

Does Child Cognitive Status Moderate Parenting Programme Success?

Psychology Honours Research Project

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Abstract

Parenting programmes have been shown to be effective in improving parenting skills, in turn leading to improved child behaviour. Research in this area has, however, neglected to investigate the potentially moderating effect of child cognitive status on the effect of improved parenting on child behaviour. This question was addressed as part of a bigger study of a parenting programme. The sample comprised 96 black African children aged 2-9 years, whose parents were recruited for a randomised controlled trial investigating the effectiveness of a parenting programme, in Khayelitsha, Cape Town. Child cognitive data was collected using the Peabody Picture Vocabulary Test, and the Grover-Counter Scale of Cognitive Development. Child behavioural data was collected at baseline and post-test using the Eyberg Child Behaviour Inventory, while caregiver behavioural data was collected using subscales from the Parenting Young Children Scale and the ISPCAN Child Abuse Screening Tool – Parent version. Results from repeated measures ANOVA showed no significant effect for the intervention on positive parenting behaviour. The Friedman test revealed a significant intervention effect on physically abusive parenting, but none for emotionally abusive parenting. Linear regression revealed a weak, but significant ($p = .042$), positive relationship between emotionally abusive parenting behaviour and child behaviour problems. Multiple regression revealed that neither cognitive status nor gender predicted child behaviour. Because there was no significant relationship between child cognitive status and child behaviour, the potential moderating influence of child cognitive status on the impact of parenting could not be explored further.

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Background

Child conduct problems are a major issue affecting between one and ten percent of children globally (Hinshaw & Lee, 2003). Problems with behaviour during childhood tend to persist into adolescence and adulthood, and place children at a higher risk for several adverse outcomes (Fergusson, Horwood, & Ridder, 2005; Gardner, Burton, & Klimes, 2006; Kratzer & Hodgins, 1997; Matthys, Vanderschuren, Schutter, & Lochman, 2012; Puckering, 2009). The link between harsh parenting and child conduct problems is well-established (Knerr, Gardner, & Cluver, 2011) and programmes aimed at improving parenting have been shown to be effective in the reduction of child conduct problems (Dretzke et al., 2009). Child conduct problems have also been allied with child cognitive status (Bellanti & Bierman, 2000; Jackson & Beaver, 2013; Matthys et al., 2012) which in turn is powerfully related to the ability to learn (Sternberg, 1997), yet no studies investigating the efficacy of parenting programmes have explored whether or not compromised child cognition might lead to slower learning from changes in parental behaviour. This sub-study intended to contribute some understanding to this gap in our understanding of the mechanisms underlying the efficacy parenting programmes.

Child Conduct Problems and their Consequences

Several studies have identified child conduct problems as a powerful predictor of adverse outcomes in later life including crime, physical and mental health problems, substance abuse, school difficulties, lower educational attainment, suicidal behaviours, unemployment, teenage pregnancy, and the intergenerational perpetuation of conduct problems (Farrington & Welsh, 2007; Fergusson et al., 2005; Furlong et al., 2012; Knerr et al., 2011; Moffitt, 1993; Murray, Anselmi, Gallo, Fleitlich-Bilyk, & Bordin, 2013). In terms of gender, rates for child conduct problems are higher in males than females though studies suggest that long term consequences are similar for both (Fergusson & Horwood, 1998; Fergusson et al., 2005; Moffitt, Caspi, Rutter, & Silva, 2001; Pajer, 1998). In addition to the challenges faced by those afflicted, these later developments place increased burden on societal resources including the educational, medical, psychiatric, justice and immediate familial systems (Raaijmakers, Posthumus, van Hout, van Engeland, & Matthys, 2011; Scott, Knapp, Henderson, & Maughan, 2001).

Parenting Programmes

Behavioural parenting programmes are designed to provide parents with the opportunity to improve their parenting skills in various ways including the reduction of harsh or negative behaviour, increased play and supportive behaviour, and increased displays of

consistent discipline and encouragement (Gardner et al., 2006). The basis of this design rests on the well-established link between harsh and inconsistent parenting practices and negative short- and long-term behavioural outcomes for children, including the onset of child conduct disorder (Farrington, 1995; Farrington & Welsh, 2007; Furlong et al., 2012; Hutchings et al., 2004; Knerr et al., 2011; Moffitt, 1993; Murray et al., 2013; Patterson, 1982; Scott, 2005). It is also supported by developmental models for understanding child conduct problems, including those that focus on environmental and individual psychological factors (Matthys et al., 2012). Those emphasising environmental factors highlight the role of coercive parenting behaviours (Reid, Patterson, & Snyder, 2002), in turn justifying the focus of parenting programmes on the reduction of harsh and inconsistent parenting. Models focused on individual psychological factors, like the contextual social cognitive model, implicate social learning in the development of child conduct problems (Lochman & Wells, 2002; Matthys et al., 2012). Social learning highlights the importance of operant learning via direct or observed reinforcement, and posits the additional notion of learning through observation (or ‘modelling’) of other’s behaviour without having to actually perform the behaviour (Bandura, 1977). In an attempt to facilitate the transfer of positive social learning, parenting programmes also place great emphasis on the teaching positive parenting skills and behaviours.

Research into parenting programme efficacy has revealed largely positive results over the decades since their introduction (Knerr et al., 2011). These results have been replicated in high income (Barlow et al., 2011; Dretzke et al., 2009; Gardner et al., 2006; Hutchings et al., 2007; Jones, Daley, Hutchings, Bywater, & Eames, 2007; Kazdin, 1997; Knerr et al., 2011; Lundahl, Risser, & Lovejoy, 2006; Mercy, Butchart, Rosenberg, Dahlberg, & Harvey, 2008) as well as low and middle income countries alike (Knerr et al., 2011; Mejia, Calam, & Sanders, 2012). Major outcomes by which efficacy is measured include the parent-child interaction; negative, harsh or abusive parenting; positive parenting; child conduct; and parent attitude or knowledge (Gardner et al., 2006; Knerr et al., 2011).

Cognitive Deficits Association with Child Behavioural Problems

The association between neurological deficits and various child behavioural problems is well established. Indicated by low scores on cognitive tests, neurological deficits have been linked to early onset antisocial behaviour (Moffitt, 1993; Scott, 2005). Similar links have been established, in both children and adolescents, between cognitive deficits and the development of conduct disorder (Olvera, Semrud-Clikeman, Pliszka, & O’Donnell, 2005; Puckering, 2009), conduct problems (Jackson & Beaver, 2013), increased aggression, low

pro-social skill ability, and low peer acceptance (Bellanti & Bierman, 2000). Earlier work also found that cognitive deficits were among the most powerful predictors of sustained delinquency later in life (Farrington, 1995). Finally, meta-analysis highlighted the links between impulsivity (indicated by low scores and quicker response rates on cognitive tests) and increased aggression, disruptive behaviour, peer relationship problems, and antisocial behaviour (Baer & Nietzel, 1991). The existence of these associations, in addition to the requirement for child cognitive participation for learning (Sternberg, 1997), points to the importance of investigating child cognitive deficits as a potential mediator for parenting programme success.

Cognitive Deficits as a Moderator in Parenting Programme Success

Indeed, recent research into child cognitive deficits strongly suggests its potentially moderating effect on the impact of positive parenting practices (Jackson & Beaver, 2013). More specifically, cognitive deficits have been shown to compromise social learning skills in children with behavioural problems and conduct disorders, making interpretation of social cues challenging, if not impossible (Bellanti & Bierman, 2000; Matthys et al., 2012). It follows, therefore, that children with cognitive deficits may be slower in learning to change their behaviour in response to new contingencies their parents implement. Importantly, these cognitive deficits are more likely to be found in children with conduct problems (Moffitt, 1993b), and hence among children targeted by parenting programmes. Despite its importance, this review could identify no studies exploring the role of child cognitive status in parenting programme success.

Risk for Cognitive Deficits in a South African Sample

South Africa is a developing country that suffers from high rates of poverty, substance abuse, violence, and HIV (Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009). Individually, these factors are among those identified as the highest risk factors for compromised cognitive development in children (Boivin et al., 1995; Walker et al., 2007, 2011). Furthermore, it has been shown that behavioural problems and child maltreatment occur at high rates (Leoschut & Burton, 2006; Richter & Dawes, 2008; Seedat et al., 2009; Ward et al., 2012). In addition, these factors tend to act interdependently, compounding the risks for children living in disadvantaged settings where high rates of multiple risk factors tend to be present (Walker et al., 2007).

This elevated risk for cognitive deficits among the children participating in the parenting programme interventions in South Africa, coupled with the threat these deficits

represent to the programme success, highlights the need to identify and explore the impact, prevalence and level of cognitive deficits within South African samples.

Research Hypotheses and Aim

In response to the above, this study aimed to contribute to the literature on the overall effectiveness of parenting programme interventions as a preventative strategy for the improvement of parenting, reduction of child conduct problems and the improvement of child outcomes. In particular, the question this sub-study set out to answer was whether child cognitive status moderates their ability to benefit from changes to parenting behaviour. This question was explored in context of a broader randomised controlled trial of the Sinovuyo Caring Families Programme. The following hypotheses were tested.

H₁: Positive parenting increases more in the experimental group as a result of the intervention than in the control group.

H₂: Harsh parenting decreases more in the experimental group than in the control group.

H₃: Increased positive parenting is associated with decreased child behaviour problems.

H₄: Decreased harsh parenting is associated with decreased child behaviour problems.

H₅: Poorer child cognitive status is associated with higher child behaviour problems.

H₆: Child cognitive status moderates the relationship between parenting behaviour and child behaviour.

Methods

Design and setting

This sub-study, in part, utilised data collected by a larger study investigating the effectiveness of the Sinovuyo Project's parenting programme intervention, in addition to data collected specifically for this particular sub-study. Data sets from the larger study included three measures relevant to this sub-study, one of which assessed changes in child behaviour, and two which assessed changes in parenting behaviour. Data specifically for this sub-study included two further measures, both of which assessed child cognitive status.

The Sinovuyo Caring Families Project study is an ongoing, randomised controlled trial, testing the efficacy of the Sinovuyo Caring Families Programme, a behavioural parent training programme. Caregivers were randomly assigned to the intervention group or the services-as-usual control group (n=138 caregiver-child dyads). For this sub-study data was collected pre- and post-intervention.

Data for child cognitive status was collected at baseline for the purpose of this sub-study, to investigate the potentially moderating impact of child cognitive status on parenting programme intervention success.

Sample

Participants were recruited from Site C, Khayelitsha, which is a predominantly Black, isiXhosa speaking, low socioeconomic-status area in Cape Town. Due to the course materials and measures for the Sinovuyo Programme being in isiXhosa, only isiXhosa speaking participants were eligible.

The Sinovuyo Project participants were recruited in three ways. Firstly, Child Welfare Cape Town provided the project with details for parents involved in their family preservation and foster care programmes. Secondly, a school in Site C provided details for parents of children displaying behavioural problems. Finally, a systematic house-to-house sampling technique was utilised whereby every eighth house is visited in Site C where fieldworkers ascertained whether eligible candidates are present. In all of these methods participants were visited in their homes where they were first screened for eligibility and invited to participate.

Inclusion criteria. Inclusion criteria for caregivers and their child included: minimum age of 18 years for the caregiver; minimum age of two years and maximum of nine for the child; status as primary caregiver of the child; caregiver cohabits with the child for a minimum of four nights per week; and must have done so for a minimum of three months; caregiver must have reported a minimum of 15 problem behaviours in their child on the

Eyberg Child Behaviour Inventory problem scale (Eyberg & Pincus, 1999; Lachman & Wessels, 2014).

Measures

Parent and child behaviour. The frequency scale from the *Eyberg Child Behavior Inventory (ECBI)* (Eyberg & Ross, 1978) (see Appendix A) was used to assess the child's level of conduct problems. The measure consists of 36 items and examines children's externalising problem behaviours by asking caregivers to report on the frequency of particular behaviours, and whether they perceive these behaviours as problematic in their child. Typical behaviours include: "Argues with parents about rules," "Hits parents," "Teases or provokes other children," and "Destroys toys and other objects." The ECBI has been utilised extensively both as a diagnostic tool and to evaluate parenting programmes intervention research worldwide (Hutchings et al., 2007; Sanders, 2008) and has been found to have strong internal consistency ($\alpha=.89$) by a South African study on intimate-partner violence and child behaviour (Moolla, 2012).

The *Parenting Young Children Scale (PARYC)* (see Appendix B) subscales for supportive positive behaviour and setting limits (McEachern et al., 2012) were used to measure positive parenting behaviour. The PARYC is a self-report questionnaire which assesses the frequency of the occurrence of specific parental behaviours toward the child. The scales included seven items assessing supportive behaviour (e.g. "notice and praise your child's good behaviour") and seven items assessing limit setting behaviour (e.g. "stick to your rules and not change your mind"). Frequency was determined by a Likert scale (0 = never; 6 = always), and the item scores summed to create a total frequency. McEachern et al (2011) demonstrated consistently negative associations between the PARYC and the ECBI. A validation study demonstrated the internal consistency of both the supportive ($\alpha = .78$) and limit setting ($\alpha = .79$) subscales to be good (McEachern et al., 2012).

The physical and emotional abuse subscales from the *ISPCAN Child Abuse Screening Tool- Parent version (ICAST-P)* (Zolotor et al., 2009) (see Appendix C) were used to assess the level of harsh parenting behaviour. Both subscales consists of Likert-like, scale items measuring the frequency of disciplining behaviour (0 = never; 4 = more than 10 times) (Lachman & Wessels, 2014; Runyan et al., 2009). The following are examples from the physical and emotional abuse subscales respectively: "How often did you shake (your child) in the past month?", and "How often did you threaten to abandon (Childs first name) in the past month?" Developed and reviewed internationally, this scale has been utilised effectively in developing countries (Runyan et al., 2009), and acceptable levels of internal consistency

for both subscales (physical: $a = .77$, emotional: $a = .78$) have been demonstrated (Zolotor et al., 2009).

Child cognitive status. To assess the cognitive status of participating children two scales were chosen based on their collective ability to cover the requisite cognitive functionality for normal social learning speed, as well as their cultural appropriateness for the sample. Both of the following scales were translated for use into isiXhosa and were administered by first language isiXhosa speaking research assistants.

The *Grover-Counter Scale of Cognitive Development (GCS)* (Grover, 2000), designed to assess non-verbal aspects of cognitive functioning, was initially developed for use with handicapped subjects and specifically where verbal communication between tester and testee is compromised. The GCS was chosen for its ability to measure cognitive functioning without relying on language thereby contributing to a culture-fair testing procedure. The test consists of several stages which are progressively more challenging and, as this implies, as children get older so they generally should progress further in the test. As part of the original validation study the consistency with which the GCS measures cognitive functioning was calculated using the Kuder-Richardson Formula-20 and returned coefficients above $r = .80$ across the full age spectrum indicating an acceptable level of reliability (Grover, 2000). Provisional norms for the GCS were established based on a convenience sample of normal African-language speaking children (3-10yrs) (Grover, 2000). Subsequently, a further norming study was carried out in which more rigorous sampling techniques were used, but still convenience sampling was used to some extent (Sebate, 2000). The latter study was also only able to draw data from four of the nine South African provinces (Sebate, 2000). Due to these weaknesses in the norming process it was decided that they would not be used for comparison by this sub-study. Raw unstandardized scores were utilised to assess their potentially moderating impact on the relationship between parent and child behaviour.

Importantly, verbal intelligence in particular has been identified as a powerful predictor of child behaviour (Loney, Frick, Ellis, & McCoy, 1998). For this reason the second cognitive test included in this sub-study measures vocabulary acquisition. The *Peabody Picture Vocabulary Test-IV (PPVT-IV)* (modified version) assesses vocabulary acquisition via the measurement of understanding of spoken words (Dunn & Dunn, 2007). Developed in the USA, the test underwent qualitative review and empirical analysis for fairness and bias according to sex, race/ethnicity, socioeconomic status, and geographic region (Dunn & Dunn, 2007). The consistency with which the PPVT-IV measures the receptive vocabulary of children was assessed using the split-half, alternative-form, and test-retest methods.

Correlation coefficients varied between $r=.89-.95$ (Dunn & Dunn, 2007). The PPVT-IV test involves showing the child a page with four pictures on it, the child is then invited to point to one of the pictures identified by the word spoken (the target picture) by the test administrator (e.g. “point to laughing”). Each page represents an item, and there are 12 items in a set. Sets progress in difficulty and, as with the GCS, older children generally tend to progress further in the test. Set one is specified as the appropriate set to begin with for children between two years and six months and three years and eleven months old, while set two is specified as the appropriate set to start with for children four years and older.

To ensure cultural fairness in this sub-study population, a modified, translated, isiXhosa version of the PPVT-IV was used (Dawes, Biersteker, & Hendricks, 2012). The original adaption process involved a rigorous process designed to ensure cultural fairness and functional and cultural equivalence and translated the first five sets (appropriate for children up to age six) of the test (Dawes et al., 2012). Each item was tested with the help of child and adult informants in the following steps. First, the translated instructions were scrutinised to assess whether children accept and understand the instructions. Second, adult informants were used to translate the target words. Third, the same adult informants were used to assess whether or not the pictures would be recognised by children in the area. Finally, the test was piloted and final revisions made (Dawes et al., 2012). This sub-study’s sample range (two to nine years) meant that an extension of the PPVT-IV was required. Utilising the steps laid out by Dawes et al (2012) as a guide, sets seven to nine were adapted and translated with assistance of the Sinovuyo team. The PPVT-IV has yet to be standardised in the South African context. For that reason, in the current sub-study, raw unstandardized scores were calculated and utilised to assess whether they moderated the relationship between parent and child behaviour.

Demographics. The gender and age of the child were recorded.

Ethical Considerations

Application for ethical approval from the University of Cape Town Research Ethics Committee was approved (see Appendix D). Application for ethical approval from the University of Oxford Research Ethics Committee was also approved as part of the Sinovuyo project application (see Appendix D).

Consent, Voluntary Participation, and Confidentiality. Written, informed consent was obtained from all participating caregivers (see Appendix E). A thorough information sheet written in isiXhosa was provided outlining the process and requirements for the sub-study (see Appendix E for the English version). This was read to them and a copy provided for

them to keep. Caregivers were informed that theirs, and their child's, participation was voluntary and that they could withdraw from the sub-study at any time with no penalty. The child's verbal assent was required to commence assessment. It was made particularly clear that their enrolment in the Sinovuyo Parenting Programme would not be placed in jeopardy should they have chosen not to participate in this particular sub-study. They were also informed that the children's assessment scores were to be kept completely confidential, only viewed by those involved in the sub-study, and only used for the purpose of the sub-study.

Participation in the sub-study did not carry any considerable risk. The chosen scales are quick, simple and fun. Nevertheless, children were allowed to take breaks in the event of fatigue. Both scales are designed to alert the administrator to stop the test as soon as the child ceases to achieve the minimum requisite score for progression to the next stage. Researchers trained to administer the tests were experienced with similar measures and were well-practiced at establishing rapport with caregivers and children in the target age group.

The primary benefit to participants was a basic cognitive screening which indicated whether the child had reached the age-appropriate level. Where learning difficulties were identified (via the standardised GCS only) the caregiver was referred to appropriate service providers. In line with the aims of the sub-study, the indirect benefit to participants lay in the contribution this sub-study stands to make to the optimal development of parenting programmes yet to be implemented in their communities. In addition, and as a token of our appreciation, a snack was provided for the child and caregiver to enjoy together.

Procedure

Trained isiXhosa speaking research assistants visited participants from the experimental and control groups in their homes at baseline where they administered the ECBI, PARYC and ICAST-P questionnaires. This was repeated following the intervention. On a separate occasion, at baseline, other research assistants visited participants in their homes where they were invited to participate in this sub-study. If they agreed, both cognitive tests were administered to the child. Once testing was complete, research assistants gave the child a toy and the caregiver a twenty rand gift voucher for Shoprite, a grocery store with a branch in Khayelitsha. A snack was also provided for them to enjoy together.

Data analysis

Data were analysed using the IBM SPSS Statistics software package (version 21.0). The significance level was set at $p < .05$ for all analyses. To determine internal consistency, Cronbach's alpha was calculated for each of the scales utilised. Descriptive statistics were explored prior to further analysis.

Hypotheses 1 and 2. All positive and harsh parenting data were checked for normality. It was found that pre and post intervention scores for the PARYC limit setting and supportive parenting subscales were normally distributed (see Appendix F, Table F1, figures F1-4). For the latter variables, repeated measures ANOVA was chosen to assess whether or not positive parenting had improved more in the intervention than the control group. The skewed physical and emotional subscale ICAST-P data (see Appendix F, Table F1, figures F5-8) resisted attempts at data transformation and thus a nonparametric alternative for the repeated measures ANOVA, the Friedman test, was used rather than ANOVA (Field, 2013). The Friedman test allows for a within-group across-time comparison, with dependent data. It does not, however, automatically tell you whether or not group assignment has had an effect. To assess the latter the Friedman test was run on the experimental and control groups separately, for both the physical and emotional subscales. By inspecting these results in conjunction with the descriptive statistics, we were able to infer whether or not the intervention had an effect on either group. Assumptions for the nonparametric Friedman test were upheld. Based on the results from the latter test, and to assist with interpretation, a further nonparametric test, the Kruskal-Wallis test, was run to assess whether or not random allocation had succeeded in assuring that the experimental and control groups had a non-significantly different mean score for ICAST-P physical subscale at baseline. Assumptions for the nonparametric Kruskal-Wallis test were upheld.

Hypotheses 3 and 4. In order to assess whether increased positive parenting and decreased harsh parenting were associated with decreased child behavioural problems, simple linear regression was used. First the change scores for the child behaviour subscale (ECBI problem scale) and parent behaviour subscales (PARYC supportive and limit setting scales, and ICAST-P physical and emotional abuse scales) were calculated by subtracting the baseline scores from the post-intervention scores. The ECBI change score variable was then regressed on each of the parenting scale change score variables in turn. As the dependent variable, the assumption of normality was met by the ECBI change score variable (see Appendix F, figure F9).

Hypothesis 5. To test whether child cognitive status predicted child behaviour multiple regression was used to regress the ECBI pre intervention scores for the combined sample on the GCS and then the PPVT-IV variables. To assess whether or not gender was impacting on the relationship, it was entered firstly as a second predictor variable, and then multiplied with each of the cognitive scores and entered as a third interactive variable. The ECBI frequency scale met the assumption of normality (see Appendix F, figure F10).

Prior to the latter analyses, and to control for age in lieu of norms against which to compare cognitive scores, the age variable was regressed on the cognitive test score variables and the residuals from these models were used in the linear regression in lieu of the original scores. This is necessary to control for the effect of naturally increasing cognitive performance associated with increasing age in children. Square and cubic transformations of the age variable were considered, but when included in the regression they were not significant ($p=.121$; $p=.446$), thus the original age variable was utilised in the regression. After centring the age variable it was regressed on the Grover ($r^2=.406$, $F=51.98$, $p<.001$). The regression revealed that for the average aged child (74 months) the GCS score was 32, and each additional month predicted an increase in the GCS score by .63 points. The unstandardised residuals saved from this model were utilised in lieu of the original GCS scores. The same process was performed for the PPVT-IV scores, and similar results found. Neither the squared nor the cubic transformations were significant in the regression ($p=.121$; $p=.446$). The relationship between age and the PPVT-IV scores was significant ($r^2=.765$, $F=280.43$, $p<.001$), and the model indicated that for the average aged child (74 months) the PPVT-IV score was 60, and each additional month predicted an increase in the PPVT-IV score by .86 points. These results also served to confirm the expected positive relationship between age and cognitive scores.

Hypothesis 6. Where relationships were found to exist between parenting behaviour and child behavioural problems, multiple regression was employed to assess whether child cognitive status moderated the relationship.

Data exclusions. Post administration several items were identified as problematic within set six of the PPVT-IV. The majority of the issues were caused by errors made during the translation of the words, and one item had been labelled incorrectly causing confusion in the administration and data capturing process. The PPVT-IV scoring system requires that the number of errors per set be calculated, following which the errors from each set are then summed, and the total deducted from the number of the highest item in the highest set reached by the participant. Due to the fact that errors are, therefore, calculated per set, it would have required recapturing of the entire sample's scores in order to ensure fairness for the scoring of set six. Due to time restrictions it was thus decided to exclude the entire set from the analyses. In terms of the GCS, data mistakenly collected for children below three years were excluded from the analyses using data gathered via the GCS as it was designed for use with children between three and ten years old (Grover, 2000).

Results

Sample

Inclusion. Of the 182 candidates assessed for eligibility in the broader Sinovuyo project, 82% were eligible, reflecting a high rate of perceived child behavioural problems in the sample. Further exclusions were made prior to randomisation for various reasons, some of the most common included participant unavailability as a result of having secured full-time employment, having relocated, or having recently travelled to the Eastern Cape (see figure 1). Randomisation resulted in equally sized experimental and control groups (see figure 1).

Despite efforts to administer the cognitive tests to the entire sample, 30% were excluded for various reasons (see figure 1). Once testing was complete, and largely as a result of administration error, a further eight percent of the participants' results were excluded from the analyses involving the PPVT-IV, and 20% from the analyses involving the GCS (see figure 1). At the time of analysing data for this sub-study five additional participants had not been located for post-test behavioural test administration.

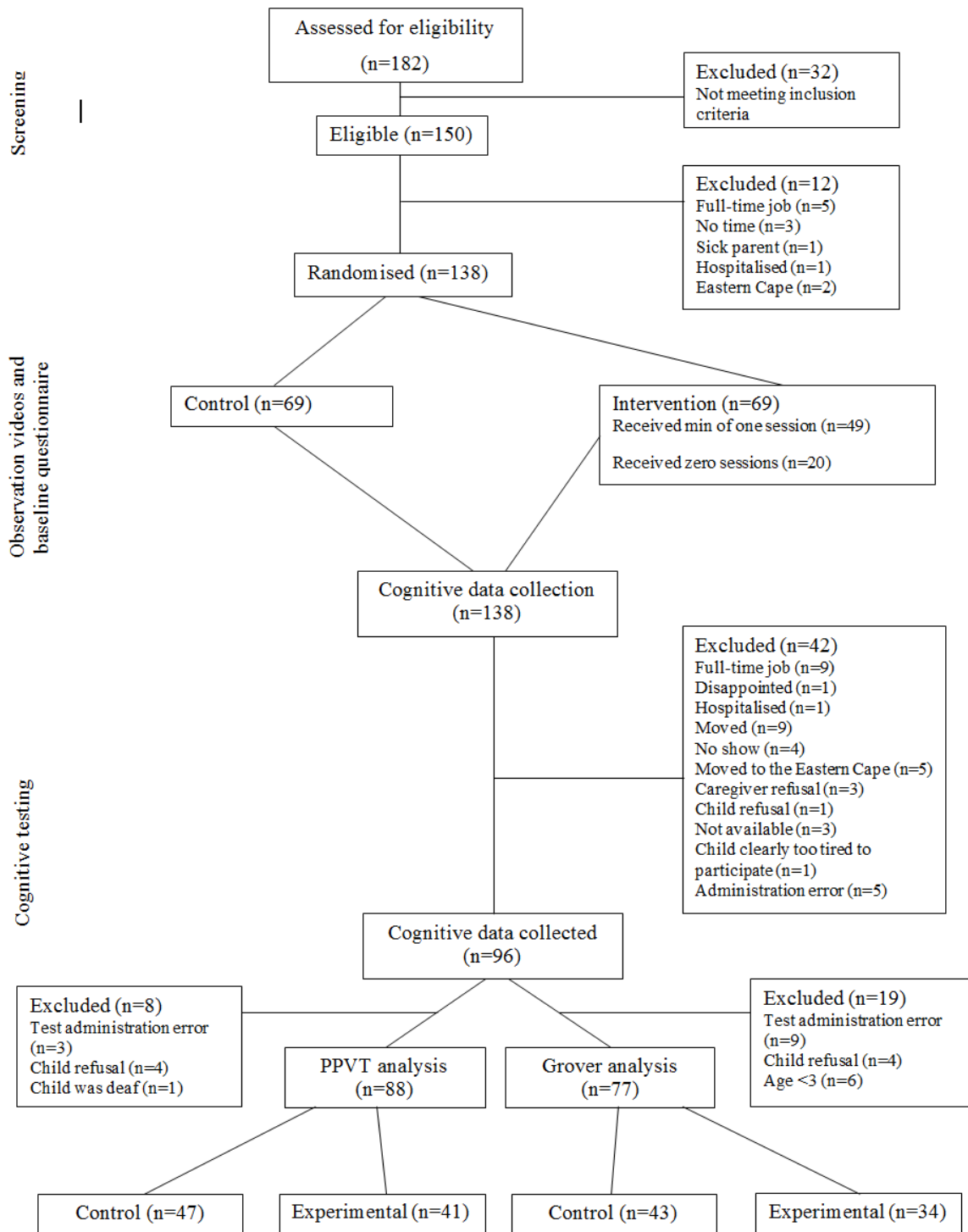


Figure 1. CONSORT diagram illustrating the flow of participant inclusion.

Descriptive Statistics. Despite the broad age range for the caregivers (18-75 years, see table 1), the majority (51%) were below 34 years. Some explanation for this is found in the distribution of caregiver's relationships to the children. Only a few were grandparents, and the majority were biological mothers (see Table 1). All the caregivers were female. The

age range for children was two – nine years (Table 1), and the distribution was fairly even across the range. In terms of gender, the sample of children was evenly distributed (see Table 1). All the children and caregivers were Black African, and spoke isiXhosa as a first language.

Despite most of the caregivers having completed some high schooling, the overall level of education in the sample was relatively low, with a third having primary school educations or less (Table 1).

Table 1.

<i>Age demographics of the sample</i>		
	Caregivers	Children
Age ($N = 96$)		
<i>M(SD)</i>	37.3 (12.2)	6.2 (2)
Range	18-75	2.5-9.8
Caregiver level of education ($N = 96$)		
None	2 (2%)	/
Some primary	29 (30%)	/
Some high school	64 (66%)	/
Post-matric	1 (1%)	/
Total	96 (100%)	/
Caregiver relationship to child ($N = 96$)		
Biological mother	67 (70%)	/
Sibling	3 (3%)	/
Grandparent	20 (20%)	/
Great grandparent	1 (1%)	/
Aunt or uncle	4 (4%)	/
Other	1 (1%)	/
Total	96 (100%)	/
Gender ($N = 96$)		
Male	0 (0%)	48 (51%)
Female	96 (100%)	47 (49%)

Within the experimental group 40 (90%) attended a minimum of one session, 31 (72%) attended six or more, 29 (68%) attended seven or more, 24 (56%) attended eight or more, and 3 (7%) attended none. The mean number of sessions attended was 7.3 ($SD = 3.8$).

Although there was some overlap in the range of the PPVT-IV and GCS scores, it is evident from the mean scores presented in Table 2 that there was a general increase in the scores of both tests with age.

Table 2

Children's cognitive test results by age band

	N	Range	M	SD
2 year olds				
Age (yrs)	6	2.50-2.92	2.72	.19
PPVT-IV	5	10-26	17.80	6.38
GCS	/	/	/	/
3 year olds				
Age	9	3.08-3.83	3.36	.26
PPVT-IV	8	21-47	37.13	7.83
GCS	8	0-28	8.63	10.94
4 year olds				
Age	14	4.08-4.83	4.37	.28
PPVT-IV	13	13-55	39.92	11.49
GCS	12	0-27	15.33	12.32
5 year olds				
Age	15	5.08-5.92	5.44	.30
PPVT-IV	14	25-56	47.36	9.53
GCS	10	4-53	28.90	15.39
6 year olds				
Age	11	6-6.83	6.48	.27
PPVT-IV	11	51-94	72.36	13.75
GCS	9	22-59	39.44	15.22
7 year olds				
Age	23	7-7.92	7.45	.33
PPVT-IV	21	50-90	74.48	12.25
GCS	23	10-76	43.65	16.68

8 year olds				
Age	8	8-8.75	8.30	.27
PPVT-IV	7	66-94	82.43	9.33
GCS	8	27-69	45.88	17.96
9 year olds				
Age	10	9-9.75	9.43	.27
PPVT-IV	9	81-102	88.33	6.36
GCS	8	0-82	54.00	28.53

The mean changes to parenting and child behaviour scores are presented in Table 3. Positive parenting increased in both the experimental and the control groups (see Table 3). The ICAST-P harsh parenting scores, which assessed frequency of behaviour only, decreased in both groups (see Table 3). Scores on the ECBI also reflected improvements in child behaviour (reflected by reduced scores) for both the experimental and control groups (see Table 3).

Table 3

<i>Mean scores on parenting and child behaviour instruments pre and post intervention</i>		
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>
Positive parenting supportive subscale		
Experimental	22.1 (5.6)	23.6 (5.7)
Control	20.6 (5.7)	23.6 (5.6)
Positive parenting limit setting subscale		
Experimental	20.7 (6.1)	24.7 (7.5)
Control	22.0 (6.9)	24.6 (6.9)
ICAST-P physical abuse subscale		
Experimental	5.7 (4)*	2.7 (2.8)
Control	3.9 (3.4)	3.6 (4.8)
ICAST-P emotional abuse subscale		
Experimental	7.9 (4.8)	3.5 (3)

Control	7.0 (5.3)	4.2 (5)
ECBI		
Experimental	139.7 (21.8)	121.0 (21.1)
Control	141.0 (21.2)	119.0 (26.6)

* $p < .05$; groups means were significantly different at baseline

Cronbach's alpha was calculated for each of the scales in order to assess internal validity. Alpha's ranged from .609, for the ICAST-P physical abuse subscale, to .864 for the ECBI scale (see Appendix F, Table F2). Removal of the following items from the ICAST-P physical abuse subscale (.609) individually resulted in increased alpha: item eight (to .615); item 16 (to .615); item 23 (to .614); and item 25 (to .611). Removal of all the latter items from the subscale resulted in an increased alpha of .641. Regarding the ICAST-P emotional subscale, only the removal of item 12 resulted in an improved Cronbach's alpha from .657 to .664. In the case of the supportive positive parenting subscale, no item removals resulted in increased alpha. Removal of the item nine from the limit setting parenting subscale did, however, result a higher alpha (.699-.757). Generally, Cronbach's alphas of between .7 and .8 are considered acceptable and substantially lowers values are deemed to indicate unreliability (Field, 2013). Kline (2000), however, argues that with the exception of cognitive and ability tests, values below .7 should be acceptable when dealing with psychological constructs owing to their diversity (Field, 2013). For this reason all the items were retained and the subscales utilised in their original form for the analyses.

Did positive parenting improve as a consequence of the parenting programme?

Despite the mean scores for both the experimental and control groups having improved in terms of supportive and limit setting parenting behaviour (see Table 3), there was no difference between the groups in terms of improvement to supportive positive parenting ($F=.684$, $p=.410$). Similar results were found for limit setting, the other positive parenting behaviour investigated ($F=.326$, $p=.569$).

Did harsh parenting reduce as a consequence of the parenting programme?

Results for the nonparametric Friedman test used to detect differences in the control and experimental group before and after the intervention are presented in Table 4. With regards in the emotional abuse subscale the experimental group's mean scores dropped significantly after the intervention, $X^2(1, N = 41) = 12.1$, $p = .001$, as did the control group's $X^2(1, N = 50) = 7.04$, $p = .008$ (see Table 4). The experimental group's mean scores for the

physical abuse subscale dropped significantly after the intervention, $X^2(1, N = 41) = 8.53, p = .004$, but notably, it this change was not significant in the control group $X^2(1, N = 50) = 1.04, p = .307$. Results from the nonparametric Kruskal-Wallis test indicated that the control group started off with a significantly lower mean score for physical abuse subscale, $X^2(1, N = 96) = 5.191, p = .023$.

Table 4

Results for the nonparametric Friedman test showing differences in the control and experimental group before and after the intervention

	<i>N</i>	<i>Pre</i>	<i>Post</i>	<i>X</i> ²	<i>p</i>
ICAST-P physical abuse subscale					
Control	50	3.9 (3.4)	3.6 (4.8)	1.043 (1)	.307
Experimental	41	5.7 (4)	2.7 (2.8)	8.526 (1)	.004*
ICAST-P emotional abuse subscale					
Control	50	7.2 (5.3)	4.2 (5)	7.043 (1)	.008*
Experimental	41	7.8 (4.8)	3.5 (3)	12.100 (1)	.001*

* $p < .05$

Was there a relationship between parenting behaviour and child behaviour?

Results exploring the relationship between changes in parenting and child behaviour in the entire sample pre and post intervention are presented in Table 5. Neither the supportive nor the limit setting positive parenting change scores predicted the mean change scores for the ECBI. The same was found for the ICAST-P physical abuse subscale. The mean change for the emotional abuse subscale did have a weak but significant relationship with the mean change for the ECBI ($r^2 = .046, \beta = 1, t = 2.06, p = .042$), this relationship is illustrated by figure 2. What this essentially means is that increasing emotionally abuse parenting behaviour is associated with increasing problem child behaviour.

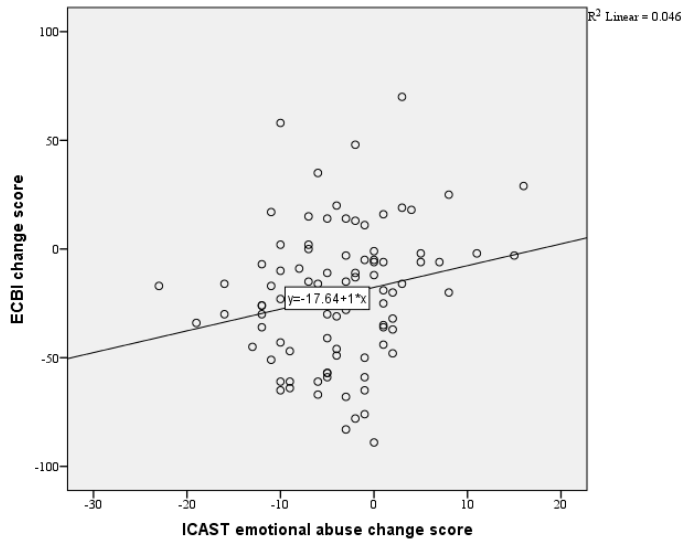


Figure 2. Scatterplot illustrating the relationship between the change in emotionally abusive behaviour and change in child behaviour.

Table 5

Linear regression showing the relationship between change in parenting behaviour and change in child behaviour.

	<i>N</i>	<i>r</i> ²	β	<i>t</i>	<i>p</i>
Positive parenting supportive parenting	91	0.01	-.401	-.965	.337
Positive limit setting parenting	91	<.001	.034	.102	.919
ICAST-P physical abuse	91	.031	.986	.176	.096
ICAST-P emotional abuse	91	.046	1	2.060	.042*

**p*<.05 Predictor variables: change scores in parenting behaviour scales. Dependent variable: change score for ECBI scale.

Did child cognitive status predict child behaviour?

Multiple regression analyses were run regressing the pre intervention combined sample ECBI variable on the GCS and then the PPVT-IV variables. Gender was included as an independent variable in the model to assess whether it had a relationship with ECBI, an additional variable (GCS or PPVT-IV multiplied by Gender) was also included to assess whether the interaction affect had an impact on the relationship between cognition and behaviour. The analysis including GCS revealed that none of the variables predicted ECBI (see Appendix F, Table F3). Similarly, no predictive power was detected in the analysis including PPVT-IV (see Appendix F, Table F3).

Did child cognitive status moderate the relationship between parenting and child behaviour?

There was only one relationship where the moderating effect of cognitive status could be explored, between the mean change for the emotional abuse subscale and the mean change for the ECBI. Initial exploratory analysis showed that cognitive status did not predict change in ECBI (GCS: $\beta = -.216$, $t = -.116$, $p = .327$; PPVT-IV: $\beta = -.405$, $t = -1.29$, $p = .201$). This result negated the value of running multiple regression to assess whether either GCS or PPVT-IV were moderating the relationship between change in abusive parental behaviour and change in child behavioural problems.

Discussion

This sub-study set out to explore the potentially moderating influence that child cognitive status might have on the relationship between change in parenting and child behaviour. The primary hypothesis was that it would decrease the strength of this relationship. The exploration of this effect was contingent on several subsidiary hypotheses. Firstly, it was hypothesised that parenting behaviour would improve more in those participants attending the parenting programme than those who did not. Secondly, it was hypothesised that improved parenting behaviour would be associated with decreased child behavioural problems. Third, it was expected that lower child cognitive status would predict increased child behavioural problems.

With the exception of physically abusive parenting behaviour, no intervention effect could be identified in terms of increased positive or decreased harsh parenting. This finding contradicts those of several studies carried out in low, middle, and high income countries (Barlow et al., 2011; Dretzke et al., 2009; Gardner et al., 2006; Hutchings et al., 2007; Jones et al., 2007; Kazdin, 1997; Knerr et al., 2011; Lundahl et al., 2006; Mercy et al., 2008).

A possible threat to internal consistency may offer some explanation for this inconsistency. It is possible that subject reactivity occurred. This refers to the phenomenon whereby subjects change purely as a result of being studied, rather than as a result of the impact of the experimental intervention (Terre Blanche, Durrheim, & Painter, 2006). Given that both groups in this sub-study experienced significantly improved positive and decreased harsh parenting, this explanation is intuitively appealing. One mechanism through which this may have occurred involves the baseline assessment performing as a kind of parenting intervention whereby the questions led to improved parenting (Walters, Vader, Harris, & Jouriles, 2009).

Another explanation may be the negative stigma associated with child maltreatment which might encourage participants to report improvements in parenting behaviour in order to present themselves in a positive light. This phenomenon, referred to as social desirability bias (Furnham, 1986), may have been further fuelled by the research assistants' status as Khayelitsha community members and, by implication, as the participant's peers, and may have further contributed to the desire for participant's to paint a positive picture of themselves as parents. A possible method for combatting the latter effect would be to utilise several forms of assessment including independent observation and the second opinion of an involved caregiver other than the primary caregiver. The broader study with which this sub-

study is allied includes independent observation measurements which may detect some intervention effect.

In addition to subject reactivity it is worth noting the possible influence of the size and nature of the participant's community. Site C is a relatively small area within Khayelitsha, and levels of intra-community interaction are high. This may have led to members of the experimental group sharing their learning with the control group members thereby contaminating the control group and thus reducing group differences in parenting behaviour.

A final possible explanation for the lack of intervention effect detected by this sub-study lies in the level of programme attendance in the experimental group. Session attendance and quality have long since been established as a major proxies for programme success (Andrews & Dowden, 2005) and it has been demonstrated that null effects can be explained by participants' failure to receive minimum dosage (Flay et al., 2005; Mihalic, Fagan, & Argamaso, 2008). No cut-off level of attendance to ensure efficacy has yet been identified by the parenting programme literature, but attendance levels for the current study were lower than several parenting programmes that have demonstrated efficacy (Gardner et al., 2006; Hutchings et al., 2007; Jones et al., 2007). The relatively low programme attendance recorded by the main study may, therefore, have contributed to the lack of intervention effect. A possible option for future studies might be the introduction of a small financial incentive for parents to attend sessions, this strategy was supported by a study in Germany that found a small financial incentive increased session attendance rates high-risk, low-income parents for (Heinrichs, 2006). The ethical and experimental implications of this kind of strategy would, however, need to be considered carefully.

Exposure to the main study was found to coincide with overall improved child and parenting behaviour for the control and experimental groups yet, with the exception of the weak association with emotionally abusive parental behaviour, no significant relationship was detected between improvements in parenting behaviour and decreases in child behavioural problems. In addition to it being counterintuitive, this finding contradicts that of prior research (Gardner et al., 2006; Hutchings et al., 2007). One possible explanation for this involves timing. Post intervention data collection took place directly following the end of the parenting programme, which may not have allowed sufficient time for the changes in child behaviour to take effect. The inference made regarding the intervention effect with respect to physically abusive parenting and child behaviour must be treated with caution as the control group started with a significantly lower mean score for harsh parenting. Post intervention

scores for the two groups were not significantly different, implying the lack of intervention effect experienced by the control group was as a result of a biased starting point. Nevertheless, the finding of some intervention effect does correspond with the findings of prior studies (Farrington, 1995; Farrington & Welsh, 2007; Furlong et al., 2012; Hutchings et al., 2004; Knerr et al., 2011; Moffitt, 1993; Murray et al., 2013; Patterson, 1982; Scott, 2005) and highlights the importance of developing and implementing strategies to reduce this style of parenting.

It was also found that cognitive status did not predict child behavioural problems. Once again, this finding was contradictory to that of prior research (Jackson & Beaver, 2013; Olvera et al., 2005; Puckering, 2009). In terms of the GCS, which was developed over twenty years ago and initially for use with mentally handicapped children and adults (Sebate, 2000), the test may simply be outdated and as a result may not be accurately reflecting the cognitive capacity of the children. It may also be that this study population differs from those of other studies whereby cognition is playing a lesser role in predicting child behaviour when compared to other factors. High levels of community, school and family violence could, for example, be factors worth exploring in future research.

Due to the findings above it was not possible to test the primary hypothesis regarding whether child cognitive status would moderate the relationship between parenting and child behaviour.

Limitations

When conducting future research the following limitations incurred by this sub-study should be considered, many of which have been alluded to above. Firstly, data collected for this sub-study was sourced from a limited number of sources. Child and parental behaviour data was gathered via self-report questionnaires administered to parents and as such was vulnerable to the effects of subject reactivity and response bias (discussed in more detail above). Multiple sources of data are, therefore, recommended for future studies including the administration of questionnaires to alternative caregivers and teachers, as well as independent observations. The latter, in the form of direct observational instruments are considered the gold standard for outcome measures in parenting intervention research (Knerr et al., 2011). It is highly recommended that future studies employ this kind of assessment technique as their primary method of data collection.

Secondly, data for child cognitive status was collected via single administration of the GCS and PPVT-IV. This raises at least one possible area of concern. Administration of the GCS proved challenging for the research assistants, and several mistakes were made early on

in the data collection process rendering initial test results inadmissible ($N = 8$). Wherever possible, tests were re-administered in these cases, the consequence of which was the introduction of possible practice effects whereby participant performance improves as a result of prior experience with the test (Hausknecht, Halpert, Di Paolo, & Moriarty Gerrard, 2007). Possible impact was somewhat mitigated by the relatively small number of participants affected.

Finally, and as a result of practical restrictions, cognitive testing took place in participant's homes. Tests were generally administered to the child on the floor of a communal room in the home. This may have compromised testing conditions as a result of several factors including distractions caused by people passing through the room. Caution was taken as far as possible to keep testing conditions equal between homes in order to ensure fairness but this could not be guaranteed.

Study contributions and implications

Overall this sub-study has contributed to the growing body of international research into the efficacy of parenting programmes as a form of child maltreatment prevention. Notwithstanding the limitations outlined above, this sub-study stands to contribute in several areas. Firstly, despite the fact that this sub-study was unable to thoroughly explore the potentially moderating influence of child cognitive status on the success of parenting programmes, it has served to flag its potential role and provide the initial foundations for continued exploration into child cognition in this context which is to be undertaken by the large-scale research project with which this sub-study is affiliated. Furthermore, it is recommended that other studies into the efficacy of parenting programmes also include assessments of child cognitive status. In addition, the lack of predictive power demonstrated by this study for child cognitive status on child behaviour implies that if cognitive status in this sub-population does not impact child behaviour, then efforts aimed at reducing the rate of child conduct problems should focus on other associated factors including harsh parenting and exposure to violent role models (Dodge, Pettit, & Bates, 1994).

Conclusion

High rates of child conduct problems and associated adverse long term consequences for children are an apparent problem (Fergusson et al., 2005; Gardner et al., 2006; Hinshaw & Lee, 2003; Kratzer & Hodgins, 1997; Matthys et al., 2012; Puckering, 2009). Parenting programmes have been demonstrated as an effective strategy for combatting child maltreatment (Dretzke et al., 2009; Knerr et al., 2011), yet no studies exploring the role of child cognitive status in programme efficacy could be identified. This sub-study hypothesised

that compromised child cognitive status would moderate the relationship between improved parenting and child behaviour following exposure to a parenting programme. Analysis of the moderating role was, however, made difficult by the lack of significance detected in the relationship between parenting and child behaviour outcomes in this sub-study. Several possible explanations for this unexpected finding were offered including subject reactivity, social desirability bias, control group contamination, and low programme attendance. It may also be that child behaviour is influenced, in this context, by a far broader range of factors than simply parenting, and future studies should explore this.

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Appendix A

Eyberg Child Behavior Inventory (ECBI)

ECBI™ Eyberg Child Behavior Inventory™

Parenting Rating Form by Sheila Eyberg, PhD

Your name: _____ Relationship to Child: _____ Today's date: _____
 Child's name: _____ Child's gender: _____ Child's Date of Birth: _____

Directions: Below are a series of phrases that describe children's behavior. Please (1) circle the number describing **how often** the behavior **currently** occurs with your child, and (2) circle either "yes" or "no" to indicate whether the behavior is **currently a problem** for you.

For example, if seldom, you would circle the 2 in response to the following statement:

	Never	Seldom	Sometimes	Often	Always	Is this a problem for you?
1. Refuses to eat vegetables	1	2	3	4	5	6 7 YES NO
Circle only one response for each statement, and respond to all statements. DO NOT ERASE! If you need to change an answer, make an "X" through the incorrect answer and circle the correct response. For example:						
1. Refuses to eat vegetables	1	2	3	4	5	6 7 YES NO

	How often does this occur with your child?					Is this a problem for you?
	Never	Seldom	Sometimes	Often	Always	YES NO
1. Dawdles in getting dressed	1	2	3	4	5	6 7 YES NO
2. Dawdles or lingers at mealtimes	1	2	3	4	5	6 7 YES NO
3. Has poor table manners	1	2	3	4	5	6 7 YES NO
4. Refuses to eat food presented	1	2	3	4	5	6 7 YES NO
5. Refuses to do chores when asked	1	2	3	4	5	6 7 YES NO
6. Slow in getting ready for bed	1	2	3	4	5	6 7 YES NO
7. Refuses to go to bed on time	1	2	3	4	5	6 7 YES NO
8. Does not obey house rules on own	1	2	3	4	5	6 7 YES NO
9. Refuses to obey until threatened with punishment	1	2	3	4	5	6 7 YES NO
10. Acts defiant when told to do something	1	2	3	4	5	6 7 YES NO
11. Argues with parents about rules	1	2	3	4	5	6 7 YES NO
12. Gets angry when doesn't get own way	1	2	3	4	5	6 7 YES NO
13. Has temper tantrums	1	2	3	4	5	6 7 YES NO
14. Sassses adults	1	2	3	4	5	6 7 YES NO
15. Whines	1	2	3	4	5	6 7 YES NO
16. Cries easily	1	2	3	4	5	6 7 YES NO
17. Yells or screams	1	2	3	4	5	6 7 YES NO

18. Hits parents	1	2	3	4	5	6	7	YES	NO
19. Destroys toys and other objects	1	2	3	4	5	6	7	YES	NO
20. Is careless with toys and other objects	1	2	3	4	5	6	7	YES	NO
21. Steals	1	2	3	4	5	6	7	YES	NO
22. Lies	1	2	3	4	5	6	7	YES	NO
23. Teases or provokes other children	1	2	3	4	5	6	7	YES	NO
24. Verbally fights with friends own age	1	2	3	4	5	6	7	YES	NO
25. Verbally fights with sisters and brothers	1	2	3	4	5	6	7	YES	NO
26. Physically fights with friends own age	1	2	3	4	5	6	7	YES	NO
27. Physically fights with sisters and brothers	1	2	3	4	5	6	7	YES	NO
28. Constantly seeks attention	1	2	3	4	5	6	7	YES	NO
29. Interrupts	1	2	3	4	5	6	7	YES	NO
30. Is easily distracted	1	2	3	4	5	6	7	YES	NO
31. Has short attention span	1	2	3	4	5	6	7	YES	NO
32. Fails to finish tasks or projects	1	2	3	4	5	6	7	YES	NO
33. Has difficulty entertaining self alone	1	2	3	4	5	6	7	YES	NO
34. Has difficulty concentrating on one thing	1	2	3	4	5	6	7	YES	NO
35. Is overactive or restless	1	2	3	4	5	6	7	YES	NO
36. Wets the bed	1	2	3	4	5	6	7	YES	NO

Appendix B

Parenting Young Children Scale (PARYC) Subscales for Supportive Positive Behaviour and Setting Limits

Parenting Young Children Scale (PARYC) subscales for supportive positive behaviour and setting limits

Introduction

As parents, sometimes we get on very well with our children, and other times it can feel difficult to have a good relationship. The next questions will ask about your relationship with [child's first name]. Please answer all the questions as best you can, even if you are not absolutely sure.

Please give your answers on the basis of your relationship with [child's first name] in the past month (30 days).

1. How often do you play with your child??

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

2. How often do you stand back and let your child work through problems (s)he might be able to solve on his/her own?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

3. How often do you invite your child to play a game with you or share an enjoyable activity?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

4. How often do you notice and praise your child's good behaviour?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

5. How often do you teach your child new skills?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

6. How often do you involve your child in household chores?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

7. How often did you reward your child when he/she did something well or showed a new skill?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

8. How often do you stick to your rules and not change your mind?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

9. How often did you speak calmly with your child when you were upset with him or her?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

10. How often did you explain what you wanted your child to do in clear and simple ways?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

11. How often do you tell your child what you wanted him or her to do rather than tell him/her to stop doing something?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

12. How often did you tell your child how you expected him or her to behave?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

13. How often did you set rules on your child's behaviour that you were able to enforce?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

14. How often did you make sure your child followed the rules you set all or most of the time?

Never	Very rarely	Rarely	Sometimes	Often	Very often	Always	Refused
0	1	2	3	4	5	6	999

Thank you so much for answering these questions. You are doing a great job with this questionnaire.

Appendix C

ISPCAN Child Abuse Screening Tool - Parent Version (ICAST-P)

ISPCAN Child Abuse Screening Tool- Parent version (ICAST-P)

Introduction

It's really tough to be a parent in today's world. People who look after kids often struggle with the discipline of their children and in keeping them safe.

All adults use certain methods to teach children the right behaviour or to stop them from behaving badly. Sometimes they make us really angry or upset and we do things we wish we hadn't.

Please tell me how many times you have tried these ways of disciplining [child's first name] in the last month (30 days)? If you have not done them in the last month but have done them before, please tell us.

1. How often did you explain why something was wrong to [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

2. How often did you tell [child's first name] to start or stop doing something in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

3. How often did you shake [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

4. How often did you hit [child's first name] with an object such as a stick, broom, switch, or belt in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

5. How often did you give [child's first name] something else to do (distracted him/her) in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

6. How often did you twist [child's first name] 's ear in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

7. How often did you hit [child's first name] on the face or head with your hand in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

8. How often did you pull [child's first name] 's hair in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

9. How often did you threaten to abandon [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

Thank you very much for being honest with us. Many people struggle to manage their children's behaviour. We hope your answers will be able to help you and others.

10. How often did you shout, yell or scream at [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

11. How often did you tell [child's first name] that you wished [child's first name] were dead or had never been born in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

12. How often did you tell [child's first name] that you wished [child's first name] were dead or had never been born in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

13. How often did you push, grab, or kick [child's first name] with a foot in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

14. How often did you curse [child's first name] , or insult [child's first name] by calling [child's first name] dumb, lazy or other names in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

15. How often did you hit, beat, slap or spank [child's first name] with your bare hand in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

16. How often did you choke [child's first name] or squeeze [child's first name] neck with hands or something else, smother him or her with a pillow or tried to drown him/her in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

17. How often did you threaten to kick [child's first name] out of the house or send [child's first name] away from home in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

18. How often did you lock [child's first name] out of the house in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

19. How often did you take away [child's first name] 's privileges or money, forbade something [child's first name] liked or told [child's first name] he/she can't leave the home in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

Thank you so much for telling us this. We know its not easy to be a parent and everyone struggles sometimes.

20. How often did you refuse to speak to [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

21. How often did you withhold a meal from [child's first name] as punishment in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

22. How often did you use public humiliation to discipline [child's first name] in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

Sometimes children can make us so angry that we do things that are just not like ourselves. These are some things that caregivers have done could you tell us whether any of these have ever been true for you at really difficult time.

23. How often did you burn or scald [child's first name] , or tie him/her up to something in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

24. How often did you hit [child's first name] over and over again with object or fist in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

25. How often did you threaten [child's first name] with a knife or gun in the past month?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

26. Was there a time in the past month when [child's first name] did not get the medical care for an injury or illness that he/she needed at that time?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

26a. Could you tell us what happened?

27. Was there a time in the past month when [child's first name] did not get the food or drink that he/she needed?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

27a. Could you tell us what happened?

28. Was there a time in the past month when [child's first name] was seriously hurt or injured (cuts, broken bones or worse) when nobody was watching him/her?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

29. Was there a time in the past month when [child's first name] was touched in a sexual way by an adult?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

30. Was there a time in the past month when [child's first name] had sex with an adult?

Never	Once or twice	3-5 times	6-10 times	More than 10 times	Has happened but not in the past month	Refused
0	1	2	3	4	7	999

31. What kinds of discipline have you found to be most successful in changing [child's first name] 's behaviour in the past month?

Thank you very much for answering these questions. We really appreciate you taking the time to help us with this research. Let's stretch and take a break before moving on to the next section.

Appendix D

UCT and Oxford Ethics Committee Approval

Ethical approval for this sub-study was approved as a part of the Sinovuyo Caring Families Project by the UCT and Oxford ethics committees.

UNIVERSITY OF CAPE TOWN



Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3414
Fax No. (021) 650 4104

24 February 2014

A/Prof. Catherine Ward
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Prof. Ward,

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your Sinovuyo Caring Families project. The reference number is PSY2014-001.

I wish you all the best for your study.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'JL Louw'.

Johann Louw PhD
Professor
Chair: Ethics Review Committee

SOCIAL SCIENCES & HUMANITIES
INTER-DIVISIONAL RESEARCH ETHICS COMMITTEE

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Co-ordinator of the IDREC
Social Sciences Divisional Office



Wednesday, 9 November 2011

Dr Lucie Cluver
Department of Social Policy and Intervention

Dear Lucie,

Research Ethics Approval

Ref No.: SSD/CUREC2/11-40

PACCASA (Preventing Abuse of Children in the Context of AIDS in sub-Saharan Africa)

The above application has been considered on behalf of the Social Sciences and Humanities Inter-divisional Research Ethics Committee (IDREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly approval has been granted.

Should there be any subsequent changes to the project, which raise ethical issues not covered in the original application, you should submit details to the IDREC for consideration.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'K. Vernon', written in a cursive style.

Kerry Vernon

cc: Gemma Roche, Department of Social Policy and Intervention

KV/EB

Appendix E

Consent Form and Information Sheet



INFORMATION SHEET

Dear Sir or Madam,

You are already taking part in a research study called the Sinovuyo Caring Families Project. This form is about an additional piece of research that will help the Sinovuyo Project.

Before you decide whether you want to be a part of the study, it is important for you to understand why the research is being done and what it will involve.

The following information will be read and explained to you carefully.

You will have a chance to ask any questions that you may have.

The Sinovuyo study is being done so that we can better understand how to improve the lives of children and families in South Africa. This extra piece of research will help to understand how to increase the chances that programmes like Sinovuyo work in the future. Specifically, we are interested in your child's ability to learn.

Who can participate?

In order to participate, you need to be enrolled in the Sinovuyo Caring Families Project.

In order to participate you will also have to provide consent to confirm you are willing to let your child take part in this specific piece of research.

Does my child have to participate?

NO. It is up to you to decide if you want your child to take part in the study. If you decide to let your child take part, you will need to sign a consent form to allow us to include your child in the study.

Your child can stop being a part of the study at any time without giving a reason. There will be no penalty for doing this.

If you decide not to let your child participate in this study your enrolment in the Sinovuyo Caring Families Project will not be affected.

What would happen if my child and I take part?

- First, you will be given a chance to ask any questions that you have about the study.
- When you understand everything about the study, you will be asked to sign a consent form agreeing to take part in the study.
- It is up to you to decide whether you want your child to take part, but you must sign the consent form in order for your child to participate.
- After you have signed the consent form, we will set a date to come and visit you at home. We will remind you of this date before the visit.
- At this visit, we will ask you to ask your child to play some games with a research assistant. The games are simple and the research assistant will explain them to your child.
- Each game will take 30 minutes at the most (about an hour and a half altogether).
- At the end of the games we will give you and your child a snack to enjoy together.
- The results of the games will be recorded by the research assistant and stored on a password-protected computer that only our research team will have access to.
- This means that no one else will ever be able to see your child's score on the questions. Your child's answers will not be written down anywhere – they will only be in the database on a computer protected by a password.

What will happen to the information I provide?

- Participation in this study means that you share some personally identifying information with us such as your child's name.

-This information will never be given to others. It will only be used for the purpose of the study. Your child will be given a unique study number so that his/her name will not be known by anyone outside of the research team.

-Only the research team will have access to this information, and it will not be saved or written down anywhere else.

-The research team will protect your personal information and comply with all applicable laws.

-All of the information will be stored in a locked filing cabinet and computer protected by a password. Only research staff working on this study can look at this information.

What will happen to the results of the research?

Any research publication will not identify you or your child individually. After the study is finished, we would be delighted to share with you the results as soon as they are available.

Who has reviewed the study?

This study has received ethical approval from University of the Oxford Central University Research Ethics Committee (ref: will insert number once received) and the University of Cape Town Psychology Department Research Ethics Committee (ref: will insert number once received).

Who is responsible for this study?

Kirsten Meyer and Dr Catherine Ward, from the University of Cape Town, are the Principal Investigators for the study.

Ms Meyer can be reached on 071 353 1290 or kirstimeyer@gmail.com

Dr Ward can be reached on 021 650 3422 or Catherine.Ward@uct.ac.za.

Ms Inge Wessels is the Project Manager and will be collaborating with our research team. She can be reached on 083 554 1791.

You can reach Ms Rosalind Adams at the University of Cape Town on 021 650 3417, if you have any complaints about the study or members of the team.



SINOVUYO

CARING FAMILIES PROJECT



PARTICIPANT CONSENT FORM

You will be given a copy of this information sheet and consent form to keep.

It is your choice whether or not you want to be a part of this study.

Also, your child can decide to stop being a part of this study at any time without anything negative happening or you losing any benefits you might have.

If you wish to stop at any time, just tell anyone on the research team.

1. Have you read or been read this information and understood the information given here?

Yes ___ No___

2. Have you had a chance to ask any questions, received answers, and been able to ask for additional information from the research team?

Yes ___ No___

3. Do you understand that you can withdraw from the study without penalty at any time by telling any member of the research team?

Yes ___ No___

4. Do you understand who will be able to see your information, how this information is stored, and what happens to the information at the end of the study?

Yes ___ No ___

5. Do you understand that your child will be asked to complete some games, the results of which will only be used for this study?

Yes ___ No___

Please sign your name if you understand what is involved and agree to participate:

Signature of person giving consent

Printed name

Name of child

Your contact number

Date

Place

Appendix F

Exploring Whether Data Met the Assumptions of the Statistical Tests

Table F1.

Descriptive statistics for the parenting behaviour subscales

	<i>N</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>SE</i>	<i>Kurtosis</i>	<i>SE</i>
Positive parenting supportive (pre intervention)	96	6-32	21.47	5.657	-.220	.246	-.390	.488
Positive parenting supportive (post intervention)	91	9-39	23.57	5.649	.113	.253	-.029	.500
Positive parenting limit setting (pre intervention)	96	4-38	21.31	6.517	-.428	.246	.337	.488
Positive parenting supportive (post intervention)	91	0-41	24.60	7.124	-1.091	.253	2.059	.500
ICAST-P physical abuse (pre intervention)	96	0-16	4.71	3.733	.676	.246	-.202	.488
ICAST-P physical abuse (post intervention)	91	0-21	3.16	4.050	1.994	.253	4.727	.500
ICAST-P emotional abuse (pre intervention)	96	0-25	7.51	5.068	.795	.246	.350	.488
ICAST-P emotional abuse (post intervention)	91	0-24	3.88	4.219	2.171	.253	6.647	.500

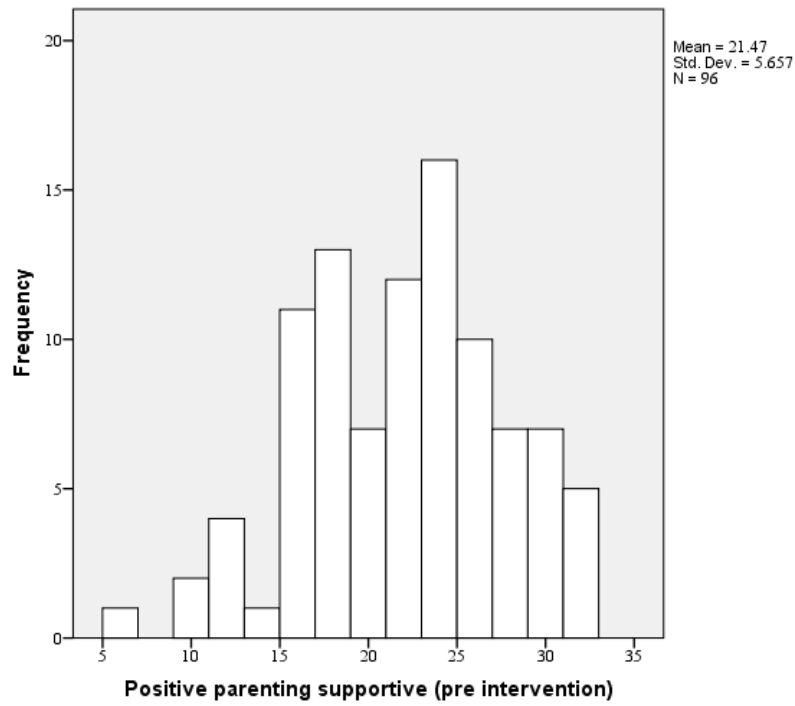


Figure F1. Normal distribution of the data for supportive positive parenting, pre intervention.

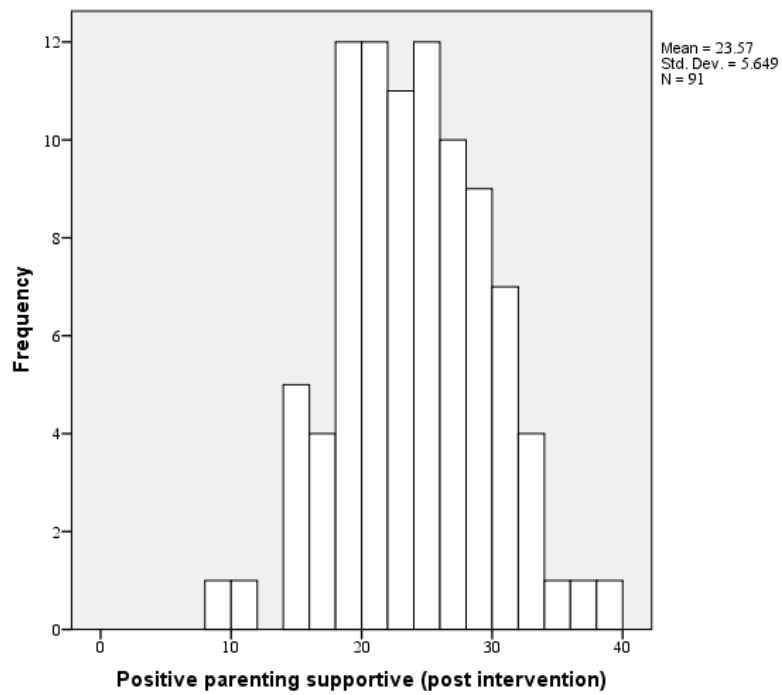


Figure F2. Normal distribution of the data for supportive positive parenting, post intervention.

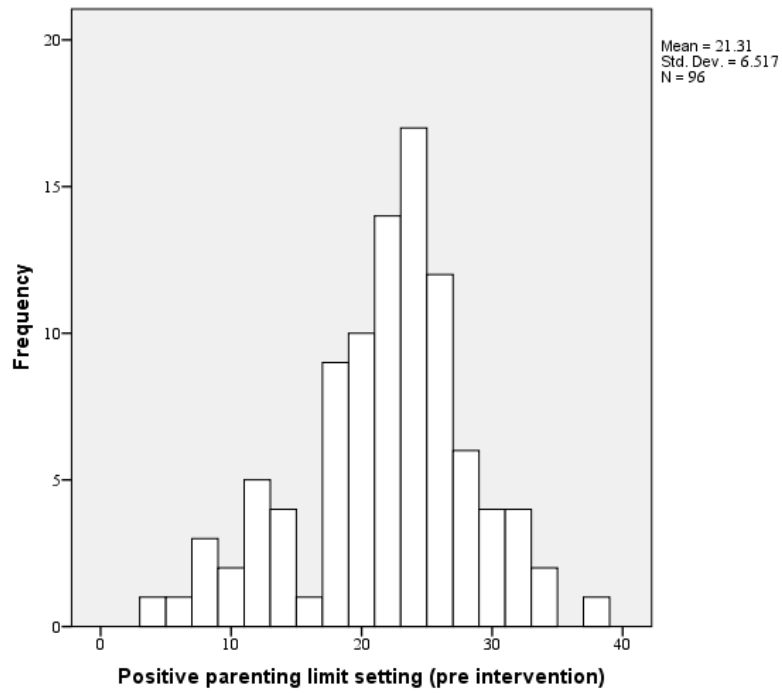


Figure F3. Normal distribution of the data for limit setting positive parenting, pre intervention.

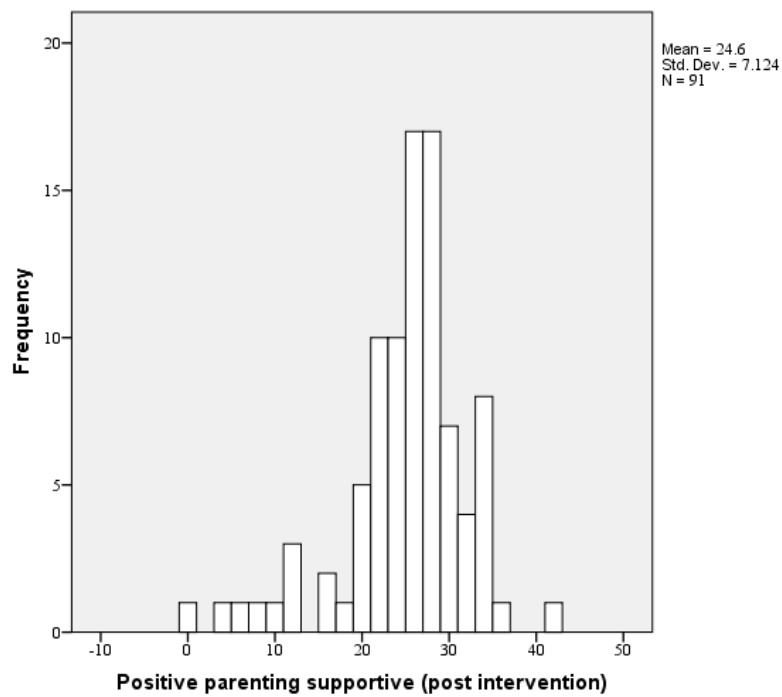


Figure F4. Normal distribution of the data for limit setting positive parenting, post intervention.

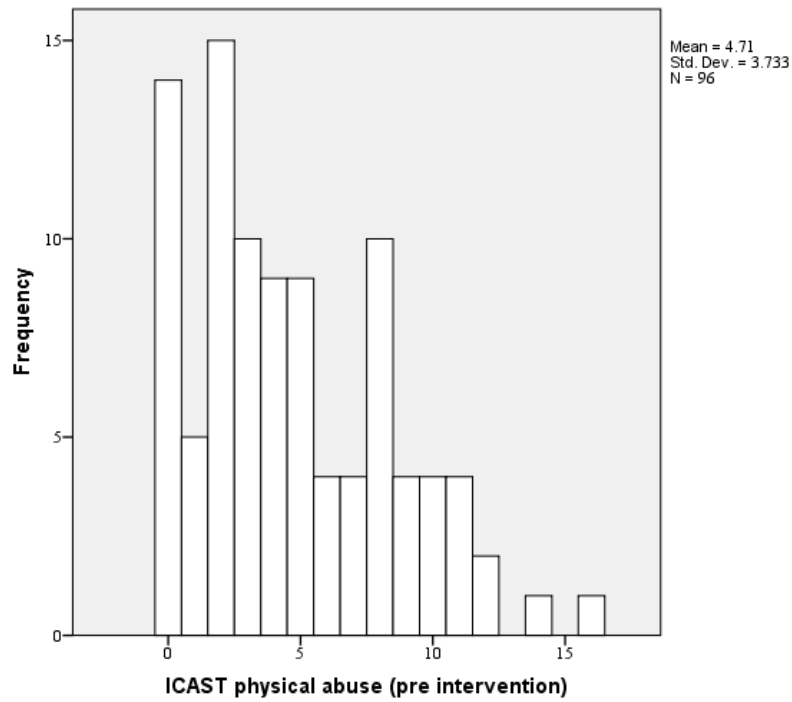


Figure F5. Non-normally distribution of the data for physically abusive harsh parenting, pre intervention.

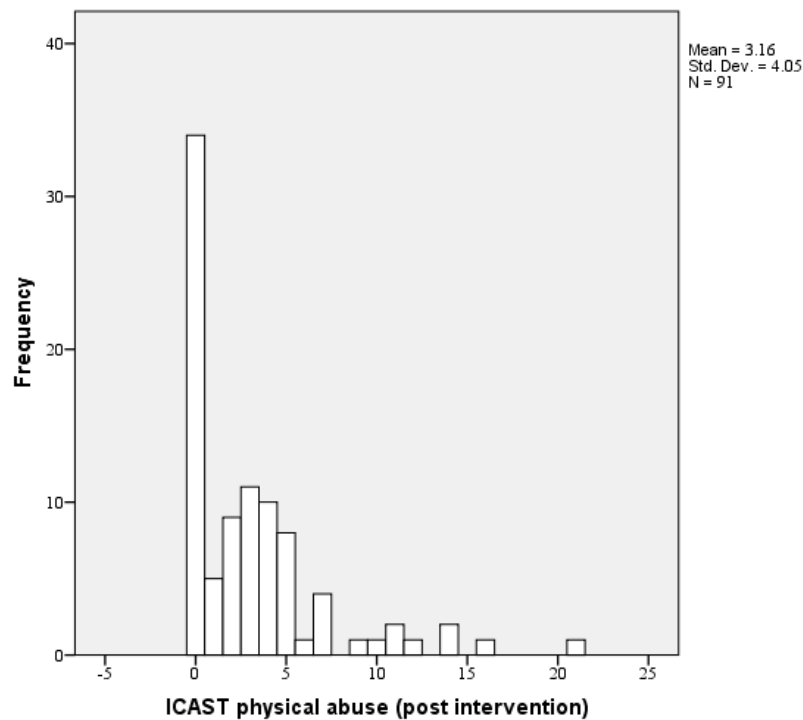


Figure F6. Non-normally distribution of the data for physically abusive harsh parenting, post intervention.

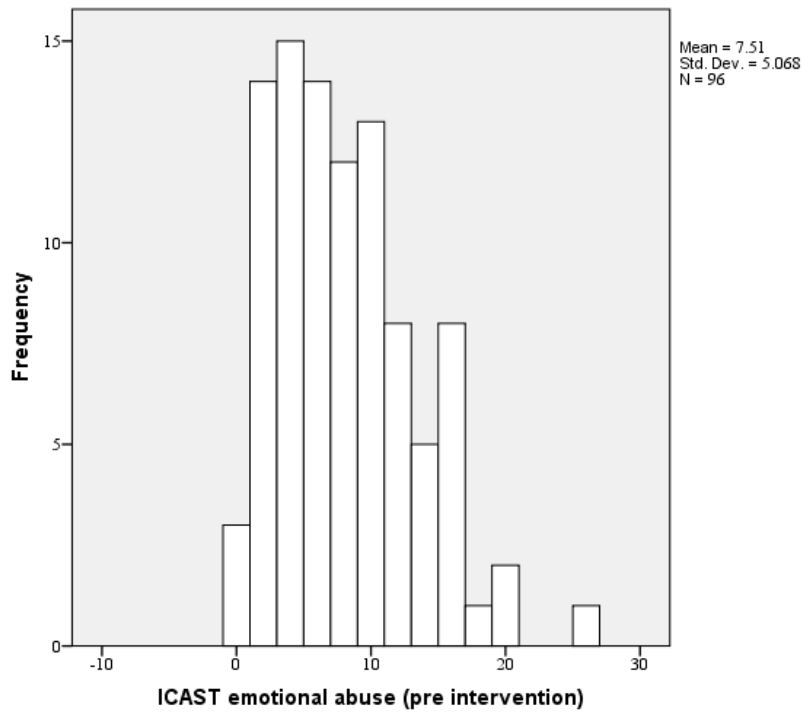


Figure F7. Non-normally distribution of the data for emotionally abusive harsh parenting, pre intervention.

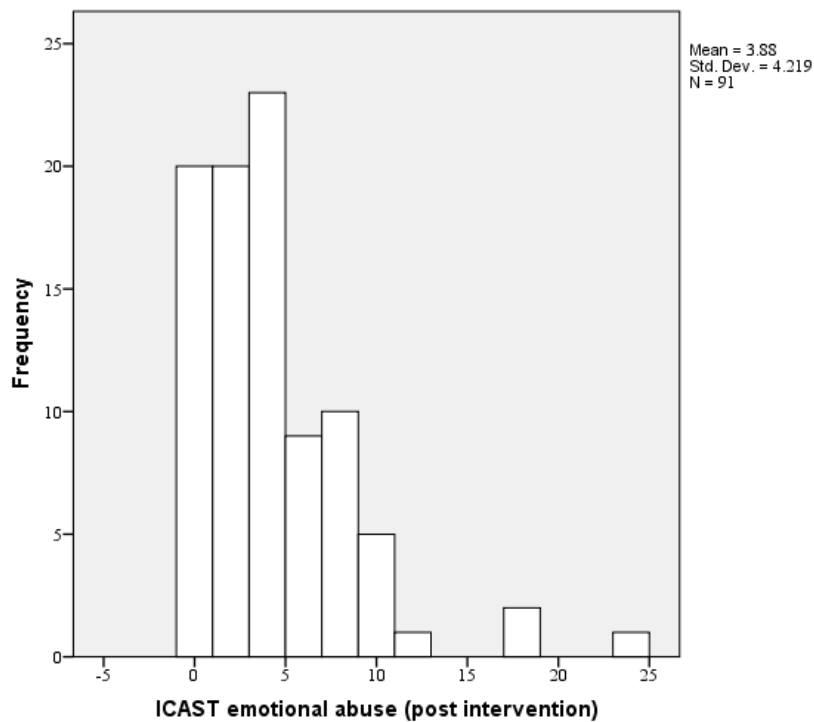


Figure F8. Non-normally distribution of the data for emotionally abusive harsh parenting, post intervention.

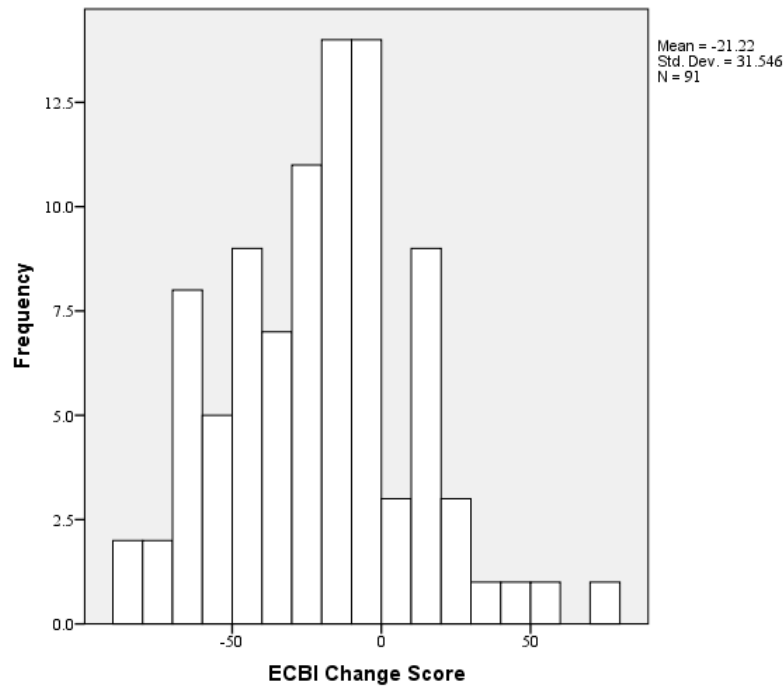


Figure F9. Normal distribution of the data for the change scores of the ECBI.

Table F2.

Internal consistency for positive and harsh parenting subscales, and the child behaviour scale.

	Cronbach's Alpha
PARYC (all items)	.740
PARYC supportive parenting subscale	.657
PARYC limit setting subscale	.699
ICAST-P (all items)	.768
ICAST-P physical abuse subscale	.609
ICAST-P emotional abuse subscale	.657
ECBI scale	.864

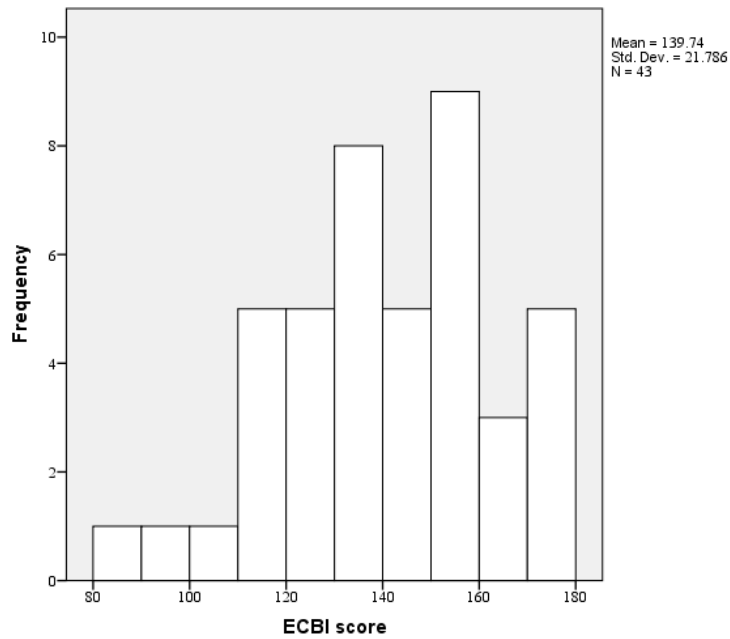


Figure F10. Distribution for ECBI pre intervention scores, experimental group only (skewness=-.304 - *SE*=.361; kurtosis=-.537 - *SE*=.709).

Table F3

Results for multiple regression analyses regressing the pre intervention combined sample ECBI variable on the GCS and then the PPVT-IV variables

	β	<i>t</i>	<i>p</i>
ECBI on GCS			
GCS	-.137	-.530	.598
Gender	-.671	-.131	.896
GCS*Gender	.195	.607	.545
ECBI on PPVT			
PPVT	.297	.878	.382
Gender	-1.982	-.423	.673
PPVT*Gender	-.344	-.798	.427