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SPECIAL ISSUE

Alleviating Parenting Stress in Parents with Intellectual Disabilities: A Randomized Controlled Trial of a Video-feedback Intervention to Promote Positive Parenting

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Background Adapted parenting support may alleviate the high levels of parenting stress experienced by many parents with intellectual disabilities.

Methods Parents with mild intellectual disabilities or borderline intellectual functioning were randomized to experimental ($n = 43$) and control ($n = 42$) conditions. Parents in both groups received care-as-usual. The experimental group also received an adapted version of video-feedback intervention for positive parenting and learning difficulties (VIPP-LD). Measures of parenting stress were obtained pre-test, post-test and 3-month follow-up.

Results Randomization to the experimental group led to a steeper decline in parenting stress related to

the child compared to the control group ($d = 0.46$). No statistically significant effect on stress related to the parent's own functioning or situation was found.

Conclusions The results of the study suggest the feasibility of reducing parenting stress in parents with mild intellectual disability (MID) through parenting support, to the possible benefit of their children.

Keywords: intervention programs, mild intellectual disability, parenting, parenting stress, randomized controlled trial, video-feedback

Introduction

All parents experience stress as they attempt to meet the challenges of child rearing (Deater-Deckard 1998). Parents with mild intellectual disability (IQ 50-70) or borderline intellectual functioning IQ 70-85 and limitations in adaptive functioning), hereafter referred to as parents with MID, have been found to report high levels of parenting stress. Feldman *et al.* (1997), for example, found that the mean level of overall stress in a sample of 82 mothers with IQ below 80 was in the 95th percentile. In a later study involving 30 mothers with intellectual disabilities, Feldman *et al.* (2002) found that, on average, the mothers reported a level of stress in the 85th percentile. More recently, Meppelder *et al.* (2015) investigated stress in a sample of 134 parents with MID

and found that, on average, the parents reported a level of stress in the 75th percentile.

Many factors may contribute to parenting stress. One consistent research finding is that parenting stress in parents with and without MID is associated with child functioning and, more specifically, child behaviour problems (Feldman *et al.* 1997, 2002; Aunos *et al.* 2008). Meppelder *et al.* (2015), for example, found that Dutch parents with MID experienced high levels of child-related parenting stress (i.e. relative to stress related to the parent's own functioning and situation), and this was strongly associated with child behaviour problems. Feldman *et al.* (2002) and Feldman & Aunos (2010) implied in their parenting interactional model that the relationship between parenting stress and child behaviour problems may be bidirectional, which is

consistent with data supporting a transactional model of parenting stress, negative parenting and child behaviour problems in 404 children at risk for externalizing behaviour problems followed from age 4 to age 10 (Mackler *et al.* 2015).

The strength of the association between child behaviour problems (and broadly, the demands of child rearing) and parenting stress appears to vary depending on the adaptive resources available to the parent, including economic resources, social support and parenting knowledge and skills (Aunos *et al.* 2008; McConnell *et al.* 2010; Wade *et al.* 2015). Parents with MID typically have less adaptive resources than other parents and might therefore be more vulnerable to parenting stress. These parents are, for example, more likely to have low incomes, live in deprived neighbourhoods and report low levels of social support (Aunos *et al.* 2008; Parish *et al.* 2009; Braveman *et al.* 2010; McConnell *et al.* 2010; Emerson & Brigham 2014; Gillmore & Cuskelly 2014; Emerson *et al.* 2015). Furthermore, parents with MID typically have less opportunity than most other parents to learn and develop parenting knowledge and skills. One reason for this is the general lack of accessible parenting information and appropriately designed or adapted parenting education and family support programmes (Gooding 2000; McConnell *et al.* 2015).

Feldman (1994, 2004) observed that parenting education programmes that have proven to be effective for parents with MID share a number of characteristics. Effective programmes have (a) focused on concrete skills rather than abstract ideas; (b) taught parenting skills in the environments (usually the home) where those skills will be put to use (i.e. *in vivo* training); and (c) incorporated effective teaching strategies including modelling and opportunities for practice with correction and ample positive reinforcement. Llewellyn *et al.* (2002) further suggest that practitioners (d) may need to address a family's immediate or most pressing needs (e.g. subsistence needs) before a parent can focus on learning new skills; and then (e) be responsive to the parent's learning priorities, focusing first on the skills the parent is highly motivated to learn; and (f) be prepared to engage and work with significant others (e.g. partners, grandparents) in assisting the parent to learn, if appropriate.

Appropriately designed or adapted interventions to boost the adaptive resources available to parents with MID may alleviate their parenting stress. Evidence from preliminary trials of the 'Supported Learning Program (SLP)' in Australian and Canada suggest that

strengthening the social relationships of mothers with MID, or increasing the availability of social support, may alleviate symptoms of depression, anxiety and stress (Aunos *et al.* 2008; McConnell *et al.* 2010, 2015). Parenting interventions may add to these outcomes by enhancing parenting knowledge and skills, and in turn, reducing child-related parenting stress. Intervention studies involving parents without MID have found that parenting training can reduce parenting stress and potentially break the parenting stress–child behaviour problems cycle (see Thomas & Zimmer-Gembeck 2007, for a meta-analysis). However, to the best of our knowledge, the effects of appropriately designed or adapted parenting interventions on parenting stress in parents with MID have not yet been studied.

This report focuses on the effect on parenting stress of a parenting support programme, 'Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline' (VIPP-SD: Juffer *et al.* 2008), adapted for parents with MID, that aims to improve harmonious parent–child interaction and sensitive discipline, hereafter referred to as *VIPP-LD* (Learning Difficulties). Our primary hypothesis was that (1) VIPP-LD results in a reduction in child-related parenting stress in parents with MID by comparison with care-as-usual. A secondary hypothesis was that VIPP-LD has a larger effect on stress related to the child than it does on stress related to the parent's functioning and life situation.

Methods

With ethics approval from the Medical Ethical Committee of VU University Medical Center, Amsterdam (ref. no. NL 31934.029.10), a randomized controlled trial of VIPP-LD was conducted involving a total of 85 parents with MID, including 83 mothers and two fathers who were selected from the participants of a broader study on families with parents with MID (e.g. Meppelder *et al.* 2014). Participants were randomly assigned (by an independent researcher blind to other information) to VIPP-LD and care-as-usual conditions. Pre-test, post-test and 3-month follow-up data were collected. The power of the study to detect a significant ($P < 0.05$) time \times condition interaction effect of $d = 0.47$ (based on the meta-analysis of Juffer *et al.* in press) was 0.99.

Recruitment

Participants were recruited through 10 care organizations in the Netherlands supporting parents

with MID. Parents with MID were eligible for inclusion if they were the primary caregiver (mother or father) of a young child (1–7 years of age) who was in their care at least 4 days per week. Potential participants were informed about the study by regular support staff working at each of the 10 care organizations. The staff members provided potential participants with a plain-language letter about the study which included pictures of the researchers. Staff members then provided the research team with contact details for 200 parents who were interested in taking part or learning more about the study. Of these 200 parents, 19 could not be contacted by the research team. To fully inform potential participants about the study before obtaining their written informed consent, they each received a special booklet with information about all aspects of the study. In this booklet, parents could find, in easily readable language and pictures, details on background, the reason for the study, privacy and procedures. There was also clear information about data security and the gifts that parents would receive. Potential participants were also encouraged to invite a support person to be present when the researcher met with them to obtain

their informed consent. Of the 181 parents who were contacted by the researchers, 156 gave their written informed consent to take part. Before the data collection started, 10 of these parents dropped out. Baseline data were obtained on a total of 146 parents (see Figure 1).

Randomization and data collection

To gather pre-test data, participants were interviewed by researchers and research assistants at their home or in a family care facility. The interviews incorporated a broader set of instruments not considered for this report, including social support (using the Support Interview Guide: SIG; Llewellyn & McConnell 1999), hardship and working alliance with current direct care staff. The interview also included the Dutch shortened version of the Parenting Stress Index, called the NOSIK (PSI; Abidin 1983, 1992; De Brock *et al.* 1992), which is described further below. Parents living in rented housing or residential family homes with total parenting stress scores at or above the 62nd percentile on the NOSIK, indicating a subclinical significant level of parenting stress (De Brock *et al.* 1992), were eligible for

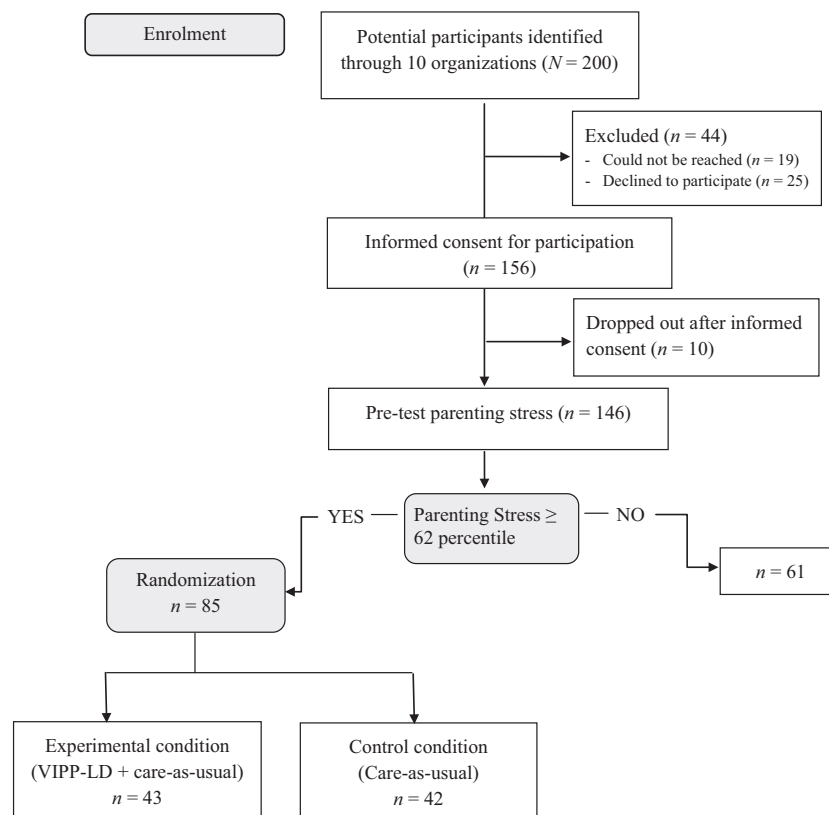


Figure 1 CONSORT flow diagram of enrolment and intervention allocation.

inclusion in the intervention phase of the study ($n = 76$) as well as parents receiving 24-hour support services whose children were put under supervision of child protective services ($n = 9$). Parents with MID were not eligible to take part if their young child was diagnosed with autism spectrum disorder (ASD), that is because additional adaptations to the VIPP-LD intervention are indicated when a child is diagnosed with ASD (see Poslawsky *et al.* 2015). Parents were also ineligible if they had received a video-based intervention in the 6 months prior. The VIPP-LD intervention focused on the parent-child dyad. Therefore, if parents had more than one child, the youngest in the age range of 1–7 years was selected for participation.

The mean age of the 85 parents included in the intervention phase of the study was 30.3 (SD = 6.7; range = 20.6–46.5) at pre-test. Parents' IQ recorded on file ranged from 49 to 88 with a mean of 71 (SD = 9.0). Approximately one in four (24%) were immigrants. Of the parents who had immigrated to the Netherlands, 25% came from Suriname and 25% from Curaçao. The other 50% came from eight other countries. The parents had on average two children. The mean age of their youngest child at pre-test was 3.1 (SD = 1.4; range = 1.1–6.5). The majority (52%) of these children were girls.

Participants for this study were recruited in a time period of 2 years. If the parent proceeded to the

intervention phase, it was important to start as soon as possible with the intervention; it was also important to obtain equal experimental and control groups. Therefore, sequential block randomization was used to assign parents to the experimental group or the control group. Randomization was executed by an independent third party using a computer programme every time there were five or six parents available with a subclinical level of parenting stress. This resulted in 43 parents being assigned to the VIPP-LD intervention condition and 42 parents to the control (care-as-usual) condition. The demographic characteristics of parents in each group are presented in Table 1. Parents assigned to the intervention condition received VIPP-LD and care-as-usual. Those assigned to the control condition received only care-as-usual. To promote retention, parents in the intervention and control conditions received gift vouchers at pre-test, post-test and follow-up and a bonus once they had completed the whole trajectory (total value €125).

Care-as-usual for all participants included the care normally given by their care organization. This care consisted of support with running the household, administrative matters, money issues, personal problems and with general self-care. Occasionally, support is given on general child-rearing questions. Care-as-usual did not include any form of video intervention or other

Table 1 Descriptive statistics experimental and control groups

	Experimental ($n = 43$)			Control ($n = 42$)		
	n (%)	M (SD)	Range	n (%)	M (SD)	Range
Parent Gender						
Female	43 (100)			40 (95)		
Parent age (year)	43	28.06 (6.72)	20.75–45.17	42	26.35 (6.78)	20.58–46.50
Parent IQ	40	71.23 (8.61)	50–87	39	70.05 (9.23)	49–88
Parental adaptive functioning (VABS)	38	812.50 (42.68)	722–883	41	812.95 (45.85)	711–907
Educational level						
Primary special school	5 (11.6)			2 (4.8)		
Second. special school	19 (44.2)			21 (50)		
Lower sec. education	9 (20.9)			10 (23.8)		
Other	10 (23.3)			9 (21.4)		
Paid job	15 (34.9)			10 (23.8)		
Single parent	17 (39.5)			17 (40.5)		
Parity	43	2.20 (1.40)	1–6	42	1.78 (1.02)	1–5
Target child gender						
Female	22 (51.2)			22 (52.4)		
Target child age (year)	43	3.32 (1.33)	1.08–6.33	42	2.92 (1.50)	1.17–6.50

VABS, Vineland Behaviour Scales.

structured parenting intervention. Parents in the control condition were offered and most elected to receive the VIPP-LD intervention upon completion of the study.

Video-feedback Intervention to promote Positive Parenting and Sensitive discipline for parents with learning difficulties

Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD; Juffer *et al.* 2008) is a manualized parenting intervention that is theoretically grounded in attachment theory (Bowlby 1969, 1988; Ainsworth *et al.* 1978) and coercion theory (Patterson 1982, 2002). The original programme is delivered in the family home and consists of six home visits every 2–3 weeks. Parents learn techniques for ‘tuning in’ to what their child might think and feel, which in theory fosters more harmonious parent–child interactions and, in turn, decreases parenting stress and child behaviour problems (Juffer *et al.* 2008). During each session, the parent is filmed interacting with their child. The parenting ‘coach’ and parent then review the footage together. The coach draws attention to instances of sensitive responsiveness and sensitive discipline and helps the parents to look at their child from the child’s perspective. Moments of responsive behaviour and harmonious parent–child interaction as well as moments of sensitive discipline are reinforced by pointing attention to those moments and connecting these interactions to desire of parents to improve their relationship with their child. Instances of less responsive and less sensitive parenting are also identified and alternative, more positive strategies are modelled for and then practiced by the parent. VIPP-SD has been found effective in multiple trials with both low- and high-risk families (Juffer *et al.* in press).

Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline was not designed for parents with MID. To meet the needs of this group, the original protocol was adapted (Hodes *et al.* 2014), based on the recommendations of Feldman (1994, 2004) and feedback from parents with MID who took part in an earlier pilot. Adaptations included shortening the duration of each session by conducting separate home visits for video-recording (recording sessions) and feedback (feedback sessions). VIPP-LD therefore consisted of 15 home visits, including seven recording sessions, seven feedback sessions and one closing visit, delivered over a period of 3 months on average. Other adaptations included keeping the video-recordings brief and incorporating more *in vivo* practice. Parents also

received a personal scrapbook with stills taken from the video-recordings as visual reminder and quotes from the parents representing the theme of the session. Themes included exploration versus attachment behaviour, the ‘sensitivity chain’ and sharing emotions. The complex skill of taking the child’s perspective by ‘speaking for the child’ was practised during every home visit.

Intervention fidelity

Video-feedback Intervention to promote Positive Parenting-learning difficulties was conducted by trained professionals including family support workers and psychologists from care organizations who had several years of experience working with parents with intellectual disability, but who were not involved in delivering the care-as-usual for the family concerned. Supervision was provided by an experienced clinical or family psychologist in the same care organization. Each of the professionals and supervising psychologists received 6 days of training, and supervision from the first author for the complete first VIPP-LD intervention on their caseload. Every third video-feedback session with the parent was itself recorded to check for protocol adherence. The first author reviewed these video-recordings and picked out items that needed extra attention. In addition to the 6-day initial training, recurring training days were organized to support protocol adherence and intervention quality. During the VIPP-LD intervention phase, the professionals also recorded their experiences in logbooks after each of the 14 home visits. These logbooks were discussed in the supervision sessions to prepare for the next home visits. The same logbooks were used in other VIPP intervention programmes (Juffer *et al.* 2008).

Measures

Assessments at post-test and follow-up were carried out by researchers and research assistants blind to group assignment and not involved in conducting the intervention or care-as-usual. Like at pre-test, assessments were carried out in interview format at the family home. The post-test and follow-up interviews only addressed parenting stress. The NOSIK was employed to obtain measures of parenting stress related to the child (mentioned as child domain) and parenting stress related to the parent’s own functioning and situation (mentioned as parent domain) (Abidin 1983; De Brock *et al.* 1992). The original version of the PSI (short and long form), from which the NOSIK was derived, has been reliably

used in studies involving parents with intellectual disability (Feldman *et al.* 1997, 2002; Aunos *et al.* 2008). The NOSIK is comprised of 25 items, including 14 items that measure stress in the child domain and 11 items that measure stress in the parent domain. All items have a six-point Likert-type response scale (1 = strongly disagree to 6 = strongly agree). Items measuring child-related stress include, for example, 'My child is very active and that makes me feel exhausted' and 'My child has more problems, than I expected'. Items measuring stress in the parent domain include, for example, 'I try to do my best. But often I think it doesn't matter what I do' and 'Being a parent is much more difficult, than I expected'. In this study, the internal consistency reliability (Cronbach's alpha) was 0.89 for items in the child domain and 0.86 for items in the parent domain.

Data analysis

All data analyses were conducted in IBM SPSS version 23. To describe the differences between the experimental and control groups occurring by chance after the randomization, summary background data for both groups were computed and are presented in Table 1. Given that none of the background factors were strong prognostic factors for changes in parenting stress, background factors were not included as covariates (De Boer *et al.* 2015). The present authors checked for outliers ($Z \geq 3.29$ or ≤ -3.29 ; Tabachnick & Fidell 2007); no outliers were found. For all the missing data, the present authors applied intention to treat as suggested by Fisher *et al.* (1990) in such a

way that missing data at post-test were replaced by pre-test scores (four cases) and missing data at follow-up were replaced by post-test scores (four cases). First, multivariate repeated-measures analysis of variance (MANOVA) was employed to test whether the intervention had a statistically significant effect on undifferentiated parenting stress (i.e. child and parent domains) and to determine whether the intervention had an equivalent effect on stress in both child and parent domains. Next, univariate repeated-measures analysis of variance (ANOVA) was used to test whether the intervention led to a decrease in parenting stress in either one or both of the domains. In both MANOVA and ANOVA models, condition (intervention or care-as-usual) was entered as a between-subjects factor in the model and time (pre-test, post-test, follow-up) was entered as a within-subjects factor in the model. In addition, the interaction term time \times condition was included to test differences between the intervention versus the control condition in changes in parenting stress from pre-test to post-test and follow-up.

Results

Table 1 provides a description of the experimental and control groups on demographic background data (parents' gender, age, partner status, employment status, recorded IQ; children's gender, age, parity, child protection status). Table 2 presents means and standard deviations for the intervention and control groups on parenting stress (i.e. child and parent domains and total stress) across the different time points. The data show

Table 2 Descriptives of parenting stress in child and parent domains (after intention to treat) at pre-test, post-test and follow-up per condition

Dependent variable	Pre-test		Post-test		Follow-up	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
Parenting stress – child domain						
Intervention ¹	50.42 (12.58)	21.00–80.00	43.26 (14.18)	19.00–74.00	42.05 (15.14)	14.00–80.00
Control ²	43.60 (13.99)	14.00–70.00	40.62 (13.46)	14.00–67.00	42.64 (14.70)	14.00–79.00
Total ³	47.05 (13.65)	14.00–80.00	41.95 (13.81)	14.00–74.00	42.34 (14.84)	14.00–80.00
Parenting stress – parent domain						
Intervention ¹	34.30 (10.98)	13.00–61.00	28.72 (10.94)	11.00–52.00	28.35 (11.21)	11.00–52.00
Control ²	31.71 (10.58)	16.00–61.00	28.67 (10.47)	11.00–59.00	29.50 (11.92)	11.00–65.00
Total ³	33.02 (10.80)	13.00–61.00	28.69 (10.65)	11.00–59.00	28.91 (11.51)	11.00–65.00
Parenting stress – total						
Intervention ¹	84.72 (21.34)	38.00–132.00	71.98 (23.10)	30.00–118.00	70.40 (24.87)	33.00–132.00
Control ²	75.31 (22.45)	34.00–126.00	69.29 (22.39)	25.00–122.00	72.14 (24.75)	25.00–144.00
Total ³	80.07 (22.27)	34.00–132.00	70.65 (22.66)	25.00–122.00	71.26 (24.68)	25.00–144.00

¹ $n = 43$; ² $n = 42$; ³ $n = 85$.

that mean parenting stress decreased in both groups over time. The results of the repeated-measures MANOVA are shown in Table 3. A significant time \times condition effect was found, indicating that there was a significant difference across the two conditions in change in parenting stress. Specifically, the results suggest that the observed reduction in parenting stress over time was greater in the intervention group than in the control group. The effect size d for the VIPP-LD condition was 0.46. The time \times condition \times dependent variable was not statistically significant. This suggests, contrary to expectation, that there was no difference between the change observed in the child and parent stress domains. The results of the repeated-measures ANOVA are provided in Table 4. For parenting stress in the child domain, a significant time \times condition effect was found (effect size d 0.46), but no significant effect was found for parenting stress in the parent domain (effect size d 0.33).

Discussion

The study findings add to the already substantial literature on parenting support for parents with MID. Most studies have employed single-system designs to

evaluate parenting interventions. These studies, which date back to the 1980s, demonstrate that, when appropriate teaching methods are used, parents with MID can learn parenting skills (Feldman 1994; Wade *et al.* 2008). Randomized controlled trials of parenting interventions for parents with MID are few in number, but these support the same conclusion (Wade *et al.* 2008; Coren *et al.* 2011). This study is to the best of our knowledge the first to test the effect of an appropriately designed parenting intervention on parenting stress in parents with MID. The study reported here therefore broadens the evidence base by employing a RCT design to investigate the effect of adapted parenting education on parenting stress with a relatively large and culturally diverse sample of parents with MID.

The results of the study suggest that VIPP-LD plus care-as-usual may be more effective than care-as-usual alone in reducing levels of parenting stress in parents with MID. The observed effect size d for VIPP-LD plus care-as-usual was 0.46 for reduced parenting stress. While modest, the effect size is remarkably similar to the observed effect $d = 0.47$ of VIPP-SD on increased parental sensitivity found in other studies (Juffer *et al.* in press). Despite this encouraging result, it should be noted that on average, parenting stress remained

Table 3 The overall effect of the Video-feedback Intervention to promote Positive Parenting-learning difficulties intervention on the two domains of parenting stress in the total sample of 85 parents with MID

MANOVA ¹	Parenting stress			
	<i>F</i> (df1, df2)	<i>P</i>	η^2	<i>d</i>
Time	15.30 (1.57, 130.60)	<0.01	0.16	0.85
Time \times condition	4.39 (1.57, 130.60)	0.02	0.05	0.46
Time \times condition \times dependent variable	1.53 (1.89, 157.07)	0.22	0.02	0.27

¹Based on a full-factorial repeated-measures MANOVA with two dependent variables in the model: parenting stress – child domain and parenting stress – parent domain. Time was entered as a within-subjects factor, and condition and a variable indicating which dependent variable was analysed in the model ('dependent variable') were entered as between-subjects factors in the model.

Table 4 The specific effect of the Video-feedback Intervention to promote Positive Parenting-learning difficulties intervention on the child and parent domains of parenting stress in the total sample of 85 parents with MID

ANOVA ¹	Parenting stress – child domain				Parenting stress – parent domain			
	<i>F</i> (df1, df2)	<i>P</i>	η^2	<i>d</i>	<i>F</i> (df1, df2)	<i>P</i>	η^2	<i>d</i>
Time	10.13 (1.73, 143.46)	<0.001	0.11	0.69	15.03 (1.55, 128.57)	<0.001	0.15	0.84
Time \times condition	4.42 (1.73, 143.46)	0.02	0.05	0.46	2.32 (1.55, 128.57)	0.12	0.03	0.33

¹Full-factorial repeated-measures ANOVA model with time as a within-subjects factor and condition as a between-subjects factor in the model.

elevated as compared to population norms. Furthermore, the current study only found a significant effect on parenting stress in the child but not in the parent domain.

Additional caution in interpreting the results is due to the fact that the inclusion and exclusion criteria led to the experimental and control groups reporting higher parenting stress ($M = 80.07$, $SD = 22.27$, $N = 85$) compared to the sample from which both groups were drawn ($M = 67.17$, $SD = 24.4$, $N = 146$). The drop in parenting stress observed in both the experimental as well as control groups can therefore potentially be explained by regression to the mean. Furthermore, the chance difference at the pre-test on parenting stress after randomization might have led to a selection-regression artefact. The regression threat is the tendency for extreme (low or high) scores on any measure to regress toward the mean over time (i.e. the only way is up or down). Selection-regression occurs when one group is more extreme than another on the pre-test, and consequently, the group mean will regress a greater distance toward the overall population mean. These caveats underline the importance of relying only on repeat replications of effectiveness trials before concluding that a particular intervention is effective for a particular outcome in a particular population. Unfortunately, trials for parents with MID have focused on disparate interventions and outcomes (Coren *et al.* 2011). Within the context of effectiveness research with variants of the VIPP programme, the current findings add to growing evidence for effectiveness across different outcome measures as well as populations characterized by different indicators of risk (Juffer *et al.* in press).

Our secondary hypothesis was that VIPP-LD plus care-as-usual would have a greater effect on parenting stress related to the child than on parenting stress related to the parent's own functioning and situation. Results of the repeated-measures ANOVA suggest that VIPP-LD plus care-as-usual was associated with significant reduction in parenting stress in the child domain but not in the parent domain. However, results of the MANOVA (see Table 2) suggest that there is only weak evidence against the null hypothesis of no difference in the effect of VIPP-LD plus care-as-usual on these stress domains. The statistically non-significant result may, however, be due to insufficient statistical power. The effect size d for the difference in the effects of VIPP-LD plus care-as-usual on child versus parent domains was 0.27, which is arguably small but not trivial. With a larger sample size, the observed

difference in the effect of VIPP-LD plus care-as-usual on these domains might be statistically significant.

One important direction for future research is the investigation into the mechanisms or processes through which VIPP-LD, as well as other parenting interventions, may alleviate parenting stress. The premise underpinning VIPP-LD is that parenting stress may be alleviated by equipping parents with MID with knowledge and skills for interacting in a supportive way with their children and, in turn, reducing the number or intensity of child behaviour problems. This theory was not, however, tested. One plausible alternative hypothesis is that interventions such as VIPP-LD alleviate stress in parents with MID by reducing parent social isolation. Future studies, involving larger samples and equivalent groups, might employ methods such as path modelling to investigate potential pathways from intervention to 'effects'. Further research is also needed to investigate the medium- to long-term effects, and variation in the effects of interventions such as VIPP-LD on parent and child outcomes. Accumulation of evidence may shed light on the question 'when, for whom, how and under what circumstances are parenting interventions more or less effective for parents with MID?'.

One factor that may moderate the effects of parenting interventions, and warrants further investigation, is the quality of the therapeutic relationship or alliance between support workers and parents (Trute & Hiebert-Murphy 2007). When a positive working alliance is established, parents with MID may be more accepting of guidance, and more motivated to work toward their goals. Another potential moderating factor, or cluster of factors, is environmental adversity: research is needed to determine whether the effects of parenting interventions may be enhanced, as Llewellyn *et al.* (2002) suggest, by addressing environmental adversity (e.g. poverty and isolation), and what the parent perceives to be their most pressing needs, first.

Conclusion

The UN Convention on the rights of persons with disabilities (2006) calls for respect for the rights of people with disability, including people with intellectual disability, to found a family, like any citizen (article 23). The UN Convention further affirms the right of parents with disabilities to receive appropriate assistance in the performance of their child-rearing responsibilities. Appropriate assistance may include adapted parenting education. A concern is that many practitioners, including child welfare practitioners, doubt the capacity

of parents with MID to learn, or lack the requisite skills to teach these parents skills. Consequently, many parents with MID do not receive appropriate assistance and all too many have their children taken from them. Limitations notwithstanding, this study contributes to the now substantial body of research on parenting education for parents with MID. The results of this study are consistent with the results of previous studies demonstrating that parents with MID can benefit from adapted parenting education. A contribution of this study is the finding that adapted parenting education may alleviate parenting stress. In theory, this may promote healthy attachment, lead to more positive parent-child interactions and fewer child behaviour problems. Interventions such as VIPP-LD might therefore advance the rights of people with MID and the rights of children to stay with their biological parents without risk to their development (UN Convention on the rights of the child, 1989, articles 6 and 9, respectively).

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