measures of behaviour problems in young children with or at risk for developmental disabilities are important to identify such problems early in this population at risk for behaviour problems (Atkinson et al., 1998). The PMCPB also includes items to evaluate parental management strategies, which can play an important role in the development of behaviour problems (Patterson et al., 1989).

Sample Descriptives

The detailed description of the sample in the present investigation should enable potential PMCPB Questionnaire users to accurately assess the appropriateness and utility of the instrument for their own purposes. Information on the ethnicity and developmental level or quotient as assessed by a standardized test was not obtained in the present study. The degree of delay of the participants included in the present study was based on parent report. Parents have been found to rate their children higher in developmental status than professionals (Sexton, Thompson, Perez, & Rheams, 1990). Although a measure of adaptive behaviour was included in the present study (Vineland Adaptive Behavior Scales - Survey Form), the inclusion of a commonly used measure of more general developmental status (as opposed to including only an assessment of adaptive behaviour) may have been useful for future users of the PMCPB Questionnaire.

PMCPB Problem Behaviour Checklist 1.0

Internal consistency. The internal consistency (or the interrelatedness of items) of this measure (alpha = .9) is comparable to values obtained in other behaviour checklists standardized for use with people with developmental disabilities (e.g., Aman, Singh, Stewart, & Field, 1985). The use of coefficient alpha (Cronbach, 1951) is routine in psychological research in which multiple-item measures are used (Schmitt, 1996). This is an estimate of how consistently ratings on this checklist can be generalized to the domain of items that might have been asked, by determining how consistently the informants rated across items on this single administration (Crocker & Algina, 1986).

High values of alpha have been equated with homogeneity of items within a scale (Crocker & Algina, 1986). Conversely, it has been argued that although alpha does measure internal consistency, it does not measure the unidimensionality of the set of items (Schmitt, 1996). Alpha is an awkward measure of reliability if the test is multidimensional (Schmitt, 1996). The sample size obtained in this study did not permit the appropriate use of factor analysis to determine if the PMCPB Problem Behaviour Checklist 1.0 measures a unidimensional or multidimensional construct. If the PMCPB Problem Behaviour Checklist is found to be a multidimensional measure in future studies, it has been suggested that the reliability can only be estimated by correlating scores on parallel forms of the test (each with the same factor structure; Schmitt, 1996). It should be noted that alpha also changes as a function of test length (Schmitt, 1996).

Inter-rater reliability. The inter-rater reliability of the Problem Behaviour Checklist found in the present study was high (r=.582 in two year-old group, r=.823 in three to five

year-old group) and comparable to similar measures in other studies. Previous research suggests that when raters have the same frame of reference, or play similar roles in a child's life (e.g., two parents), inter-rater reliability will be greater than when raters interact with the target child in different contexts (e.g., parent and preschool teacher; Keogh & Bernheimer, 1998). High concordance in behaviour ratings between two parents might therefore be expected. For example, Achenbach and Edelbrock (1981) found inter-parent reliability on the Child Behavior Checklist to be .985 for behaviour problems. Also concordant with the findings in the present study, Verhulst and Akkerhuis (1989) found higher agreement between behaviour ratings for older children than for younger children.

Convergent validity. The PMCPB Problem Behaviour Checklist appears to have some convergent validity, as it is significantly related to other measures of child behaviour problems at both age levels tested. PMCPB total T scores were not, however, related to the presence or absence of child behaviour problems during videotaped observations. This may be due to the high proportions of children in both groups who demonstrated problems on the videotapes. In the present study behaviour problems demonstrated during videotaped observations were recorded in a very global way (presence or absence of at least one of 42 behaviour items during a 40 to 60 minute period), and this coding scheme may not have been a sensitive or accurate measure of child behaviour problems. Therefore some validity evidence within method (questionnaire), but not across methods (questionnaire to video) was demonstrated in the present study.

It was also originally predicted that children with higher problem behaviour scores would live in homes receiving lower scores on the Caldwell HOME Inventory. The

PMCPB total T scores were not found to be significantly related to the Caldwell HOME Inventory total z-scores. This result is discordant with previous research findings of a negative relationship between HOME Inventory scores and problem behaviour ratings (Spiker et al., 1992). The low variability in HOME Inventory scores and the relatively high education level found in the present sample may explain the difference between the results of this and previous investigations, and indicate that the HOME Inventory was not an appropriate measure to assess validity of the PMCPB.

Discriminant validity. Discriminant validity has been defined as low correlations between the target measure to be validated and other tests, from which the target measure is intended to differ (Campbell & Fiske, 1959). It was originally proposed that the PMCPB Problem Behaviour Checklist would be related to overall and externalizing behaviour problems as measured by the Child Behavior Checklist (Achenbach, 1991, 1992), and not related to internalizing problems as measured by the Child Behavior Checklist. Results indicated high positive correlations between the PMCPB total T score and measures of not only overall and externalizing behaviour problems, but also a measure of internalizing problems as measured by the CBCL. In retrospect, this prediction was fallible. Even though the PMCPB only contains a small number of items that seem to tap internalizing problems, it is possible that other items may indicate internalizing problems but have low face validity.

It has been argued that so little research has been conducted on behaviour problems at these ages (particularly two and three year-olds) that it can be difficult to make appropriate tests of discriminant validity (Achenbach et al., 1987). In retrospect, it

could have been predicted that scores from the PMCPB Problem Behaviour Checklist would be related to other measures of problem behaviour, but not related to measures of development or adaptive behaviour. If the PMCPB Problem Behaviour Checklist measures problem behaviour, but is independent of developmental status or adaptive behaviour levels, it can be said to have some discriminant validity. This may be a particularly important test of discriminant validity, given that some of the most commonly reported behaviour problems on the PMCPB 1.0 may be related to developmental delay (e.g., eating, sleeping, toileting). The correlations between the PMCPB total T score and the Vineland Adaptive Behavior Scales adaptive behavior composite standard score were low and not significant. This would seem to indicate that the PMCPB Problem Behaviour Checklist may have some discriminant validity, but this was not predicted and can not be considered sufficient evidence of discriminant validity.

PMCPB Mean Effectiveness Ratings 1.0

Inter-rater reliability was low for this measure. Parents seem to disagree more about their spouse's effectiveness as the child gets older. This may have implications for monitoring interventions and parent training with young children with developmental disabilities. It may be necessary to supplement parent reports of the effectiveness of management strategies with some more objective rating criteria, such as an observational measure. Effectiveness ratings had some validity for the 3 to 5 year-old group only, in that higher ratings of parental effectiveness in managing problematic behaviour were related to lower ratings of child problem behaviour.

The way in which informants were asked about the effectiveness of their strategies

may have affected the results in the present study. After describing the management strategy used, informants were asked to "Rate the effectiveness of this approach, using a scale of 1 to 7." It may have been more useful to ask informants to rate the effectiveness of the management strategy to: 1) stop the behaviour when it is occurring, 2) prevent the behaviour from occurring in the future, 3) teach the child an alternative way of dealing with the problem. Such information may facilitate comparisons with existing research on the efficacy of different management strategies. For example, the use of Positive Physical/Tangible strategies to reward inappropriate child behaviour in the present study was rated as relatively effective by informants. Although this strategy may be effective in stopping the behaviour when it is occurring, it may not be effective it preventing another occasion of the problem behaviour. In fact, existing research in this area would indicate that positive reinforcement of inappropriate behaviour would increase the likelihood of this behaviour occurring again (Williams et al., 1991).

PMCPB Management Strategies 1.0

The management strategies given by informants on the PMCPB Questionnaire proved hard to evaluate, as only a very small number of strategies met the appropriate assumptions for reliable test statistics. Those strategies that could be evaluated were generally reliable (inter-rater reliability). Generally, relationships were not found to be significant between management strategies from open-ended questions on the PMCPB and those demonstrated during videotaped observations across both age groups. This finding may be related, in part, to the fact that some strategies were endorsed and used by almost all participants, and others were not endorsed nor used by almost all participants. By

including only those videotaped observations in which children demonstrated behaviour problems in these analyses, the results may have been biased. That is, the sample may have been biased to include reactive strategies, and exclude reinforcement of appropriate behaviour, proactive, and teaching strategies.

As mentioned above the management strategy Positive Physical/Tangibles was rated as one of the most effective strategies in both age groups. Since the majority of these strategies were in response to a child behaviour problem, it was unexpected that this strategy would be rated highly effective. It may be the case that these strategies are effective in stopping a behaviour problem once it occurs, but rewarding inappropriate behaviour would not be expected to be effective in preventing another occurrence of the behaviour problem.

The predicted relationships intended as validity evidence for this part of the PMCPB Questionnaire were not found in the present study. This may suggest that the measures employed in the current investigation did not accurately assess the use of parent management strategies, or that the videotaped observations were not a sufficient sampling of parenting behaviours. It is also possible that parent reports may not be highly related with parent behaviour in this context. The finding that higher levels of behaviour problems were related to parental use of a larger number of different management strategies is different from previous research findings that effective parents use a wide variety of strategies (Chamberlain & Patterson, 1995). An alternative explanation for this finding is that parents using a greater number of management strategies are inconsistent in their application of these strategies, and this influences the development of greater

behaviour problems. This finding (that the number of management strategies was positively correlated with behaviour problems), however, may have been biased by the way in which data was collected in the present study.

Summary of Reliability and Validity Evidence for the Parents' Management of Child Problem Behaviour Questionnaire 1.0

The PMCPB Problem Behaviour Checklist demonstrated adequate internal consistency and inter-rater reliability in the present study. Convergent validity was also demonstrated for this measure, in that total T scores on the PMCPB were related to other measures of child problem behaviour. Evidence for the discriminant validity of the Problem Behaviour Checklist was not demonstrated. The Effectiveness Ratings on the PMCPB were also evaluated in the present study, and these scores were not found to have high inter-rater reliability, and were not related to other measures consistently in the predicted direction in the two year-old group. Some evidence for the validity of these Effectiveness Ratings was found for the three to five year-old group. The Management Strategies section of the PMCPB was also evaluated in the present study. Of those strategies for which the statistical assumptions were met, adequate inter-rater reliability was found for most strategies. The predicted relationships between management strategies given by informants on the PMCPB and those demonstrated during videotaped observations were not found. Therefore, the Problem Behaviour Checklist of the PMCPB 1.0 may have many potential research applications (e.g., in the identification of behaviour problems, studies of the prevalence and stability of behaviour problems in young children with or at risk for developmental disabilities).

Following the planned analyses of the PMCPB 1.0, a revised Problem Behaviour Checklist was generated. The 42 items from the PMCPB Problem Behaviour Checklist 1.0 were included in an item selection procedure. Twenty-eight of the original 42 items were selected for inclusion in the PMCPB Problem Behaviour Checklist 2.0, to be evaluated during the next phase of test development.

Selected technical standards for test construction and evaluation are presented in Table 13. Only applicable standards, and those that might be expected to be assessed at this early stage of test development were included in this table. For a complete list of standards, readers are referred to the American Psychological Association's (1985) Standards for Educational and Psychological Testing. On these standards the PMCPB 1.0 was compared to available information for the Child Behavior Checklist for Ages 4 - 18 (Achenbach, 1991) and the Reiss Scales for Children's Dual Diagnosis (Reiss & Valenti-Hein, 1990). As this table shows, many of these standards have been addressed in the current investigation, and some evidence to meet these standards has been presented here. Standard 3.21 regarding standardized administration procedures has been met by the CBCL and Reiss Scales, but has not been addressed at this stage in the development of the PMCPB 1.0.

Table 13

Selected Standards for Educational and Psychological Testing (American Psychological Association, 1985) addressed for the Parents' Management of Child Problem Behaviour 1.0, Child Behavior Checklist/4 - 18, and Reiss Scales for Children's Dual Diagnosis.

Standard	PMCPB 1.0	CBCL 4 - 18	Reiss
1.1 Evidence of validity should be presented for the major types of inferences for which the use of a test is recommended. A rationale should be provided to support the particular mix of evidence presented for the intended uses.	X	X	X
1.2 If validity for some common interpretation has not been investigated, that fact should be made clear, and potential users should be cautioned about making such interpretations. Statements about validity should refer to the validity of particular interpretations or of particular types of decisions.	X	X	X
1.5 The composition of the validation sample should be described in as much detail as is practible. Available data on selective factors that might reasonably be expected to influence validity should be described.	X	X	X
1.8 When a test is proposed as a measure of a construct, that construct should be distinguished from other constructs: the proposed interpretation of the test score should be explicitly stated; and construct-related evidence should be presented to support such inferences. In particular, evidence should be presented to show that a test does not depend heavily on extraneous constructs.	X	X	X
1.17 When statistical adjustments, such as those for restriction of range or attentuation, are made, both adjusted and unadjusted coefficients and all statistics used in the adjustment should be reported.	X	X	X

Table 13 continues....

Standard	PMCPB 1.0	CBCL 4-18	Reiss
2.1 For each total score, subscore, or combination of scores that is reported, estimates of relevant reliabilities and standard errors of measurement should be provided in adequate detail to enable test user to judge whether scores are sufficiently accurate for the intended use of the test.	X	X	X
2.2 The procedures that are used to obtain samples of individuals, groups, or observations for the purpose of estimating reliabilities and standard errors of measurement, as well as the nature of the populations involved, should be described. The numbers of individuals in each sample that are used to obtain the estimates, score means, and standard deviations should also be reported.	X	X	X
2.3 Each method of estimating a reliability that is reported should be defined clearly and expressed in terms of variance components, correlation coefficients, standard errors of measurement, percentages of correct decisions, or equivalent statistics. The conditions under which the reliability estimate was obtained and the situations to which it may be applicable should also be explained clearly.	X	X	X
2.6 Coefficients based on internal analysis should not be interpreted as substitutes for alternate-form reliability or estimates of stability over time unless other evidence supports that interpretation in a particular context.	X	X	X

Table 13 continues....

Standard	PMCPB 1.0	CBCL 4 - 18	Reiss
3.1 Tests and testing programs should be developed on a sound scientific basis. Test developers should compile the evidence bearing on a test, decide which information is needed prior to test publication or disribution and which information can be provided later, and conduct any needed research.	X	X	X
3.20 If a test or part of a test is intended for reserach use only and is not distributed for operational use, this fact should be displayed prominently in any materials provided for interpreting individual scores.	X	X	X
3.21 The directions for test administration should be presented with sufficient clarity and emphasis so that it is possible to approximate for others the administrative conditions under which the norms and the data on reliabilitiy and validity were obtained.		X	X
4.1 Scales used for reporting scores and the rationale for choosing them should be described clearly in test publications to facilitate accurate interpretation of scores by both the test user and the test taker. A publication should specify how scaled scores are derived from raw scores.	X	X	X
4.3 Norms that are presented should refer to clearly described groups. These groups should be the ones with whom users of the test will ordinarily wish to compare the people who are tested. Test publishers should also encourage the development of local norms by test users when the published norms are insufficient for particular test users.	X	X	X

Note: "X" indicates some evidence that the standard has been addressed is available. Information on the CBCL/4 - 18 and Reiss Scales for Children's Dual Diagnosis were obtained from the test manuals (Achenbach 1991; Reiss & Valenti-Hein, 1990).

Research Implications

Research to date in this area may have been hindered by a paucity of behaviour measures standardized on children with developmental delays at such a young age. Reliable measures of child behaviour problems in very young children with developmental disabilities are needed to investigate the prevalence, stability, and development of behaviour problems in this at-risk group of children. The properties of the PMCPB 1.0 demonstrated here indicate that it may have some utility in such investigations. In this study, total measures of behaviour problems in young children with developmental disabilities were not significantly different between the two age groups on the PMCPB Problem Behaviour Checklist. This result is concordant with the results of a study by Bernheimer et al. (1993). They found levels of behaviour problems in children with developmental disabilities stayed nearly constant from ages three and four to six and seven, using the Child Behavior Checklist (Achenbach, 1981).

Results of the present study, however, indicate a trend for increasing behaviour problems with age, as 20.7% of children in the younger group scored above the borderline and clinical cutoffs on the CBCL 2 - 3 total T score, and 33.3% of children in the older group scores above these cutoffs. Similarly, on the Reiss total z-score the three to five year-old group in the present study scored significantly higher than the two year-old group. On this measure, both groups were compared to the same standardization sample (children with developmental disabilities, without a dual diagnosis, younger than 11 years of age) for conversion to z-scores, and both groups scored below the mean for this measure. The majority of participants in the present study, however, were younger than

the youngest age group included in standardization sample for the Reiss Scales for Children's Dual Diagnosis (Reiss & Valenti-Hein, 1990). This finding indicates the degree of behaviour problems found may be a function of the measurement instrument used, and that caution should be used when interpreting scores for individuals or groups who are not represented by the standardization sample for a particular measure.

In the introduction it was posited that the development of behaviour problems is a bidirectional process. To assess these processes, adequate research tools are needed. Although the PMCPB is still being developed, the inclusion of parent management strategies and parent-rated effectiveness of those strategies may prove to have utility in the assessment of these bidirectional processes. The parent effectiveness ratings of management strategies used to deal with children's problem behaviour in the present study were not related to behaviour problems as measured by the PMCPB in the younger sample of children (two year-olds), but were related to PMCPB total T scores in the older group (three to five year-olds). This suggests that while parent characteristics, such as self-perceptions of efficacy in parenting, may be important for older children, they may be less important in influencing the behaviour of younger children. It may also be the case that experience in dealing with behaviour problems leads to increased perceptions of efficacy.

The mean effectiveness ratings in the present study were also negatively correlated with the number of different management strategies parents reported in the three to five year-old group. This may be related to the trend for increasing behaviour problems with age in the present study. As behaviour problems are emerging in these young children with or at risk for developmental disabilities, their careproviders may be trying a number

of new management strategies. If these strategies are applied inconsistently, they may be less effective in managing their children's behaviour. Elucidation of these processes may be addressed in longitudinal studies that include measures of parent management and effectiveness, such as the PMCPB 2.0. Future researchers may find it valuable to ask parents to rate their effectiveness in managing child behaviour problems in a number of different ways (see above), in order to examine the efficacy of different management strategies and the relationship between perceived efficacy and child behaviour problems.

There appeared to be a lack of correspondence between what parents do to manage problem behaviour (during videotaped observations) and what they report doing on the PMCPB Questionnaire. This finding may have been related to the way data was collected in the present study. The video coding system used was global in nature, employing broad categories in relatively lengthy observation periods (approximately 40 to 60 minutes). The number of different management strategies used was related to behaviour problems in the present study, but this may have been an artifact of data collection. In future research it may be important to investigate these management strategies at the level of the behaviour problems for which they are used.

Clinical Implications

The PMCPB 1.0 has been evaluated as a research tool at this stage in its development. The reliability and validity evidence demonstrated for the PMCPB Problem Behaviour Checklist 1.0 in the present study suggests that it may be appropriate for use as a research instrument, but it has not as yet been evaluated as a clinical tool. The PMCPB Problem Behaviour Checklist 1.0 may prove to have clinical utility in discriminating young

children with or at risk for developmental delays clinically referred for behaviour problems from children without behaviour problems in a future clinical trial. As mentioned above, although the Management Strategies and Effectiveness Ratings sections of the PMCPB 1.0 require further development, these sections have the potential to contribute to research on the influence of parenting (i.e., parent management strategies, and perceived efficacy in implementing management strategies) on the development of behaviour problems.

The PMCPB Questionnaire appears to have some reliability and validity, and may prove to have some utility in applied situations. The sections on Management Strategies and Effectiveness Ratings may be particularly useful for evaluating parent training programs when they have been developed and further refined. Many early interventions involve parents as therapists or co-therapists. These measures may also be of value to behaviour management services in the assessment of what parents are currently doing, to plan appropriate interventions.

Some management strategies were rated as more effective than others by parents, and different management strategies were rated as more effective at different age levels. This finding seems to indicate that the age of the child may be important in recommending use of some management strategies to parents. Age is one of the many factors that have been suggested to influence the relationship between parenting and child behaviour in previous research (Sanson & Rothbart, 1995). The utility of some management strategies may be dependent on the verbal skills of the child. For example, negative verbal strategies (e.g, reprimands) were reported to be relatively more effective in the older age group. Parents also seem to disagree more about their spouse's effectiveness as the child gets

older. This may have implications for monitoring interventions with young children with developmental disabilities. It may be necessary to supplement parent reports of the effectiveness of management strategies with some more objective rating criteria. It may also be the case that the utility of a particular strategy is dependent on the context in which it is used, the manner in which it is executed, and the problem behaviour with which it is used (Sanson & Rothbart, 1995).

Limitations and Suggested Improvements for the PMCPB 2.0

A number of general limitations should be kept in mind when evaluating the results of the present investigation. A very small number of four to five year-old children were included in the present study, and results may not be generalizable to children with or at risk for developmental disabilities older than three years of age. A larger sample size is necessary for the next stage of test development. Another major limitation of the present study is that test-retest reliability data are not available. Future stages of development of the PMCPB Questionnaire should expand the age range of the normative sample, and assess the test-retest reliability of these measures. In addition, there was only a limited amount of data from the videotaped observations on which reliable statistics could be used. This prevented the use of a multitrait-multimethod procedure. The multitrait-multimethod procedure is a more stringent test of convergent and discriminant validity (Campbell & Fiske, 1959), and should be employed in future stages of test development.

These results should be considered preliminary, or first-round evidence for this questionnaire. The PMCPB Questionnaire needs to be modified and subjected to a second round of test development. Version 2 may differ from the first version of the PMCPB on

measures such as internal consistency and inter-rater reliability. A larger sample size is also recommended for the next stage of test development, so that the factor structure of the PMCPB Problem Behaviour Checklist can be investigated. If the factor structure of the PMCPB Problem Behaviour Checklist is found to be similar to that in other behaviour questionnaires in similar populations, this finding would provide additional evidence of construct validity.

Suggestions for the improvement of the Problem Behaviour Checklist. The new behaviour item set for the PMCPB 2.0 was presented above (see Results). This item set should have sufficient length for the next phase of test development (Kline, 1986). Items that demonstrated low variability during the first phase of test development have been excluded, which may result in fewer variance problems during phase two. It would facilitate administration to include short descriptions of the behaviour items on the same page as the actual behaviour ratings in the PMCPB 2.0. (These descriptions were attached on separate pages at the end of the behaviour ratings in the PMCPB 1.0, which resulted in extra time spent turning pages to locate the descriptions during administration.)

Suggestions for the improvement of the Effectiveness Ratings. The mean effectiveness ratings for both groups in the present study were only approximately one standard deviation lower than the highest anchor provided on the PMCPB 1.0 (7 = very effective). More variability in responding may be obtained by adding an anchor to the upper end of this scale (e.g., 8 = always effective) on the PMCPB 2.0. Although informants were asked to provide a management strategy even if the target child did not score 5 or greater on any of the behaviour items, they were not asked to provide an

effectiveness rating for this strategy. The inclusion of an effectiveness rating for these management strategies would facilitate the evaluation of the properties of the effectiveness ratings in the PMCPB 2.0. In the next phase of development, informants should be asked to rate the effectiveness of the management strategy to: 1) stop the behaviour when it is occurring, 2) prevent the behaviour from occurring in the future, 3) teach the child an alternative way of dealing with the problem.

Suggestions for the improvement of the Management Strategies. In this evaluation of the PMCPB 1.0, management strategies provided by informants were classified into one of eleven categories. Informants were then asked to indicate their use of these eleven categories of strategies on the PMCPB Supplemental Checklist. Difficulties were encountered in the present investigation, in that the statistical assumptions were not met for the majority of these strategies. More variability in responding might be achieved in the next phase of development by collapsing these eleven categories of management strategies into three more global categories (e.g., teaching, reward, and punishment strategies) for the PMCPB 2.0. These management strategies should also be evaluated separately for use with different behaviour problems, and coded for whether they are used in response to appropriate or inappropriate child behaviour. As mentioned above, the video coding system used to gather validity evidence for this section of the PMCPB 1.0 was global in nature, employing broad categories in relatively lengthy observation periods (approximately 40 to 60 minutes). Parents were observed interacting with their children in four situations: playtime, mealtime, during a compliance task (e.g., dressing, cleaning up), and during a distraction condition (e.g., primary care provider filling out questionnaires

while child is in the room). For the purpose of validating the PMCPB Management Strategies section, it may have been more useful to ask parents to select situations in which they typically need to use management strategies with their children. More precise measures of parent-child interactions or the use of parent management strategies (e.g., moment by moment, frequency counts of target behaviours, sequential parent-child interactions) should be used to evaluate this section of the PMCPB Questionnaire 2.0.

The low correlations found may also be explained by previous research findings that certain types of child problem behaviour have been associated with certain parent discipline strategies (Chamberlain & Patterson, 1995). Therefore, relationships may not have been found between the management strategies and expected measures because strategies were not separated on the basis of the problem behaviours they were reported to be used for. That is, while time out may be an effective strategy for dealing with particular problem behaviours such as noncompliance, this strategy may not be effective for use in other situations (e.g., toileting problems).

Future Research and Suggested Plan for Phase Two of Development of the PMCPB 2.0

Sample. A sample size of 150 to 200 children is recommended for the appropriate use of factor analysis. It has been suggested that at least five subjects per item are required for this procedure (Stevens, 1996). The sample should have approximately equal numbers of 2 year-olds, 3 year-olds, and 4 year-olds. The sample should also have approximately equal numbers of boys and girls. As extensive recruitment efforts in Southern and Eastern Ontario during the first phase of test development resulted in a sample size of 91, multi-site, multi-province recruitment will be necessary in future studies

to access large populations and obtain such a large sample.

Measures. All improvements described in the above section (Suggested Improvements) should be taken into consideration in the development of the PMCPB 2.0. Detailed demographic information will also be required for this second phase of test development. In addition to the measures of adaptive behaviour used in the present study, the inclusion of standardized measures of development should be included in phase two for descriptive purposes, and to evaluate the discriminant validity of the PMCPB 2.0. To evaluate the convergent validity of the PMCPB Problem Behaviour Checklist, it is recommended that the CBCL for Ages 2 - 3, and the CBCL for Ages 4 - 18 be retained in the questionnaire package for phase two. It is also recommended that the newly developed Developmental Behavior Checklist (DBC; Einfeld & Tonge, 1995) be included to evaluate convergent validity. This measure was standardized on a sample of children with developmental disabilities. Although it is similar to the Reiss Scales of Children's Dual Diagnosis in that it was not standardized on children younger than four years of age, the larger number of children in the younger age groups in the standardization sample of the DBC make it a more appropriate measure for use here. It is also suggested that videotaped observations be retained during phase two, to evaluate convergent validity of the Problem Behaviour Checklist, Effectiveness Ratings, and Management Strategies, and so that a multitrait-multimethod procedure may be used. A continuous coding scheme for the child behaviour problems and parent management strategies demonstrated during videotaped observations should be employed in phase two of test development. A frequency count of target behaviours may prove to be a more sensitive measure of parent

and child behaviours.

Procedure. Standardized administration of the PMCPB 2.0 should be employed. Parents would be given a blank form to read, while the interviewer reads the questions aloud to the parents and then records the parent's response verbatim. This procedure has been successfully employed in other research programs (Achenbach, 1991). Parents would be asked to participate in a semi-structured interview and to fill out the questionnaires listed above in the Measures section. They would also be asked to participate in videotaped observations, similar to the procedure described in the present study. Parents would also be asked to complete the PMCPB 2.0 one week after the initial visit, to permit an analysis of test-retest reliability. Test-retest reliability as assessed at a one-week interval has been used in other widely used measures of child behaviour problems (e.g., Child Behavior Checklist/4-18; Achenbach, 1991).

Data Analysis. The multitrait-multimethod procedure should be employed in the next phase of test development to assess convergent and discriminant validity. To demonstrate some validity using this procedure, it would be expected that, for example, the relationship between scores from the Problem Behaviour Checklist and behaviour problems as demonstrated during videotaped observations would be stronger than the relationship between behaviour and effectiveness ratings on the PMCPB 2.0. Factor analytic procedures should also be employed to determine the factor structure of the PMCPB 2.0 Problem Behaviour Checklist.

Conclusions

The present study evaluated the reliability and validity of the PMCPB 1.0, and

provided suggestions for the PMCPB 2.0, and the next phase of test development. Psychometrically acceptable measures of child problem behaviour and parent management strategies in preschoolers with or at risk for developmental delays are needed. Successful early intervention procedures depend on early identification of behaviour problems (Guralnick & Bricker, 1987). Measures such as the PMCPB are also needed to investigate the development of behaviour problems and the influence of parent management strategies in this bidirectional process (Schaffer & Collis, 1986).

Major results of this investigation include the finding that the PMCPB 1.0 Problem Behaviour Checklist has adequate internal consistency, inter-rater reliability, and convergent validity for use as a research tool. This measure was significantly related to other measures of child problem behaviour. The management strategies provided by informants on the PMCPB 1.0 were reliably classified into 11 strategy categories. The PMCPB sections on Management Strategies and Effectiveness Ratings require further development to achieve acceptable levels of reliability, and to permit further investigation of the validity of these measures. The results from the first stage in the development of the PMCPB were promising, in that this instrument has adequate psychometric properties for measuring behaviour problems in young children with or at risk for developmental disabilities, and has many potential research and clinical applications. The PMCPB also yields information regarding parent management strategies and parent perceptions' of the effectiveness of these strategies, which may also have many research and clinical applications, after further test development.

References

Achenbach, T. M. (1981). Child Behavior Checklist. Burlington, VT: University of Vermont.

Achenbach, T. M. (1991). Manual for the Child Behavior Checklist / 4-18 and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1992). Manual for the Child Behavior Checklist / 2-3 and 1992 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Edelbrock, C. S. (1981). Behavioral problems and competencies reported by parents of normal and disturbed children aged four through sixteen. Monographs of the Society for Research in Child Development, 46(1).

Achenbach, T. M., Edelbrock, C., & Howell, C. T. (1987). Empirically based assessment of the behavioral/emotional problems of 2- and 3- year-old children. Journal of Abnormal Child Psychology, 15, 629 - 650.

Aman, M. G., & Rojahn, J. (1994). The psychometric characteristics of the Preschool Behavior Questionnaire in preschoolers with developmental handicaps. Journal of Developmental and Physical Disabilities, 6, 311 - 325.

Aman, M. G., Singh, N. N., Stewart, A. W., & Field, C. J. (1985). Psychometric characteristics of the Aberrant Behavior Checklist. American Journal of Mental Deficiency, 89, 492 - 502.

American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders. (Third Edition - Revised). Washington, DC: Author.

American Psychological Association. (1985). Standards for Educational and

Psychological Testing. Washington, DC: Author.

Atkinson, L., Feldman, M. A., & Condillac, R. (1998). Survey of Aberrant Behaviour in Persons with Developmental Disabilities in Ontario. (Manuscript in preparation).

Behar, L, & Stringfield, S. (1974). A behavior rating scale for the preschool child. Developmental Psychology, 10, 601 - 610.

Beitchman, J. H., Wekerle, C., & Hood, J. (1987). Diagnostic continuity from preschool to middle childhood. Journal of the American Academy of Child and Adolescent Psychiatry, 26, 694 - 699.

Bernheimer, L. P., Keogh, B. K., & Coots, J. J. (1993). From research to practice: Support for developmental delay as a preschool category of exceptionality. Journal of Early Intervention, 17, 97 - 106.

Bradley, R. H., Rock, S. L., Caldwell, B. M., & Brisby, J. A. (1989). Uses of the HOME Inventory for families with handicapped children. American Journal on Mental Retardation, 94, 313 - 330.

Brockman, L. M., Morgan, G. A., & Harmon, R. J. (1988). Mastery motivation and developmental delay. In T. D. Wachs & R. Sheehan (Eds.), Assessment of young developmentally disabled children. New York: Plenum Press.

Caldwell, B., & Bradley, R. (1984). Home Observation for the Measurement of the Environment. Little Rock: University of Arkansas at Little Rock.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81 - 105.

Chamberlain, P. & Patterson, G. R. (1995). Discipline and child compliance in parenting. In M. H. Bornstein (Ed.), Handbook of Parenting, Volume 4: Applied and Practical Parenting. Mahwah, NJ: Lawrence Erlbaum. pp. 205 - 225.

Chess, S., & Korn, S. (1970). Temperament and behavior disorders in mentally retarded children. Archives of General Psychiatry, 23, 122 - 130.

Crocker, L., & Algina, J. (1986). Introduction to classical and modern test theory. Toronto: Holt, Rinehart and Winston.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297 - 334.

Cullinan, D., Epstein, M. H., & Dembinski, R. J. (1979). Behavior problems of educationally handicapped and normal pupils. Journal of Abnormal Child Psychology, 7, 495 - 502.

Curry, J. F., & Thompson, R. J. (1979). The utility of behavior checklist ratings in differentiating developmentally disabled from psychiatrically referred children. Journal of Pediatric Psychology, 4, 345 - 352.

Dangel, R. F., & Polster, R. A. (1988). Teaching Child Management Skills. New York: Pergamon.

Einfeld, S. L., & Tonge, B. J. (1995). The Developmental Behavior Checklist: The development and validation of an instrument to assess behavioral and emotional disturbance in children and adolescents with mental retardation. Journal of Autism and Developmental Disorders, 25, 81 - 104.

Faul, F., & Erdfelder, E. (1992). GPOWER: A priori, post-hoc, and compromise power

analyses for MS-DOS (Computer program). Bonn, FRG: Bonn University, Dept. of Psychology.

Feldman, M., & Minnes, P. (1995). Resiliency and Vulnerability of Children with or at risk for Delays in Development to Behaviour Problems: Early identification and Prediction. Proposal to the Strategic Fund for Children's Mental Health, Health and Welfare Canada.

Ferguson, G. A., & Takane, Y. (1989). Statistical Analysis in Psychology and Education. (6th Edition). New York, NY: McGraw-Hill.

Fujiura, G. T., & Yamaki, K. (1997). Analysis of ethnic variations in developmental disability prevalence and household economic status. Mental Retardation, 35, 286 - 294.

Girolametto, L., & Tannock, R. (1994). Correlates of directiveness in the interactions of fathers and mothers of children with developmental delays. Journal of Speech and Hearing Research, 37, 1178 - 1192,

Grizenko, N., Cvejic, H., Vida, S., & Sayegh, L. (1991). Behaviour problems of the mentally retarded. Canadian Journal of Psychiatry, 36, 712 - 717.

Guralnick, M. J., & Bricker, D. (1987). The effectiveness of early intervention for children with cognitive and general developmental delays. In M. J. Guralnick and F. C. Bennett, The Effectiveness of Early Intervention for At-risk and Handicapped Children. Toronto: Academic.

Hodapp, R. M. (1995). Parenting children with Down Syndrome and other types of mental retardation. In M. H. Bornstein (Ed.), Handbook of Parenting, Volume 1:

Children and Parenting. Mahwah, NJ: Lawrence Erlbaum. pp. 233 - 253.

Hoge, R. D., Meginbir, L., Khan, Y., & Weatherall, D. (1985). A multitrait-multimethod analysis of the preschool behavior questionnaire. Journal of Abnormal Child Psychology, 13, 119 - 127.

Holden, G. W. (1983). Avoiding conflict: Mothers as tacticians in the supermarket. Child Development, 54, 233 - 240.

Jenkins, S., Bax, M., & Hart, H. (1980). Behavior problems in pre-school children. Journal of Child Psychology and Psychiatry, 21, 5 - 17.

Kaplan, R. M., & Saccuzzo, D. P. (1993). Psychological testing: Principles, applications, and issues. (3rd ed.) Pacific Grove, CA: Brooks Cole.

Karnes, M. B., Linnemeyer, S. A., & Myles, G. (1983). Programs for parents of handicapped children. In R. Haskins, and D. Adams (Eds.), Parent Education and Public Policy. Norwood, NJ: Ablex. pp.181 - 210.

Keogh, B. K., & Bernheimer, L. P. (1998). Concordance between mothers' and teachers' perceptions of behavior problems of children with developmental delays. Journal of Emotional and Behavioral Disorders, 6, 33 - 41.

Kline, P. (1986). A Handbook of Test Construction: Introduction to Psychometric Design. New York, NY: Methuen.

Lamb, M., Ketterlinus, R., & Francasso, M. P. (1992). Parent-child relationships. In M. H. Bornstein & M. Lamb (Eds.), Developmental Psychology: An Advanced Textbook (3rd Ed.). Hillside, N. J.: Lawrence Erlbaum.

(1995). Developmental contextual perspective on parenting. In M. H. Bornstein (Ed.), Handbook of Parenting, Volume 2: Biology and Ecology of Parenting. Mahwah, NJ: Lawrence Erlbaum. pp. 285 - 309.

McDevitt, S. (1988). Assessment of temperament in developmentally disabled infants and preschoolers. In T. D. Wachs & R. Sheehan (Eds.), Assessment of young developmentally disabled children. New York: Plenum Press.

McQueen, P. C., Spence, M. W., Garner, J. B., Pereira, L. H., & Winsor, E. J. T. (1987). Prevalence of major mental retardation and associated disabilities in the Canadian Maritime provinces. American Journal of Mental Deficiency, 91, 460 - 466.

Merrell, K. W., & Holland, M. L. (1997). Social-emotional behavior of preschool-age children with and without developmental delays. Research in Developmental Disabilities, 18, 393 - 405.

Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N. I., Links, P. S., Cadman, D. T., Byles, J. A., Crawford, J. W., Munroe Blum, H., Byrne, C., Thomas, H., & Woodward, C. A. (1987). Ontario child health study: II. Six-month prevalence of disorder and rates of service utilization. Archives of General Psychiatry, 44, 832 - 836.

Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. American Psychologist, 44, 329 - 335.

Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. Child Development, 55, 1299 - 1307.

Perrin, E. C., Stein, R. E. K., & Drotar, D. (1991). Cautions in using the Child Behavior

Checklist: Observations based on research about children with a chronic illness. Journal of Pediatric Psychology, 16, 411 - 421.

Peterson, N. L., & Cooper, C. S. (1989). Parent education and involvement in early intervention programs for handicapped children: A different perspective on parent needs and the parent-professional relationship. In M. J. Fine (Ed.), The Second Handbook on Parent Education. New York: Academic. pp. 197 - 236.

Reiss, S., & Valenti-Hein, D. (1990). The Reiss Scales for Children's Dual Diagnosis. Worthington, OH: IDS.

Reiss, S., & Valenti-Hein, D. (1994). Development of a psychopathology rating scale for children with mental retardation. Journal of Consulting and Clinical Psychology, 62, 28 - 33.

Sanson, A., & Rothbart, M. K. (1995). Child Temperament and Parenting. In M. H. Bornstein (Ed.), Handbook of Parenting, Volume 4: Applied and Practical Parenting. Mahwah, NJ: Lawrence Erlbaum. pp. 299 - 321.

Schaffer, H. R., & Collis, G. M. (1986). Parental responsiveness and child behaviour. In W. Sluckin & M. Herbert, Parental Behaviour. New York: Basil Blackwell. pp. 283 - 315.

Schmitt, N. (1996). Uses and abuses of coefficient alpha. Psychological Assessment, 8, 350 - 353.

Sexton, D., Thompson, B., Perez, J., & Rheams, T. (1990). Maternal versus professional estimates of developmental status for young children with handicaps: An ecological approach. Topics in Early Childhood Special Education, 10, 80 - 95.

Shaw, D. S., Keenan, K., & Vondra, J. I. (1994). Developmental precursors of externalizing behavior: Ages 1 to 3. Developmental Psychology, 30, 355 - 364.

Sherrard, J., Tonge, B. J., & Einfeld, S. L. (1997). Behaviours in young people with intellectual disability: Preliminary findings and implications for injury. Journal of Intellectual and Developmental Disability, 22, 39 - 48.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). Vineland Adaptive Behavior Scales: Interview Edition, Survey Form Manual. Circle Pines, MA: American Guidance Service.

Spiker, D., Kraemer, H. C., Constantine, N. A., & Bryant, D. (1992). Reliability and validity of behavior problem checklists as measures of stable traits in low birth weight, premature preschoolers. Child Development, 63, 1481 - 1496.

Stanger, C., Achenbach, T. M., & McConaughy, S. H. (1993). Three-year course of behavioral/emotional problems in a national sample of 4- to 16-year-olds: 3. Predictors of signs of disturbance. Journal of Consulting and Clinical Psychology, 61, 839 - 848.

Stevens, J. (1996). Applied Multivariate Statistics for the Social Sciences. Mahwah, NJ: Lawrence Erlaum Associates.

Stevenson, J., & Richman, N. (1976). The prevalence of language delay in a population of three-year-old children and its association with general retardation. Developmental Medicine and Child Neurology, 18, 431 - 441.

Tabachnick, B. G., & Fidell, L. S. (1989). Using Multivariate Statistics (2nd Ed). New York: Harper & Row.

Thompson, R. J. (1984). Behavior problems in developmentally disabled children. Advances in Developmental and Behavioral Pediatrics, 5, 331 - 372.

Thompson, R. J., Curry, J. F., & Yancy, W. S. (1979). The utility of parents' behavior checklist ratings with developmentally disabled children. Journal of Pediatric Psychology, 4, 19 - 28.

Verhulst, F. C., & Akkerhuis, G. W. (1989). Agreement between parents' and teachers' ratings of behavioral/emotional problems of children aged 4 - 12. Journal of Child Psychology and Psychiatry, 30, 123 - 136.

Wachs, T. D., & Sheehan, R. (1988). Developmental patterns in disabled infants and preschoolers. In T. D. Wachs & R. Sheehan (Eds.), Assessment of Young Developmentally Disabled Children. New York: Plenum Press.

Williams, B. F., Williams, R. L., & McLaughlin, T. F. (1991). Treatment of behavior disorders by parents and in the home. Journal of Developmental and Physical Disabilities, 3, 385 - 407.

Appendix A

CONSENT FORM

TITLE OF PROJECT: Reliability and validity of the Parents' Management of Child Problem Behaviour Questionnaire in preschoolers with or at risk for developmental disabilities.

You are being asked to participate in a research project that will study the properties of a new instrument for identifying behaviour problems in young children who are at risk for delays in development. This study is being conducted by Nicole Rielly and Dr. Maurice Feldman of the Dept. of Psychology, Queen's University at Kingston, Ontario.

The purpose of this study

If we can develop a reliable instrument for identifying behaviour problems in very young children, then it might be possible to prevent behaviour problems in children who are at risk for delays in development.

How you can help

If you participate in this study, someone would come to your home to talk to you, give you four questionnaires to fill out, ask you to participate in an interview, and watch (and videotape - see later) you and your child together. Information obtained from observations of your home and your interaction with your child, and from the videotape will all form part of the data of this study. Any information you give us would be completely confidential. We are not interested in judging you as a parent, but instead we want to learn from you. The questionnaires will ask you questions about your family situation, home environment, child management strategies, and child development and behaviour.

We would also like to videotape you and your child in a variety of home situations (playtime, mealtime, etc.). Families who allow videotaping will be given copies of the videotapes to keep. If you prefer not to have yourself or your child videotaped, we would still welcome your participation in the interview part of the study.

We would also like your consent to obtain information about your child's development, behaviour, and abilities held by _____ (names of agencies who have information about your child) to be released to the researchers. We also ask your consent for _____ (the name of another person who knows your child well) to fill out a few forms asking questions about your child's behaviour.

The time it will take

The interview and questionnaires may take about two hours. However, it may be possible to leave some of the questionnaires with you so that you can fill them out at your leisure and send them back to us or we can pick them up at a later date. The observations will take up to one hour to complete.

Possible risks
There are no known risks associated with this procedure. You simply fill out some questionnaires and let us observe natural parent-child interactions in your home. Although it is possible that answering questionnaires or being videotaped could potentially make some parents feel a bit stressed, it has been our experience, and that of other researchers, that parents do not mind these procedures. Nevertheless, you do not have to answer any questions that you do not want to and you do not need to agree to be videotaped to take part in the questionnaire part of the study.

Possible benefits
By participating in this study, you will have a chance to share your experiences and views about being a parent. We find that most of the parents we have interviewed felt good about having this opportunity. Also, you will get to keep a copy of the videotaped observations. Your involvement will help us to better understand the problems that parents face and their solutions. This may help other families who in the future have children who are at risk for delays in development.

Voluntary participation
Participation in this study is strictly voluntary. If you decide not to participate or if you decide to withdraw (which you may do at any time), then these decisions will in no way affect any services you are currently getting or could receive in the future.

Confidentiality
All information obtained during this study is confidential. The information will be stored in a locked cabinet and made available only to project staff and students, all of whom will be supervised by Dr. Maurice Feldman. The identities of the participants will not be disclosed in any presentations or publications about the project. The videotapes will be used only for research purposes and will not be viewed by anyone not associated with the research project.

Compensation
We will reimburse you for the cost of any long distance telephone calls or postage you incur in order to contact the project staff or investigators.

Copy for your records
You can keep a copy of this consent form for your records.

Contact people
If you have any questions, complaints or concerns, you are encouraged to contact either Nicole Rielly (Principal Investigator) at (613)544-4941 or Dr. Maurice Feldman (Supervisor) at (613)545-2491. If you feel that you did not receive a satisfactory response from them, then you can call Dr. R. Kalin, Head of the Department of Psychology at Queen's University -- (613)545-2592.

Summary

By signing the consent form below, you give consent for the following (described above):

(a) Participate in an interview. In the interview you will be asked to fill out several standardized questionnaires asking questions about your family situation, home environment, child management strategies, and child development and behaviour. The interview will last for about two hours, but you may be able to fill out some forms at your leisure and mail them back to us or we can pick them up later.

(b) Participate in videotaped observations. The observations will involve you interacting with your child at home during playtime, mealtime, while filling out questionnaires, and during a task (e.g., dressing, cleaning up, etc.). The videotaped session would last about an hour. If you do not wish to be videotaped, but would still like to participate in the interview part of the study, please cross out this section. By doing this, you are indicating that you do not give consent to be videotaped.

(C) Allow us to gather information about your child's development, behaviour, and abilities held by _____ (names of agencies who have information about your child) to be released to the researchers.

(d) Allow _____ (name of a person who knows your child well) to fill out a few questionnaires asking questions about your child's behaviour.

Signatures

By signing this consent form I agree to participate in the above named research project.

_____ _____

Print Name of Parent Signature of Parent

_____ _____

Date Relationship to Child

The information within this consent has been explained to the participant and to the best of my knowledge the participant understands the nature of the study and the risks and benefits involved in this study.

_____ _____

Signature of Investigator or Designate Date

Appendix B

Date (month-day-year):_____

Name and location of the agency that sent or gave you this survey:_____

Relationship of informant to the child:_____

Child's Initials (first, middle, and last name):_____

Child's date-of birth (month-day-year):_____

Child's sex:_____

Child's diagnosis (if known):_____

SECTION I.

Rating of Child Problem Behaviour

Below is a list of possible child problem behaviours. A description of each behaviour is provided on the pages immediately following this chart. For each behaviour, indicate whether you think that behaviour is currently a problem. Use the 7-point scale to score the severity of the problem. For example, if the behaviour is never a problem at all, then give a score of "1"; if the behaviour is sometimes a problem, give a score of "4"; if the behaviour is always a problem, give a score of "7". If you wish to add some more information (for example, describing the child's specific actions, please do so on the right side of the chart. You can also add more comments on additional sheets of paper.

Ratings
1=never a problem
2=rarely a problem
3=occasionally a problem
4=sometimes a problem
5=usually a problem
6=frequently a problem
7=always a problem

Behaviour	Rating of problem							Details
physical aggression	1	2	3	4	5	6	7	
anger	1	2	3	4	5	6	7	
threats	1	2	3	4	5	6	7	
self-injury	1	2	3	4	5	6	7	
stereotypy/self-stimulation	1	2	3	4	5	6	7	

101

screams	1	2	3	4	5	6	7
cries	1	2	3	4	5	6	7
mood swings	1	2	3	4	5	6	7
oppositional/noncompliance	1	2	3	4	5	6	7
temper tantrums	1	2	3	4	5	6	7
property damage	1	2	3	4	5	6	7
throwing objects	1	2	3	4	5	6	7
bangs/slams objects/doors	1	2	3	4	5	6	7
paying attention	1	2	3	4	5	6	7
hyperactive/agitated	1	2	3	4	5	6	7
implusive	1	2	3	4	5	6	7
manners	1	2	3	4	5	6	7
eating	1	2	3	4	5	6	7
toileting	1		2	3	4	5	6 7
dressing	1	2	3	4	5	6	7
sleeping	1	2	3	4	5	6	7
hygiene	1	2	3	4	5	6	7
playing/leisure	1	2	3	4	5	6	7
transitions	1	2	3	4	5	6	7
stealing	1	2	3	4	5	6	7
hoarding	1	2	3	4	5	6	7
running away	1	2	3	4	5	6	7
attention-seeking	1	2	3	4	5	6	7
obsessive thoughts	1	2	3	4	5	6	7

compulsive behaviours	1	2	3	4	5	6	7
bizarre talk	1	2	3	4	5	6	7
self-talk	1	2	3	4	5	6	7
hallucinations	1	2	3	4	5	6	7
withdrawn/isolated	1	2	3	4	5	6	7
fearful/anxious	1	2	3	4	5	6	7
touching others	1	2	3	4	5	6	7
touching self	1	2	3	4	5	6	7
eating nonedibles	1	2	3	4	5	6	7
behaviour in public	1	2	3	4	5	6	7
stripping	1	2	3	4	5	6	7
vomiting	1	2	3	4	5	6	7
rumination	1	2	3	4	5	6	7
other (specify):_____	1	2	3	4	5	6	7
other (specify):_____	1	2	3	4	5	6	7
other (specify):_____	1	2	3	4	5	6	7
other (specify):_____	1	2	3	4	5	6	7

If you have scored any behaviour 5, 6, or 7, then proceed to the next section called "Parent Child Behaviour Management Strategies".

If your child has no behaviour problems (that is, no scores of 5, 6, or 7), then describe what do you do to keep your child from having behaviour problems:

Descriptions of Behaviours

Physical Aggression - attempts to (but is prevented or misses) or actually hits, slaps, punches, bites, pinches, scratches, pokes, kicks, shoves or throws objects at another person with sufficient intensity to inflict or potentially inflict immediate pain and/or injury to the victim.

Anger - directs rage, yells, at another person, animal, or object

Threats - verbally or nonverbally (e.g., raises fist) threathens to harm another person; does not have to be angry at the time.

Self-injury - attempts to (but is blocked) or actually hits, slaps, punches, bites, pinches, scratches, pokes, kicks own body or nonaccidently brings body part in contact with hard object with sufficient intensity to cause immediate or accumulated injury.

Stereotypy/self-stimulation - nonfunctional repetitive asocial behavior (e.g., rocking, finger flicking, headweaving, spinning objects, twirling self, constant touching).

Screams - shouts out in a very loud voice.

Cries - emotionally upset with tears in eyes.

Mood swings - unpredictable, quick changes in emotional state from one extreme to the other (e.g., from happy to sad; agitated to calm).

Oppositional/noncompliance - does not follow instructions or rules.

Temper tantrums - stomps feet, falls to floor, thrashes about.

Property damage - purposely attempts to, or actually breaks an object

Throwing objects - tosses, pitches, propels objects that are not supposed to be thrown (e.g., throws food on the floor).

Bangs/slams objects/doors - pushes, kicks, hits an object/door with sufficient force to be make a loud sound and/or cause it to move.

Paying attention - looking at person who is speaking to him/her.

Hyperactive/agitated - constantly in motion.

implusive - reacts immediately without thinking.

Manners - acts socially appropriately; is polite; shares; waits turn.

Eating - eats most foods given to him/her; good table manners.

[illegible] during the day or at night

Dressing - cooperates with dressing routine or dresses self with or without assistance

Sleeping - cooperates with bedtime routine; sleeps in own bed throughout the night; wakes up at a reasonable time in the morning; not difficult to get out of bed in the morning.

Hygiene - cooperates with washing, bathing, and toothbrushing routines; keeps self reasonably clean.

Playing/leisure - uses toys the way in which they were designed; can keep self occupied playing with toys, games, pretend, watching TV or videos, listening to music; plays cooperatively with others.

Transitions - does not get upset when there is a change (e.g., going from one place to another; changing activities; going away; visitors).

Stealing - takes others' possessions without their permission.

Hoarding - stores a lot of objects; will not let things be thrown out.

Running away - runs in situations which may be dangerous or socially inappropriate (e.g., into the street, in the store); attempts to leave house, daycare, etc.

Attention-seeking - craves attention of others; won't leave your side; pull at you to get your attention; acts silly to get attention.

Obsessive thoughts - dwells on and talks about the same themes over and over again (e.g., the weather, Christmas).

Compulsive behaviours - rituals; doing the same things over and over again (e.g., lining up objects; washing hands excessively; gets very upset if things are not in their place.

Bizarre talk - talks outloud about strange topics.

Self-talk - other than during pretend play, talks, mumbles, or whispers when alone, or to no one in particular.

Hallucinations - other than during pretend play, acts as if something is happening that is not.

Withdrawn/isolated - keeps to him/herself; does not like to be around other people; shy; in own world.

Fearful/anxious - afraid of, runs away from, harmless situations; shivers; expresses fear; panics.

Touching others - inappropriate and/or too frquent touching of others.

Touching self - inappropriate and/or too frquent touching of self.

Eating nonedibles - putting nonnutritive substances in mouth (e.g., grass, twigs, cigarettes, pens).

Behaviour in public - embarrassing behaviour in public places or in front of others; difficult to control in public places

Stripping - takes off clothing at inappropriate times.

Vomiting - throws up food but is not sick.

Rumination - brings up already swallowed food into mouth and re-eats it.

In this section, we want you to write out, in your own words, what you do to handle your child's problem behavior. For each behaviour, above, that you gave a score of 5, 6, 7, please describe what you do to deal with that behaviour. If you do the same thing for more than one, or for all behaviours, then just describe what you do once, and write "I do this for all the other problem behaviours, too." Add more pages, if you need them, to completely describe what you do. If you prefer to replicate this form and type your answers on a wordprocessor, that is fine.

Problem behaviour 1:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach?:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1 2 3 4 5 6 7

not effective moderately effective very effective

Problem behaviour 2:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1 2 3 4 5 6 7

not effective moderately effective very effective

Problem behaviour 3:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1 2 3 4 5 6 7

not effective moderately effective very effective

Problem behaviour 4:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1	2	3	4	5	6	7
not effective			moderately effective			very effective

Problem behaviour 5:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1	2	3	4	5	6	7
not effective			moderately effective			very effective

Problem behaviour 6:_____

How I handle this problem:_____

_____

_____

_____

_____

How long have you been using this approach:_____

Are others, who look after the child, using the same approach?____

If yes: spouse:____ other family:_____ babysitter:_____ daycare/preschool/school:_____

Rate the effectiveness of this approach, using a scale of 1 to 7

1	2	3	4	5	6	7
not effective			moderately effective			very effective

(for additional Problem behaviours, please use extra sheets)

1. How did you learn about these strategies:
   a. just doing what I feel will work:_____
   b. its how I was brought up:_____
   c. a friend advised me:_____
   d. a family member advised me:_____ Relation:_____
   e. read about them:____ Name of book, magazine:_____
   f. heard about them on the radio___ Name of radio show:_____
   g. saw them on TV:____ Name of TV show:_____
   h. saw them on a video:___ Name of video:_____
   i. a professional showed me:_____
      - type of professional
         __ family doctor
         __ pediatrician
         __ neurologist
         __ psychiatrist
         __ other medical doctor (specify speciality):_____
         __ nurse
         __ chiropractor
         __ dietition/nutritionist
         __ naturopath
         __ homeopath
         __ psychologist
         __ behaviour consultant
         __ infant worker
         __ social worker/case coordinator
         __ teacher (daycare, preschool, kindergarten)
         __ other professional (specify):_____

      - type of training provided by the professional (check all that apply)
         __ came to my home
         __ in their office, clinic, or school
         __ attended a course, workshop, lecture, etc.
         __ gave me instructional materials such as books, manuals, audiotapes, and videos

   j. other ways, not listed above, that you learned about the stategies you are using (specify):
   _____

2. Is what you are doing for child problem behaviour part of a fomal, written treatment program designed by a professional? _____
   If yes, do you collect data to evaluate the program?_____
   Do you and/or a professional regularly review and evaluate the data?_____ How often?:____

3. Is the child receiving any kind of perscription medication specifically for problem behaviour? (If yes, provide the name of the drug(s), dosage(s). and how long the child has been on the meds). 109

_____

_____

4. Is the child receiving any kind of nonperscription medication. remedies. special diets. etc.. specifically for problem behaviour? (If yes. describe them and indicate how long the child has been receiving them).

_____

Comments about any aspects of this questionnaire:

Please indicate whether or not you ever use the following strategies to manage your child's problem behaviour

Physical or Mechanical Restraint (includes such strategies as holding the child down and the use of a harness)	Yes / No
Nothing/Ignore	Yes / No
Time Out (includes removing the child from activities for a fixed period of time)	Yes / No
Positive Verbal (includes praise and encouragement)	Yes / No
Positive Physical or Tangibles (includes hugging the child or giving the child a reward like a toy)	Yes / No
Proactive (includes strategies used before the behaviour problem occurs to try to prevent it)	Yes / No
Negative Verbal (includes reprimands, saying "no" or "stop", and yelling)	Yes / No
Distraction or Change Location (includes any attempt to distract the child from the problem behaviour)	Yes / No
Models or Teaches Appropriate Behaviour (includes instruction and attempts to demonstrate more appropriate or desirable behaviour)	Yes / No
Corporal Punishment (includes such strategies as spanking and the strap)	Yes / No
Other Strategies	Yes / No

Please rate the effectiveness of the strategies that _____'s other rater uses to handle his/her problem behaviour, using a scale of 1 to 7

1	2	3	4	5	6	7
not effective			moderately effective			very effective

Please indicate whether or not _____'s other rater ever uses the following strategies to manage his/her problem behaviour.

Physical or Mechanical Restraint (includes such strategies as holding the child down and the use of a harness)	Yes / No / Don't Know
Nothing/Ignore	Yes / No / Don't Know
Time Out (includes removing the child from activities for a fixed period of time)	Yes / No / Don't Know
Positive Verbal (includes praise and encouragement)	Yes / No / Don't Know
Positive Physical or Tangibles (includes hugging the child or giving the child a reward like a toy)	Yes / No / Don't Know
Proactive (includes strategies used before the behaviour problem occurs to try to prevent it)	Yes / No / Don't Know
Negative Verbal (includes reprimands, saying "no" or "stop", and yelling)	Yes / No / Don't Know
Distraction or Change Location (includes any attempt to distract the child from the problem behaviour)	Yes / No / Don't Know
Models or Teaches Appropriate Behaviour (includes instruction and attempts to demonstrate more appropriate or desirable behaviour)	Yes / No / Don't Know
Corporal Punishment (includes such strategies as spanking and the strap)	Yes / No / Don't Know
Other Strategies	Yes / No / Don't Know

Appendix C

Appendix C. Inter-rater Agreement of Management Strategy Coding.

Management Strategy	Percent Agreement
Physical/Mechanical Restraint	100
Nothing/Ignore	75
Time Out	100
Positive Verbal	50
Positive Physical/Tangibles	83
Proactive	86
Negative Verbal	67
Distraction/Change Location	100
Models/Teaches Appropriate Behaviour	100
Corporal Punishment	----
Other Strategy	100

Phi Coefficient for overall agreement (across all classifications) = 2.65, p=.000.

Kappa for overall agreement (across all classifications) = .83.

Appendix D

FAMILY INFORMATION QUESTIONNAIRE

Date (month-day-year):_____

Relationship of informant to the child:_____

Child's Initials (first, middle, and last name):_____

Child's date-of birth (month-day-year):_____

Name and location of the agency that sent or gave you this survey:_____

PARENT/FAMILY INFORMATION

Number of all children and adolescents (up to age 18 yrs) living in the home:_____

Number of all adults (19 yrs and over) living in the home:_____

Location of home (nearest city or town):_____ # of rooms in home _____

Type of dwelling:
Apartment:_____ Townhouse:_____ Boarding home:____
Semi-detached:_____ Detached:_____ Shelter:____

Do you? Own:____ Rent:_____

Shared Accommodations *(specify)*:_____

Present marital status of parents (living together, separated, divorced, widowed):_____

INFORMATION ABOUT MOTHER

Mother's date-of-birth (month-day-year):_____

Highest grade of school completed by mother:_____

Diploma/degree obtained by mother:_____

Mother had special education experience when in school: no:___ yes (specify):_____

Current occupation of mother:_____

Mother works: full-time:_____ part-time:____

Mother's past/present serious illnesses:_____

Mother's current medications:_____

Mother's physical or sensory limitations:_____

INFORMATION ABOUT FATHER

Father's date-of-birth (month-day-year):_____

Highest grade of school completed by father:_____

Diploma/degree obtained by father:_____

Father had special education experience when in school: no:___ yes (specify):_____
Current occupation of father:_____

Father works: full-time:_____ part-time:____

Father's past/present serious illnesses:_____

Father's current medications:_____

Father's physical or sensory limitations:_____

Total family income (before taxes):

less than $5,000___	$50,000-54,999____
$5,000-9,999 ___	$55,000-59,999____
$10,000-14,999 ___	$60,000-64,999____
$15,000-19,999 ___	$65,000-69,999____
$20,000-24,999____	$70,000-74,999____
$25,000-29,999____	$75,000-79,999____
$30,000-34,999____	$80,000-84,999____
$35,000-39,999____	$85,000-89,999____
$40,000-44,999____	$90,000-94,999____
$45,000-49,999____	more than $95,000___

CHILD INFORMATION
(if the item is not applicable, please put N/A)

Child's date-of-birth (month-day-year):_____

Child Sex:_____

Child' relationship to the family
(a) natural child___ (c) foster child___
(b) adopted child___ (d) other (specify)_____

Child's birth order:_____

Child's siblings:
(specify numbers of each category; put 0 if none)

younger brothers:_____ older brothers:_____
younger sisters:_____ older sisters:_____

Is the child a twin (if yes indicate whether identical or fraternal)?_____

Child age when a developmental problem was first noticed:_____

Child age when a behavioural problem was first noticed:_____

Child age at first formal diagnosis of disability:_____

Child's diagnosis (as told to you by a professional) :

_____Mental Retardation, developmental handicap, etc., cause unknown
_____Learning Disability
_____Down syndrome
_____Cerebral Palsy
_____Spina Bifida
_____Epilepsy
_____ Brain damage
_____Autism
_____Fragile X
_____Prader-Willi syndrome
_____Rett syndrome
_____Lesch-Nyan syndrome
_____Williams syndrome
_____Fetal Alcohol syndrome
_____other organic/genetic condition (please specify):_____
_____other condition (please specify):_____
_____child has no formal diagnosis at this time

Child's current level of developmental delay (as told to you by a professional):

_____no delay
_____borderline
_____mild
_____moderate
_____severe
_____profound
_____no information available at this time

Child's other problems

_____hearing problem (specify):_____
_____vision problem (specify):_____
_____movement problem (specify):_____
_____seizures: how many grand mals per month?_____
_____chronic ear infections: are tubes inserted into ears?_____
_____headaches
_____eating disorder (specify):_____
_____chronic constipation
_____chronic diarrhea
_____asthma
_____allergies (please specify):_____
_____recurrent skin rash
_____problem with a major organ (please specify):_____
_____frequent colds and flus
_____attention deficit
_____hyperactivity
_____other medical/health problems (specify):_____

In the last year, how many different times was the child hospitalized (stayed over at least one night):____
In the last year, what was the total number of days the child was in hospital (not counting emergency room or clinic visits)?_____

What were the reasons for hospitalizations?_____

In the last year, how many times was the child brought to emergency?_____

Medications (Please list all medications child is currently taking and their purpose):
_____
_____
_____

PRENATAL AND BIRTH HISTORY OF CHILD

Length of pregnancy: full-term:_____ premature? (how many weeks):_____

Duration of Labour (in hours):_____

Medical complications during pregnancy:_____

Medical complications during birth:_____

Length of hospitalization:_____ Birth Weight:_____

Did mother attend prenatal classes?_____

Did mother breast feed (if yes, to what age of the child)?:_____

CURRENT SERVICES

List all services the family is currently receiving such as preschool, social, health, respite, and support services. Describe the type of services offered and the reasons for them; it is not necessary to list them by name:

_____
_____
_____
_____
_____
_____
_____

Appendix E

Appendix E. Objective Scoring Criteria for the Use of the Vineland Adaptive Behavior Scales -Survey Form as a Research Tool Using Questionnaire Administration.

The majority of Vineland Adaptive Behavior Scales - Survey Forms in the present study were completed by participants through questionnaire administration. The scoring procedures used in the present study followed those described in the manual for this measure (Sparrow, Balla, & Cicchetti, 1984) whenever possible. Scoring deviated from the procedures in the manual when informants filled in "N" for No Opportunity or "DK" for Don't Know until the end of each Behavior Domain. This response pattern was highly unlikely to result from an interview administration of this measure, as higher-numbered items in each Domain are usually found to be true of individuals much older (18 years or older) than all participants in the present study. Some informants also left items blank. During an interview administration of this measure, items above the ceiling and below the basal levels would also be left blank. The following scoring rules were used to obtain basal and ceiling levels on the Vineland Adaptive Behavior Scales - Survey Form in the present study:

1. When parents did not complete an item, that item was scored 0, unless it was below the basal level (in which case the item is scored "2" according to manualized procedures).
2. Items above the child's chronical age scored "N" for No Opportunity or "DK" for Don't Know were scored 0.

Appendix F

HOME INVENTORY FOR FAMILIES OF INFANTS AND TODDLERS

Bettye M. Caldwell and Robert H. Bradley

Family Name_____ Date_____ Visitor_____

Child's Name_____ Birthdate_____ Age____ Sex_____

Caregiver for visit_____ Relationship to child_____

Family composition_____
(Persons living in household, including sex and age of children)

Family Ethnicity_____ Language Spoken_____ Maternal Education_____ Paternal Education_____

Is Mother employed?_____ Type of work when employed_____ Is Father employed?_____ Type of work when employed_____

Address_____ Phone_____

Current child care arrangements_____

Summarize past year's arrangements_____

Caregiver for visit_____ Other persons present_____

COMMENTS_____

SUMMARY

Subscale	Score	Lowest Middle	Middle Half	Upper Fourth
I. Emotional and Verbal RESPONSIVITY of Parent		0-6	7-9	10-11
II. ACCEPTANCE of Child's Behavior		0-4	5-6	7-8
III. ORGANIZATION of Physical and Temporal Environment		0-3	4-5	6
IV. Provision of Appropriate PLAY MATERIALS		0-4	5-7	8-9
V. Parent INVOLVEMENT with Child		0-2	3-4	5-6
VI. Opportunities for VARIETY in Daily Stimulation		0-1	2-3	4-5
VII. Opportunities for VARIETY in Daily Stimulation		0-1	2-3	4-5
TOTAL SCORE		0-25	26-36	37-45

For rapid profiling of a family, place an X in the box that corresponds to the raw score

the home environment. Enter the subtotals and the total on the front side of the Assess

I. Emotional and Verbal RESPONSIVITY

1. Parent spontaneously vocalized to child twice.	
2. Parent responds verbally to child's verbalizations.	
3. Parent tells child name of object or person during visit.	
4. Parent's speech is distinct and audible.	
5. Parent initiates verbal exchanges with visitor.	
6. Parent converses freely and easily.	
7. Parent permits child to engage in "Messy" play.	
8. Parent spontaneously praises child at least twice.	
9. Parent's voice conveys positive feelings toward child.	
10. Parent caresses or kisses child at least once.	
11. Parent responds positively to praise of child offered by visitor.	
Subtotal	

II. ACCEPTANCE of Child's Behavior

12. Parent does not shout at child.	
13. Parent does not express annoyance with or hostility to child.	
14. Parent neither slaps nor spanks child during visit.	
15. No more than one instance of physical punishment during past week.	
16. Parent does not scold or criticize child during visit.	
17. Parent does not interfere or restrict child more than 3 times.	
18. At least ten books are present and visible.	
19. Family has a pet.	
Subtotal	

III. ORGANIZATION of Environment

20. Substitute care is provided by one of three regular subsitutes.	
21. Child is taken to grocery store at least once/week.	
22. Child gets out of house at least four times/week.	
23. Child is taken regularly to doctor's office or clinic.	
24. Child has a special place for toys and treasures.	
25. Child's play environment is safe.	

IV. Provision of PLAY MATERIALS

26. Muscle activity toys or equipment.	
27. Push or pull toy.	
28. Stroller or walker, kiddie car, scooter, or tricycle.	
29. Parent provides toys for child during visit.	
30. Learning equipment appropriate ag --cuddly toys or role-playing toy	
31. Learning facilitators--mobile, table and chairs, high chair, playpen	
32. Simple eye-hand coordination toys	
33. Complex eye-hand coordination toy (those permitting combination).	
34. Toys for literature and music.	
Subtotal	

V. Parental INVOLVEMENT with Child

35. Parent keeps child in visual rang looks at often.	
36. Parent talks to child while doing household work.	
37. Parent consciously encourages dev elopmental advance.	
38. Parent invests maturing toys with value via personal attention.	
39. Parent structures child's play periods.	
40. Parent provides toys that challen child to develop new skills.	
Subtotal	

VI. Opportunities for VARIETY

41. Father provides some care daily.	
42. Parent reads stories to child at least 3 times weekly.	
43. Child eats at least one meal per day with mother and father.	
44. Family visits relatives or receiv visits once a month or so.	
45. Child has 3 or more books of his/ her own.	

TOTAL SCORE	

*For complete wording of items, pleas to the Administration Manual.

HOME INVENTORY FOR FAMILIES OF PRESCHOOLERS (THREE TO SIX)

Bettye M. Caldwell and Robert H. Bradley

Family Name _____ Date _____ Visitor _____

Child's Name _____ Birthdate _____ Age ____ Sex ____

Caregiver for visit _____ Relationship to child _____

Family composition _____
(Persons living in household, including sex and age of children)

Family Ethnicity _____ Language Spoken _____ Maternal Education _____ Paternal Education _____

Is Mother employed? _____ Type of work when employed _____ Is Father employed? _____ Type of work when employed _____

Address _____ Phone _____

Current child care arrangements _____

Summarize past year's arrangements _____

Caregiver for visit _____ Other persons present _____

SUMMARY

Subscale	Score	Percentile Range		
		Lowest Fourth	Middle Half	Upper Fourth
I. LEARNING STIMULATION		0-2	3-9	10-11
II. LANGUAGE STIMULATION		0-4	5-6	7
III. PHYSICAL ENVIRONMENT		0-3	4-6	7
IV. WARMTH AND AFFECTION		0-3	4-5	6-7
V. ACADEMIC STIMULATION		0-2	3-4	5
VI. MODELING		0-1	2-3	4-5
VII. VARIETY IN EXPERIENCE		0-4	5-7	8-9
VIII. ACCEPTANCE		0-2	3	4
TOTAL SCORE		0-29	30-45	46-55

For rapid profiling of a family, place an X in the box that corresponds to the raw score

during the visit or if the parent reports that the conditions or events are characteristic of the home environment. Enter the subtotals and the total on the front side of the Record Sheet.

I. LEARNING STIMULATION

1. Child has toys which teach color, size, shape.	
2. Child has three or more puzzles.	
3. Child has record player and at least five children's records.	
4. Child has toys permitting free expression.	
5. Child has toys or games requiring refined movements.	
6. Child has toys or games which help teach numbers.	
7. Child has at least 10 children's books.	
8. At least 10 books are visible in the apartment.	
9. Family buys and reads a daily newspaper	
10. Family subscribes to at least one magazine.	
11. Child is encouraged to learn shapes.	
Subtotal	

II. LANGUAGE STIMULATION

12. Child has toys that help teach the names of animals.	
13. Child is encouraged to learn the alphabet.	
14. Parent teaches child simple verbal manners (please, thank you).	
15. Mother uses correct grammar and pronunciation.	
16. Parent encourages child to talk and takes time to listen.	
17. Parent's voice conveys positive feeling to child.	
18. Child is permitted choice in breakfast or lunch menu.	
Subtotal	

III. PHYSICAL ENVIRONMENT

19. Building appears safe.	
20. Outside play environment appears safe.	
21. Interior of apartment not dark or perceptually monotonous.	
22. Neighborhood is esthetically pleasing.	
Subtotal	

23. House has 100 square feet of living space per person.	
24. Rooms are not overcrowded with furniture.	
25. House is reasonably clean and minimally cluttered.	
Subtotal	

IV. WARMTH AND ACCEPTANCE

26. Parent holds child close 10-15 minutes per day.	
27. Parent converses with child at least twice during visit	
28. Parent answers child's questions or requests verbally.	
29. Parent usually responds verbally to child's speech.	
30. Parent praises child's qualities twice during visit.	
31. Parent caresses, kisses, or cuddles child during visit.	
32. Parent helps child demonstrate some achievement during visit.	
Subtotal	

V. ACADEMIC STIMULATION

33. Child is encouraged to learn colors.	
34. Child is encouraged to learn patterned speech (songs, etc.)	
35. Child is encouraged to learn spatial relationships.	
36. Child is encouraged to learn numbers.	
37. Child is encouraged to learn to read a few words.	
Subtotal	

VI. MODELING

38. Some delay of food gratification is expected.	
39. TV is used judiciously.	
40. Parent introduces visitor to child.	
41. Child can express negative feelings without reprisal.	
42. Child can hit parent without harsh reprisal.	
Subtotal	

HOME
Preschool (3-6)

II. VARIETY IN EXPERIENCE

43. Child has real or toy musical instrument.	
44. Child is taken on outing by family member at least every other week.	
45. Child has been on trip more than fifty miles during last year.	
46. Child has been taken to a museum during past year.	
47. Parent encourages child to put away toys without help.	
48. Parent uses complex sentence structure and vocabulary.	
49. Child's art work is displayed some place in house.	
50. Child eats at least one meal per day with mother and father.	
51. Parent lets child choose some foods or brands at grocery store.	
Subtotal	

VIII. ACCEPTANCE

52. Parent does not scold or derogate child more than once.	
53. Parent does not use physical restraint during visit.	
54. Parent neither slaps nor spanks child during visit.	
55. No more than one instance of physical punishment during past week.	
Subtotal	

*For complete wording of items, please refer to the Administration Manual.

COMMENTS

Appendix G

PMCPB - VIDEO CODING

Did the child display any behaviour problems on the video? Yes / No

Did the caregiver display use of the following managegment strategies?

Physical or Mechanical Restraint Yes / No
(includes such strategies as holding the child down and the use of a harness)

Nothing/Ignore Yes / No

Time Out Yes / No
(includes removing the child from activities for a fixed period of time)

Positive Verbal Yes / No
(includes praise and encouragement)

Positive Physical or Tangibles Yes / No
(includes hugging the child or giving the child a reward like a toy)

Proactive Yes / No
(includes strategies used before the behaviour problem occurs to try to prevent it)

Negative Verbal Yes / No
(includes reprimands, saying "no" or "stop", and yelling)

Distraction or Change Location Yes / No
(includes any attempt to distract the child from the problem behaviour)

Models or Teaches Appropriate Behaviour Yes / No
(includes instruction and attempts to demonstrate more appropriate or desirable behaviour)

Corporal Punishment Yes / No
(includes such strategies as spanking and the strap)

Other Strategies Yes / No

Appendix H

Appendix H. Agreement Between Independent Raters on Coding of Videotaped Observations.

Coding of Presence or Absence of Child Behaviour Problems.

Percent agreement = 100% (n=19).

Kappa = 1.00.

Phi = 1.00, p = .000.

Coding of Management Strategies.

Management Strategy	Percent Agreement	Kappa	Phi
Physical/Mechanical Restraint	95	.64	.69*
Nothing/Ignore	74	.47	.47
Time Out	100	1.00	1.00*
Positive Verbal	100	1.00	1.00*
Positive Physical/Tangibles	95	.77	.79*
Proactive	90	.68	.68*
Negative Verbal	100	----	----
Distraction/Change Location	84	.67	.68*
Models/Teaches Appropriate Behaviour	95	----	----
Coroporal Punishment	100	----	----
Other Strategy	79	.52	.54

* = significant at $p<.05$, after Bonferroni correction.
---- = could not be computed because of insufficient cell sizes.

Appendix I

Table 1, Appendix I.

Evaluation of Univariate Skew and Kurtosis for reliability and validity measures.

Variable	Skew/SE Skew		Kurtosis/SE Kurtosis	
	2	3-5	2	3-5
PMCPB total score	3.09*	1.31	0.83	-1.31
PMCPB # problem behaviours	5.29*	2.38	3.79*	0.24
PMCPB mean effectiveness	-1.90	0.40	0.04	-0.53
CBCL (2-3) total t score	2.83	-0.60	3.99*	-1.36
CBCL (2-3) internalizing t score	3.37*	0.19	4.27*	-1.16
CBCL (2-3) externalizing t score	3.95*	1.50	6.14*	0.12
Reiss total score	4.70*	2.64	3.89*	1.08
Reiss anxiety subscale	4.37*	4.23*	2.37	3.86*
Reiss withdrawn subscale	5.73*	7.97*	3.10*	15.07*
Reiss poor self-esteem subscale	7.45*	4.84*	7.80*	4.48*
HOME Inventory total z-score	-7.85*	-3.61*	12.86*	3.14
VABS composite standard score	1.85	3.91*	0.05	2.35

Note: * indicates normality assumption was not met.

Table 2, Appendix I.

Proportions of management strategies endorsed by primary informants on the PMCPB Questionnaire, and on the PMCPB Supplemental Questionnaire, by group.

Management Strategy	2 year old group		3 to 5 year old group	
	PMCPB	Supp.	PMCPB	Supp.
Physical/Mechanical				
Restraint	.00	.29	.09	.43
Nothing/Ignore	**.29**	**.54**	**.52**	**.74**
Time Out	.09	.70	.17	.87
Positive Verbal	.25	1.0	.26	1.0
Positive Physical or				
Tangibles	.08	1.0	.22	1.0
Proactive	.25	.92	.61	.87
Negative Verbal	.12	.96	.35	1.0
Distraction/ Change				
Location	.04	.96	.26	.87
Models/Teaches	.21	1.0	.43	.91
Corporal Punishment	.00	.54	.00	.35

Table 3, Appendix I.

Proportions of management strategies endorsed by primary informants on the PMCPB Supplemental Questionnaire, and those endorsed by second informants regarding the strategies used by primary informants, by group.

Management Strategy	2 year old group		3 to 5 year old group	
	Primary Informant	Second Informant	Primary Informant	Second Informant
Physical/Mechanical				
Restraint	**.24**	**.19**	**.32**	**.21**
Nothing/Ignore	**.62**	**.71**	**.65**	**.50**
Time Out	**.76**	**.90**	**.85**	**.80**
Positive Verbal	1.0	1.0	1.0	1.0
Positive Physical or Tangibles	.95	1.0	1.0	1.0
Proactive	.90	.85	.95	.79
Negative Verbal	1.0	.95	1.0	.90
Distraction/ Change Location	1.0	.95	.95	.84
Models/Teaches	1.0	.86	.95	.95
Corporal Punishment	**.45**	**.20**	**.35**	**.25**

Table 4, Appendix I.

Proportions of management strategies endorsed by primary informants on the PMCPB Supplemental Questionnaire, and observed during videotaped observations, by group.

Management Strategy	2 year old group		3 to 5 year old group	
	Video	PMCPB	Video	PMCPB
Physical/Mechanical Restraint	.10	.21	.11	.56
Nothing/Ignore	**.42**	**.56**	**.56**	**.72**
Time Out	.11	.72	.06	.83
Positive Verbal	.90	.95	.89	1.0
Positive Physical or Tangibles	.68	.90	.78	1.0
Proactive	.16	.84	.06	.78
Negative Verbal	1.0	.95	.83	1.0
Distraction/ Change Location	.32	.95	**.44**	**.78**
Models/Teaches	.90	1.0	.94	.89
Corporal Punishment	.00	.53	.00	.44

Appendix J

PMCPB Total Score Conversion Table - Primary Informants' Ratings
2 YEAR OLDS (n = 54)

Raw	Percentile	T-score	Raw	Percentile	T-score
42	1	27	67.1	51	50
42.1	2	30	68.2	52	51
42.65	3	31	69.15	53	51
43	4	33	69.7	54	51
43	5	34	70	55	51
43.3	6	35	70	56	52
43.85	7	35	70.7	57	52
44	8	36	71.8	58	52
44	9	37	72.9	59	52
44.5	10	37	74	60	53
45	11	38	74.55	61	53
45	12	38	75.3	62	53
45.15	13	39	76.95	63	53
45.7	14	39	78	64	54
46.5	15	40	78	65	54
47.6	16	40	78.3	66	54
48.35	17	41	78.85	67	54
48.9	18	41	79.4	68	55
49.45	19	41	79.95	69	55
50	20	42	80	70	55
51.1	21	42	80.05	71	56
52.085	22	42	80.6	72	56
52.553	23	43	81.75	73	56
52.88	24	43	84.5	74	56
52.963	25	43	86.25	75	57

Raw	Percentile	T-score	Raw	Percentile	T-score
53	26	44	86.8	76	57
53	27	44	87.35	77	57
54.6	28	44	87.9	78	58
56.8	29	45	90.25	79	58
58.76	30	45	93	80	58
60.544	31	45	93.55	81	59
60.808	32	45	94.8	82	59
61	33	46	99.2	83	60
61	34	46	104.328	84	60
61	35	46	110.73	85	60
61	36	46	113.748	86	61
61.7	37	47	113.946	87	61
62.8	38	47	114.664	88	62
63.45	39	47	115.577	89	62
64	40	47	115.83	90	63
64.435	41	48	116.1	91	63
64.911	42	48	117.2	92	64
65.577	43	48	119.05	93	65
66	44	48	122.9	94	66
66	45	49	127.75	95	67
66	46	49	133.8	96	68
66	47	49	140.2	97	69
66.4	48	49	146.8	98	70
66.95	49	50		99	73
67	50	50			

T scores have been rounded to the nearest whole number.

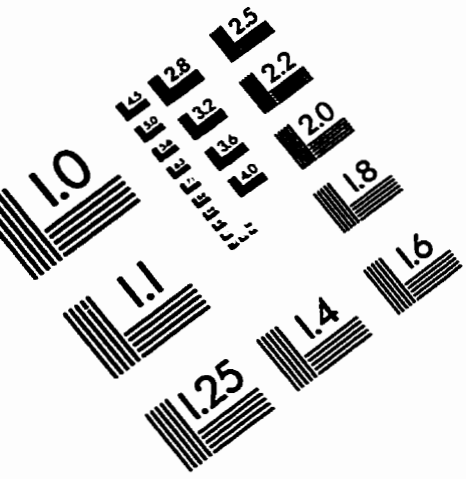
PMCPB Total Score Conversion Table - Primary Informants' Ratings
3 to 5 YEAR-OLDS (n = 37)

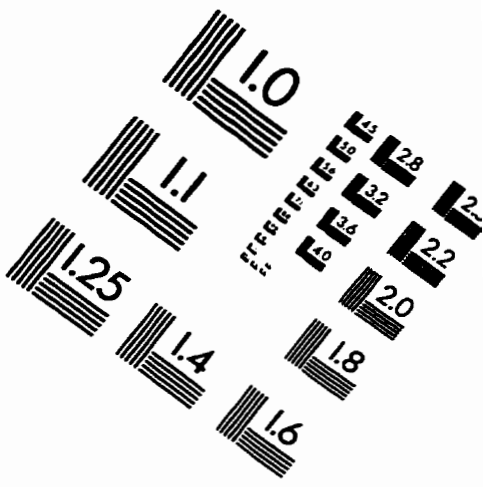
Raw	Percentile	T-score	Raw	Percentile	T-score
45	1	27	87.4	51	50
45	2	30	88.381	52	51
45.56	3	31	89.28	53	51
47.08	4	33	90.04	54	51
48.6	5	34	90.8	55	51
49.246	6	35	92.12	56	52
49.581	7	35	93.64	57	52
49.925	8	36	95.068	58	52
50.35	9	37	95.714	59	52
50.776	10	37	96.36	60	53
51.54	11	38	96.754	61	53
52.68	12	38	96.868	62	53
53.82	13	39	96.982	63	53
54.96	14	39	97.64	64	54
56.1	15	40	98.4	65	54
57.08	16	40	99	66	54
57.46	17	41	99	67	54
57.84	18	41	99	68	55
58.88	19	41	100.091	69	55
60.4	20	42	101.976	70	55
61.92	21	42	103.861	71	56
62	22	42	105.303	72	56
62	23	43	106.72	73	56
62.24	24	43	108.447	74	56

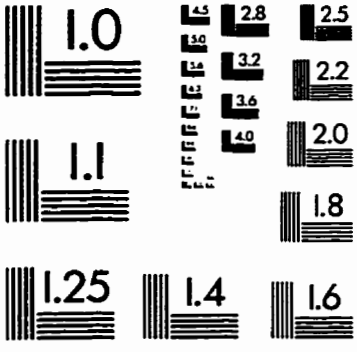
Raw	Percentile	T-score	Raw	Percentile	T-score
63	25	43	110.845	75	57
63.76	26	44	113.243	76	57
64.26	27	44	114.666	77	57
64.64	28	44	115.638	78	58
65.048	29	45	116.601	79	58
65.952	30	45	117.38	80	58
66.856	31	45	118.159	81	59
67.479	32	45	118.832	82	59
67.715	33	46	119.361	83	60
67.95	34	46	119.889	84	60
68.031	35	46	120.3	85	60
68.048	36	46	120.68	86	61
68.099	37	47	121.36	87	61
68.286	38	47	123.64	88	62
68.472	39	47	125.92	89	62
69.448	40	47	128.4	90	63
71.135	41	48	131.06	91	63
72.822	42	48	133.72	92	64
73.34	43	48	136.04	93	65
73.72	44	48	138.32	94	66
74.7	45	49	140.1	95	67
77.36	46	49	140.48	96	68
80.02	47	49	140.86	97	69
82.301	48	49		98	70
84.36	49	50		99	73
86.42	50	50			

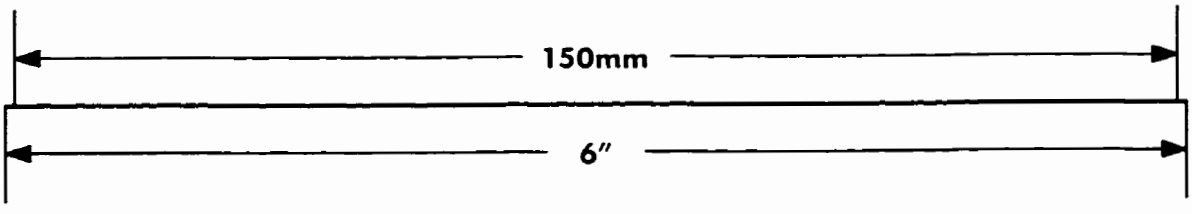
T scores have been rounded to the nearest whole number.

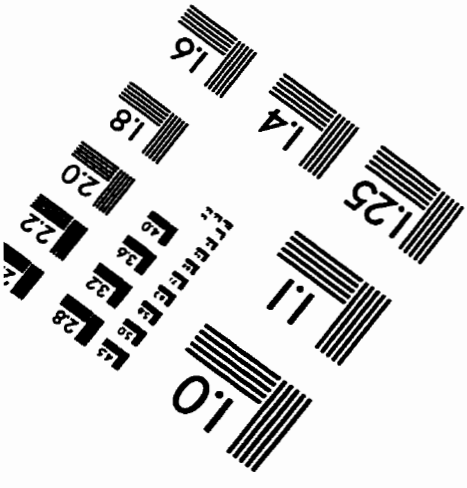
IMAGE EVALUATION
TEST TARGET (QA-3)

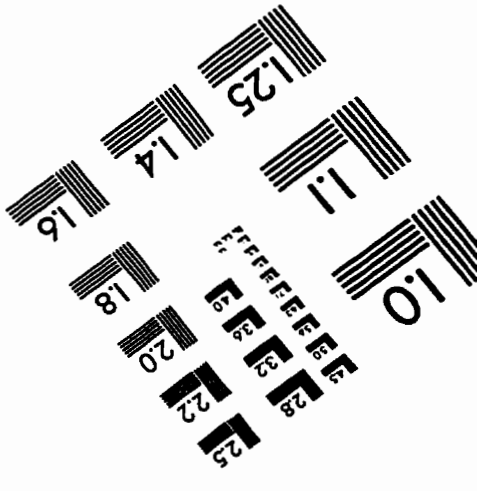












APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989