

Regular article

# Reducing potential for child abuse among methadone-maintained parents: Results from a randomized controlled trial

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## Abstract

High rates of child abuse and neglect occur in many families in which either or both parents abuse illicit drugs. This study reports on the results of a randomized controlled trial with families having a parent on methadone maintenance ( $N = 64$ ), in which an intensive, home-based intervention, the Parents Under Pressure (PUP) program, was compared to standard care. A second brief intervention control group of families received a two-session parenting education intervention. The PUP intervention draws from the ecological model of child development by targeting multiple domains of family functioning including the psychological functioning of individuals in the family, parent–child relationships, and social contextual factors. Mindfulness skills were included to address parental affect regulation, a significant problem for this group of parents. At 3- and 6-month follow-up, PUP families showed significant reductions in problems across multiple domains of family functioning, including a reduction in child abuse potential, rigid parenting attitudes, and child behavior problems. Families in the brief intervention group showed a modest reduction in child abuse potential but no other changes in family function. There were no improvements found in the standard care group and some significant worsening was observed. Results are discussed in terms of their implications for improved treatment. © 2007 Published by Elsevier Inc.

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## 1. Introduction

Substance use and abuse continues to escalate across the world, with increasing numbers of children being raised in households where either or both parents have a substance abuse problem. Approximately 11% of children in the United States live in a household in which one parent has an alcohol or illicit drug problem (National Center on Addiction and Substance Abuse, 1999; Walsh, Macmillan, & Jamieson, 2003). In the UK, between 2% and 3% of children under the age of 16 years have a parent who is a problem drug user (Advisory Council on Misuse of Drugs,

2003). High rates of child maltreatment have been reported in families in which either or both parents abuse substances. For example, Ammerman, Kolko, Kirisci, Blackson, and Dawes (1999) found that 41% of mothers and 25% of fathers with a substance use disorder scored in the clinical range on the Child Abuse Potential Inventory (Milner, 1986), an instrument highly sensitive to actual or potential physical abuse of children. Even when there is no current maltreatment, the presence of a substance use disorder in a parent is the strongest predictor of subsequent new cases of child abuse and neglect 12 months later (Chaffin, Kelleher, & Hollenberg, 1996).

Nonetheless, it would appear that adverse outcomes, including child maltreatment, are not associated specifically with parental drug use as a single risk factor, but rather with the complex interplay between drug use, maternal psychopathology, parenting practices, family environment (including spousal relationship and the availability of social

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support), and socioeconomic factors such as unemployment and poverty. Each of these factors alone influences the likelihood of child maltreatment. Substance-abusing parents often have many of these problems (Cicchetti & Luthar, 1999), highlighting the need to develop interventions that address multiple domains of family functioning including parental psychopathology, child behavior problems, parent–child relationship difficulties, and social–contextual factors (Cash & Wilke, 2003; Suchman & Luthar, 2000). Helping socially isolated families connect to support networks that facilitate access to housing, medical, and child care services has often been neglected in interventions for substance-abusing parents, despite their known impact on child abuse potential.

There is clearly a need for further development of interventions that reduce the risk of child maltreatment in high-risk families with concurrent substance abuse problems. There have been relatively few attempts to develop programs with this difficult population, and those thus far evaluated have produced mixed findings. Schuler, Nair, and Black (2002) compared the effects of a home-based intervention in drug-using mothers with infants to a control group who received monthly visits. The intervention was conducted by trained lay visitors and consisted of weekly visits for 6 months followed by biweekly visits from 6 to 18 months. The goal was to increase maternal competence by assisting the mother to access services and support, and provide information on partner abuse and drug treatment. Measures included self-reported drug use and parenting attitudes as measured by the Child Abuse Potential Inventory Rigidity subscale and behavioral observations of maternal competency. There was no difference between the intervention and control group at 18 months, leading the authors to suggest that the presence of ongoing risk factors such as poverty, depression, and inadequate social support may have weakened the impact of this home-based intervention. In a later study, Nair et al. (2003) used the same home-visiting model to determine whether the number of environmental risks influenced home-visiting efficacy in substance-misusing women with infants. The number of environmental risk factors present, over and above substance abuse, was summed to produce a cumulative risk score for each mother to allow for classification into four risk categories from low to high risk. As predicted, those mothers in the high-risk category reported higher levels of parenting stress and child abuse potential. Although there were some modest improvements in motor and language development for the infants (18 months) in the home-visiting group, there was no impact on either parenting stress or child abuse potential across all risk groups who received the home-based intervention.

A large multisite study, based on the Healthy Start Program, evaluated the impact of a home-visiting program delivered by trained and regularly supervised paraprofessionals. The program involved the delivery of a range of services to high-risk families including parenting education,

the modeling of effective parent–child interaction, and improving access to services that address risks such as domestic violence, parental substance abuse, and poor mental health. Outcome measures included self-report measures of parental abuse and neglect, the Home Observation for Measurement of the Environment (Caldwell & Bradley, 2001), hospitalizations, and substantiated child protective services reports at 1, 2, and 3 years. There were no differences between those who received the home-visiting service compared to those who only received follow-up visits at 1, 2, and 3 years, on any of the above measures. The authors suggest that in working with families with complex needs, home visitor training should include skills that will directly impact on maternal functioning (Duggan et al. 2004).

More favorable outcomes have been found in two recent studies assessing the effectiveness of interventions for families involved with methadone maintenance treatment. Catalano et al. (1999) found that families who participated in an intensive behavioral family therapy program, “Focus on Families,” had a significant improvement at 12 months on parental problem solving and illicit drug use. Treatment consisted of clinic-based groups and a series of home visits. Notably, the improvement in child behavior was confined to those children who were younger (less than 8 years old) rather than the older preadolescent and adolescent group. Luthar and Suchman (2000) evaluated the effectiveness of a multifaceted parenting intervention, the Relational Psychotherapy Mothers’ Group (RPMG), for mothers on methadone maintenance by comparing the intervention to standard care. Treatment took place within the methadone clinic and consisted of supportive, structured psychotherapy with a strong focus on the reduction of maternal anxiety and depression. There was no attempt to enhance parenting skills through structured intervention or practice. Results revealed substantial improvements across many domains. Of particular note was the reduction in child maltreatment risk reported by both mother and child posttreatment and by the mothers at follow-up. However, there were no improvements found on mothers’ self-reported parenting practices such as limit setting or promotion of autonomy.

The studies reviewed above have differed in several important aspects. First, the home-visiting programs delivered immediately following birth tend to use lay visitors to provide treatment. These home visitors aim to enhance maternal competence and improve child outcome by the provision of support and encouragement rather than through the use of psychological treatment components aimed directly at improving maternal psychopathology and reducing drug use. Many of the high-risk mothers were not currently in drug treatment (although this is not always possible to determine from the reports themselves) and for the most part, the role of the home visitor was to liaise with other drug and mental health services rather than to provide the treatment themselves. By way of contrast, the

two later studies reviewed targeted children in an older age range and provided treatment programs that were derived from theoretically sound models of parenting and behavior change. Notably, participants were also on methadone treatment.

In taking this work forward, the current research team developed an intensive, home-based intervention, the Parents Under Pressure (PUP) program. The PUP program combines methods for improving parental mood and parenting skills within a multisystemic framework that takes into account the contextual influences on family functioning (e.g., social support, housing, child care). As poor parental affect regulation and parental stress are associated with poor child outcome and child maltreatment in substance-misusing families (Suchman & Luthar, 2000), cognitive mindfulness techniques were incorporated to help parents learn emotional regulation (Baer, 2003; Brown & Ryan, 2003). The effectiveness of mindfulness techniques in cognitive therapy has growing empirical support in both addictions (Linehan, 1993; Linehan, Dimeff, & Reynolds, 2002; Van den Bosch, Verheul, Schippers, & Van den Brink, 2002) and the prevention of relapse following major depression (Teasdale et al., 2000).

In an initial study of the PUP program (Dawe, Harnett, Rendalls, & Staiger, 2003), 12 families were recruited from methadone clinics. Nine of the families completed the program delivered in their homes; 8 were recontacted at 3 months. There were clinically significant improvements on measures of parental functioning, parent–child relationship, and parental substance use and risk behavior. In addition to the changes in family functioning, the majority of families reported a decrease in concurrent alcohol use, HIV risk-taking behavior, and maintenance dose of methadone. The promising results provided the impetus to conduct the present randomized controlled trial.

The current study was conducted with parents who were on methadone maintenance and had children aged between 2 and 8 years. This age group was selected because parenting interventions appear to be more effective with younger children, compared to late childhood and adolescents (Dishion & Patterson, 1992). It was hypothesized that families receiving the home-based PUP intervention would show greater improvement than two comparison conditions, a brief, parenting skills intervention and standard care.

## 2. Methodology

### 2.1. Participants

Participants were recruited through two inner-city community methadone clinics in Brisbane, Australia. To be included in the study, the primary carer needed to be receiving methadone, have at least one child aged between 2 and 8 years in their full-time care, and be able to understand and read English.

### 2.2. Procedures

Families were recruited for this study through posters displayed in the clinics. Initial contact with interested participants was made by telephone to check eligibility. Participants were allocated to one of the three treatment conditions on the basis of a previously determined randomized order of treatment once eligibility had been confirmed. An appointment time was made to discuss the nature of the study. Ethical approval for the study was obtained from hospital and university human ethics committees. A condition of the human ethics committee was that all participants were informed during an initial telephone screening that the study was a randomized controlled trial with three conditions: a parenting program, a brief clinic-based parenting program, and standard care.

Treatment was conducted by two clinicians with professional qualifications and experience in treating complex families. Both therapists were trained in the use of the PUP treatment manuals and accompanying parent workbook. Both received weekly supervision from the first author. Treatment adherence to the PUP program was maintained by close supervision of treatment progress ensuring that parent workbooks and treatment plans reflected the formulation of each individual PUP family.

Assessments were conducted at pretreatment, at the end of the 3-month treatment period for the PUP group, and at the same time point for the brief and standard care groups. A third follow-up interview was conducted 6 months later. Posttreatment and 6-month follow-up interviews for all three groups were carried out by an independent research assistant. Participants received a \$50 gift voucher for a local supermarket chain for participation in the posttreatment and follow-up data collection.

### 2.3. Measures

#### 2.3.1. Parenting stress

The Parenting Stress Index (PSI) Short Form (Abidin, 1990) is a well-validated measure of perceived stress in the parenting role. The PSI total score has sound test–retest reliability ( $r = .84$ ) and good internal consistency ( $\alpha = .91$ ). High scores on the PSI have been associated with abusive parenting (Lacharite, Ethier, & Couture, 1999; Mash, Johnston, & Kovitz, 1983) with recent studies finding that parenting stress is higher in women with five or more risk factors for child abuse (Nair, Schuler, Black, Kettinger, & Harrington, 2003).

#### 2.3.2. Child abuse potential

The *Child Abuse Potential Inventory* (CAP; Milner, 1986) is a self-report questionnaire developed to identify individuals at risk for physical child abuse. The instrument contains 160 items in an agree/disagree format. The CAP has three validity scales: Lie, Random Response, and Inconsistency scales that are combined to derive three

validity indices: Faking Good, Faking Bad, and Random Response. Of interest in this study was the Faking Good Index. Eight of the respondents were found to be faking good at assessment. Of these, two were in the brief condition and six were in standard care.

The *CAP Abuse scale* consists of 77 items randomly distributed throughout the questionnaire. The internal reliability of the Abuse scale is high, with KR-20 correlation coefficients ranging from .92 to .96 and good temporal stability of .91 and .83 for 1-day and 1-month intervals, respectively. There is a substantial literature supporting the validity of the Abuse scale. For example, high scores on the Abuse scale accurately discriminate between abusive and nonabusive parents (Milner, 1986, 1994), high scorers have greater negative affect and physiological arousal to infant cries (Milner, Halsley, & Fultz, 1995), and Abuse scores predicted neonatal mortality in a sample of pregnant, high-risk adolescent mothers (Zelenko et al., 2001). The cutoff score on the Abuse scale that minimizes false positives is 215 and was used in the current study. An elevated Abuse score indicates that the respondent has characteristics similar to known, active child abusers. Abuse scores above the cutoff of 215 are still considered to be reliable indicators of potential child abuse despite an elevated Faking Good Index (Milner, 1986).

The *CAP Rigidity scale* is composed of a subset of the Abuse scale items and measures rigid or harsh parenting beliefs and attitudes. This subscale has good internal consistency (KR-20 coefficients range from .79 to .80) and test retest reliability (.83 and .79 for 1 day and 1 month, respectively). The CAP Rigidity scale is less influenced by attempts to present in a more positive light (Milner & Crouch, 1997) with some evidence indicating that those parents who are attempting to present themselves in a more positive light (elevated Faking Good scores) have higher rigidity scores than those whose scores are valid (Carr, Moretti, & Cue, 2005).

### 2.3.3. Parental substance use

Parental methadone dose was confirmed by case records, and alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de le fuente, & Grant, 1993), a 10-item instrument designed to assess a range of drinking problems. It has strong internal consistency (alphas ranging from .80 to .94) and good test–retest reliability ( $r = .88$ ) (Dawe, Loxton, Hides, Kavanagh, & Mattick, 2002). A score of 8 or more is associated with harmful or hazardous drinking.

### 2.3.4. Child behavior

Child behavior problems and prosocial behaviors were measured by using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). There are five scales within the questionnaire: Emotional Symptoms, Hyperactivity–Inattention, Conduct Problems, Peer Problems, and Prosocial Behavior. The first four are summed to derive a Total

Problem score that was used in the current study. The SDQ has good test–retest reliability (mean retest stability of .62) and internal consistency ( $\alpha = .80$ ). Construct validity has been demonstrated across a number of studies with the SDQ significantly correlated with scores on the Achenbach Child Behavior Checklist (Achenbach, 1991) discriminating clinical from nonclinical cases (Goodman & Scott, 1999; Klasen et al., 2000). Sound psychometric properties were found in an Australian study of 1359 children with both strong internal consistency and convergence with diagnostic interviews reported (Hawes & Dadds, 2004).

## 2.4. Treatments

### 2.4.1. Parents Under Pressure

The PUP program comprises 10 modules conducted weekly over 10–12 weeks. Sessions are conducted in the home and last between 1 and 2 hours. Additional case management can occur outside of treatment session, determined by individual family needs (e.g., housing, legal advice, school intervention). The program begins with a comprehensive assessment and individual case formulation conducted collaboratively with the family. Specific targets for change are identified during the assessments that become the focus of treatment. Each module is a theme that may continue through treatment. For example, Module 3 (“Challenging the notion of an ideal parent”) aims to strengthen the parent’s view that they are competent in the parenting role. As the parent makes changes over the program, each success is added to a list of achievements in the parent workbook. Module 4 (“How to parent under pressure: Increasing mindful awareness”) helps parents become aware of and develop skills in coping with negative emotional states through the use of mindfulness skills. This module also teaches techniques to tolerate negative emotional states without the need to avoid or escape, especially through the use of alcohol or other drugs. Module 5 (“Connecting with your child and encouraging good behavior”) teaches skills derived from traditional behavioral parent training models, for example, the use of praise and reward to encourage good behavior, and child-centered play skills. Furthermore, mindfulness techniques are used to help parents maintain focus on their child during play sessions in order to increase their emotional availability when using child-centered play techniques (Chaffin et al., 2004; Forehand & McMahon, 1981). Module 6 (“Mindful child management”) teaches nonpunitive child management techniques, such as time out. Mindfulness techniques are also used to help parents gain greater control over their own emotional responsivity in disciplinary situations in order to reduce impulsive, emotion-driven punishment (Gershoff, 2002; Mammen, Kolko, & Pilkonis, 2002). This, in turn, is intended to increase the effectiveness of traditional child management techniques such as limit setting and non-punitive disciplinary strategies. Module 7 (“Coping with lapse and relapse”) teaches skills to minimize the likelihood



of lapses to the use of alcohol and other drugs with an emphasis on relapse prevention and mindful awareness of affective states that may be related to drug use such as craving (Marlatt, 2002). Module 8 (“Extending social networks”) encourages parents to extend their support networks by identifying potential sources of support and encouraging them to pursue these opportunities. These modules address interpersonal deficits that may underlie problems of social isolation. Module 9 (“Life skills”) provides practical advice on diet and nutrition, budgeting, health care and exercise, and so forth when needed. Finally, Module 10 (“Relationships”) aims to improve effective communication between partners and to identify past unproductive relationship patterns. The program can be used with either a single parent or both parents when possible. If both parents participate, one is asked to nominate as primary carer and their data are used.

#### 2.4.2. Brief intervention

Participants in the brief intervention group received a two-session intervention based on traditional parent training skills. These sessions were provided in the clinic by the same pool of therapists who provided the PUP program. Parents were provided with specially designed workbooks that covered the basic parent training skills.

#### 2.4.3. Standard care

Participants in the standard care group received routine care provided by the methadone clinic staff. This involved an appointment with a prescribing doctor every 3 months and access to a case worker who could assist in housing, employment, and benefits.

### 2.5. Data analysis

#### 2.5.1. Multilevel modeling

Multilevel linear mixed (MLM) modeling was used to compare the average trajectory of the PUP group and the brief intervention group to the standard care group. The MLM modeling approach is a maximum likelihood method used to yield estimates of the same parameters that are tested by an analysis of variance such as time effect and time by group effect. However, MLM modeling corrects for unique issues of missing data in longitudinal studies that occur when participant data are missing from a single point at the post or 6-month follow-up point (Verbeke & Molenberghs, 2000). In the current study, 51 participants provided data at all three time points, 5 provided data at assessment and posttreatment, 1 provided data at assessment and 6-month follow-up, and 7 provided data at assessment only.

#### 2.5.2. Clinical significance

The extent to which individual families made clinically significant change was assessed in two ways. First, families were classified as either high risk or low risk on the basis of their baseline assessment CAP Abuse scores (high risk

>215; low risk <215). Change according to these risk categories was then ascertained for each family at 6-month follow-up (see Table 3). Second, a Reliable Change Index (Jacobson & Truax, 1991) was calculated to determine whether a clinically significant improvement or deterioration had occurred on the CAP Abuse measure between baseline assessment and the 6-month follow-up (see Table 3). An individual score was determined to be clinically significant if the Reliable Change index derived was greater than 1.96 (Bauer, Lambert, & Neilson, 2004). In the case of missing data, the assessment score was carried forward in line with an intent-to-treat analysis (Kazdin, 2003).

## 3. Results

### 3.1. Sample characteristics

There were 77 clinic parents assessed for suitability for the study. Of these, 10 parents declined inclusion in the study when they were allocated to either the brief intervention ( $n = 3$ ) or standard care condition ( $n = 7$ ). Two more parents were incarcerated prior to assessment and one withdrew prior to assessment due to the birth of another child. A total of 64 families were entered into the study and progressed to the baseline assessment stage.

Table 1  
Demographic and baseline characteristics of primary carer and children, means (sd)

Mean age of primary carer	30.33 (6.34)
Primary carer female	54 (84.4%)
Mean methadone dose	62.5 (29.75)
Mean duration in treatment (months)	38.80 (40.2)
Previous methadone treatment <sup>a</sup>	
0 times	15 (23.4%)
<2 times	14 (21.9%)
3–4 times	14 (21.9%)
>4 times	20 (31.3%)
Source of income	
Paid employment	15 (23%)
Unemployment benefits	3 (5%)
Disability pension	7 (11%)
Sole parenting allowance	35 (55%)
Other	4 (6%)
Mean age of target child (months)	45.9 (17.2)
Male target children	39 (60.9%)
Target child subject to court order	7 (10.9%)
Baseline measures	
PSI Total	103.0 (23.32)
CAP Abuse	256.25 (102.8)
CAP Rigidity	22.26 (16.05)
Methadone dose	62.50 (29.75)
AUDIT	2.88 (4.62)
SDQ Problem score	15.34 (4.67)
SDQ Pro social	5.48 (2.55)

Note. Values represent means and standard deviation unless otherwise indicated.

<sup>a</sup> Missing data on one case.

Table 2  
Multilevel modelling coefficients of treatment effects for parental stress, child abuse potential, rigidity, methadone dose, and child behaviors

Outcome variable	Intercept	Standard Care slope	Brief slope	PUP slope
Parenting Stress Index				
Total	98.83	.606 (.755)	.424 (.984)	−2.208 (1.004)**
Child Abuse Potential				
Abuse score	218.91	8.548 (2.907)*	−9.529 (3.769)*	−17.479 (3.807)***
Rigidity	23.49	.107 (.484)	.406 (.634)	−1.521 (.640)*
Parental methadone dose	74.10	.393 (.754)	1.520 (.984)	−2.355 (1.00)*
Child behavior				
SDQ Problem score	14.02	.293 (.209)	.146 (.281)	−.774 (.284)**
SDQ Pro social	6.05	.099 (.076)	.136 (1.0)	−.251 (.101) <sup>a</sup>

<sup>a</sup> $p = .05$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$  (denotes slope values significantly different from 0).

A greater number of mothers (86%) than fathers participated in the study. The mean age of the primary care giver was 30 years ( $SD = 6.4$ ) and did not differ across groups,  $F(2, 61) = 0.111$ . The mean duration in methadone treatment was 38 months and mean daily dose of methadone was 62.5 mg ( $SD = 29.7$ ); again, this did not differ across groups, although the dose effect approached significance,  $F(2, 61) = 1.052$ ;  $F(2, 61) = 2.49$ ;  $p = .09$ ). Most of the families received benefit payments (essentially welfare) with only 23% in paid employment.

There was no difference between groups at baseline assessment on abuse potential,  $F(2, 61) = 1.92$ ; rigidity,  $F(2, 61) = 0.188$ ; parenting stress,  $F(2, 61) = 1.02$ ; level of hazardous drinking,  $F(2, 61) = 0.10$ ; or methadone dose,  $F(2, 61) = 2.49$ , or on measures of child behavior problems,  $F(2, 61) = 2.63$ , or prosocial skills,  $F(2, 61) = 0.661$ . All demographics and baseline measures are presented in Table 1.

Participants in the PUP program had a mean of 10.5 face-to-face sessions ( $SD = 2.9$ ). One family received a single treatment session before withdrawing. Two families received seven sessions and 2 families received eight sessions of face-to-face intervention. The remaining 17 families received between 10 and 14 face-to-face treatment sessions. Additional school visits were made with 10 families; accompanying a parent on legal visits occurred in 7 families; liaison with social services occurred in 4 families; accompanying family to other child health services such as pediatrician, community health, and hearing and speech therapist occurred with 9 families, and 6 families were accompanied on supermarket visits. There were 2 families where both parents actively engaged in treatment. In these cases the mother nominated herself as primary carer and her data are reported.

### 3.2. Participant attrition

Of the 64 participants who were assessed, 20 of the 22 participants allocated to the PUP program were assessed at 6 months posttreatment; 20 of the 23 brief intervention participants were also assessed at 6 months. Attrition was greater in the standard care group with only 13 of the original 19 families followed up at 6 months. There were

no differences between those who were followed up and those who were not on any of the intake variables (i.e., age, child's age, parent's methadone dose, abuse potential, rigidity, level of hazardous drinking, or child gender).

### 3.3. Treatment effects

#### 3.3.1. Group differences on measured variables over time

Results for the effect of the PUP program on growth trajectory parameters for parenting stress, child abuse potential, rigidity, methadone dose, and child behavior are presented in Table 2. Data for CAP Abuse and methadone dose are displayed graphically in Fig. 1A and B. As can be seen, the intercept column of Table 2 shows the mean PSI total score for the standard care group at assessment

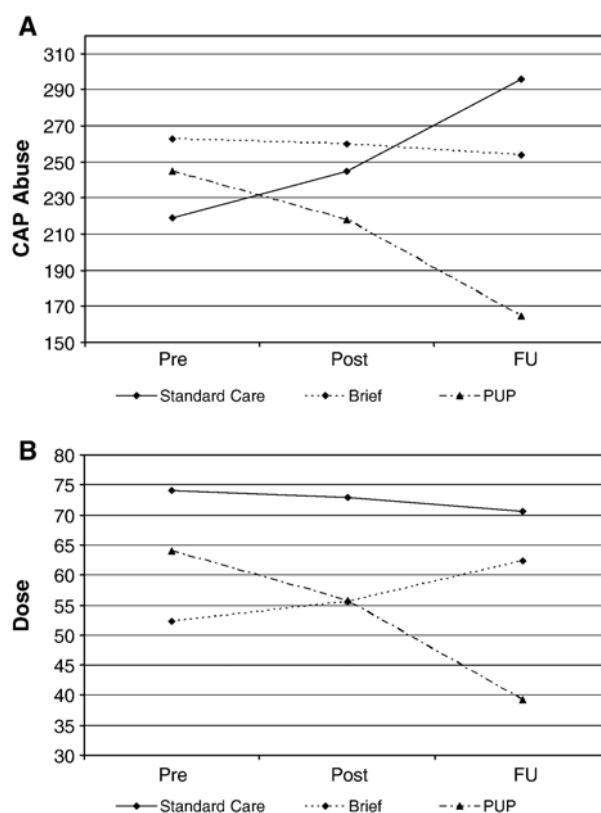


Fig. 1. (A and B) Trajectory for measures across time for each condition.

(e.g., 98.83). The three slope columns show the average change (i.e., slope) over measurement time points for each group, respectively. The values in parentheses show the standard errors of the slopes and these allow for the calculation of a  $z$  score to determine whether the slope for each group is different from zero.

Looking first at the standard care group, there were no changes in slopes for PSI total ( $z = 0.874$ , nonsignificant [ $ns$ ]), CAP Rigidity ( $z = .221$ ,  $ns$ ), methadone dose ( $z = .521$ ,  $ns$ ), or child behavior on total problem score and prosocial score ( $z = 1.41$ ,  $ns$ , and  $z = 1.30$ ,  $ns$ , respectively). However, the CAP Abuse showed a significant increase over time ( $z = 2.94$ ,  $p < .001$ ), indicating significant worsening on this measure.

The brief intervention group showed no change in slope for PSI total ( $z = .430$ ,  $ns$ ), CAP rigidity ( $z = .640$ ,  $ns$ ), methadone dose ( $z = 1.545$ ,  $ns$ ), or child behavior on total problem score and prosocial score ( $z = .519$ ,  $ns$ , and  $z = 1.36$ ,  $ns$ , respectively). However, there was a significant change in slope on CAP abuse ( $z = 2.526$ ,  $p < .001$ ) indicating that there was significant reduction in abuse potential over time.

Those receiving the PUP program showed significant reductions in PSI total ( $z = 2.199$ ,  $p < .001$ ), CAP abuse ( $z = 4.591$ ,  $p < .001$ ), CAP rigidity ( $z = 2.30$ ,  $p < .001$ ), methadone dose ( $z = 2.355$ ,  $p < .001$ ), and child behavior problems ( $z = 2.750$ ,  $p < .001$ ). There was also a significant increase in child prosocial scores ( $z = 2.51$ ,  $p < .001$ ). There were no changes in AUDIT scores across time for any group.

### 3.4. Clinical significance

There were clinically significant changes in the risk status of 36% of the PUP group and of 17% of the brief intervention group. Of particular concern was the deterioration in functioning in those receiving standard care, with 42% moving into the high-risk category and a further 37% remaining in the high-risk group. By comparison, none of the families receiving PUP moved into the high-risk category, although 36% of the PUP families who were high

risk at the outset of the study remained at high risk for child abuse and neglect.

These results are mirrored in the analyses using the Reliable Change Index. Once again, nearly a third (31%) of families receiving the PUP program and 17% of the brief intervention families showed a clinically significant improvement using the Reliable Change Index. A significant proportion (36%) of those in the standard care group showed deterioration (Table 3).

## 4. Discussion

This project was focused on reducing the potential for child abuse and neglect among methadone-maintained parents. Although high rates of maltreatment in substance-misusing families have been reported across numerous studies (Ammerman et al., 1999), it is concerning that these high rates are also reported in a population that is currently in treatment. The results showed that methadone-maintained parents who participated in the PUP intervention showed significant improvements across multiple domains of family functioning, suggesting that the PUP program holds promise as an intervention that may ameliorate the risks for children raised in substance-misusing families.

In comparison, there were also improvements shown among methadone-maintained parents who were randomly assigned to receive the two-session brief intervention. However, there was strong indication of an increase in child abuse potential among those methadone-maintained parents randomly assigned to receive the standard care group.

Despite a reduction in child abuse potential for the brief intervention group, no further improvements were found on any other measures. By comparison, there were improvements found on all other measures (with the exception of the AUDIT score, which did not change) in the PUP group. Of particular importance for child abuse potential, was the reduction in the Rigidity score of the CAP. This measure reflects a parent's unreasonably high and rigid expectations of children's behavior and appearance and is associated with the forceful treatment of children in order to make them behave in accordance with these rigid beliefs.

It is important to note that abusing parents who fake good on the CAP actually score higher on Rigidity than abusing parents who are not faking good (Carr et al., 2005). This scale may, in fact, be a particularly sensitive measure of parenting attitudes, as scores are less influenced by the desire to present in a positive light. As the PUP program aimed to help parents develop a more nurturing response to their child and more flexible parenting practices, the reduction in Rigidity is particularly encouraging.

Families with multiple risk factors, including substance misuse, are often difficult to engage in treatment. It is notable that retention in the PUP program was particularly high. Of the 22 families randomly allocated to the intensive PUP intervention, 17 received 10 or more sessions of

Table 3  
Change in risk status and clinically significant change (Reliable Change Index) from pre-treatment to 6-months follow-up

	PUP	Brief	Standard Care
<i>Change in risk status</i>			
High risk → low risk <sup>a</sup>	8 (36%)	4 (17%)	0 (0%)
Low risk → high risk	0 (0%)	2 (8%)	8 (42%)
Remained high risk	8 (36%)	13 (56%)	7 (37%)
Remained low risk	6 (27%)	4 (17%)	4 (21%)
<i>Significant improvement and deterioration using Reliable Change Index</i>			
RC + Improved	7 (31%)	4 (17%)	0 (0%)
RC + Deteriorated	0 (0%)	4 (17%)	7 (36%)
RC No change	15 (68%)	15 (65%)	12 (63%)

<sup>a</sup> High risk > 215 CAP Abuse, low risk < 215 CAP Abuse.

face-to-face treatment, a further 4 received 7 or 8 face-to-face sessions. This high rate of engagement may have been due to the efforts of therapists who telephoned to confirm appointments the day before they were scheduled. It may, however, also have been influenced by the nature of the therapeutic alliance that was considered a core component of the treatment program. Further studies would benefit from measuring this systematically (Horvath, 2000). Finally, the low attrition may also have been the result of the flexible and individualized nature of the program, as there is some evidence that rigid adherence to a highly structured manualized program is not associated with good outcome (Kendall & Chu, 2000).

Despite the statistical and clinical significance of the intervention, 36% of the PUP group showed continued high-risk status over the course of the study. This is an important point and draws attention to the need to examine individual families' response to parenting interventions (Azar, Lauretti, & Loding, 1998; Budd, 2005). It is clear that although many families may show improvement in parenting capacity, this change does not occur for all families. Simply arguing that a parent has attended an "evidence-based" parenting intervention does not equate to an improvement in the capacity to provide a responsive and nurturing environment for children. The current findings highlight the need to assess change in parenting capacity on a case-by-case basis after engagement in a parenting program. Identifying meaningful targets for change and evaluating the extent to which families are motivated and able to achieve these goals is an important procedure for assessing parents' potential to improve their capacity to parent.

The PUP program is multifaceted, with a focus on developing parental affect through the use of mindfulness-based strategies. A novel feature of the program is the inclusion of a mindfulness component for helping parents manage emotional dysregulation generally and during child-focused play and managing difficult child behavior specifically. A consideration for the PUP program is to determine the relative contribution of novel components in promoting change. The present pilot study was not designed to address the mechanisms that may contribute to change. However, it can be speculated that for this high-risk sample, directly addressing the parents' cognitive-affective functioning may have increased the effectiveness of the parenting skills component of the program (see Lorber & O'Leary, 2005). The inclusion of mindfulness-based techniques in standard behavioral parenting interventions has been the subject of recent discussions (Dumas, 2005). Although the precise relationship between increasing mindful awareness of emotional states and parenting practices remains to be elucidated, the current findings add to a growing body of literature that highlights the importance of understanding parental affect. Further studies could include comparing standard behavioral parenting interventions with mindfulness-based models such as the PUP program to determine whether an improvement in parental affect is (1) specifically

associated with the PUP program and (2) is a necessary prerequisite for the implementation of parenting skills in parents with high levels of emotional dysregulation.

There are three significant limitations of the current study that need acknowledgement. First, the period in which the families were followed up was only 6 months posttreatment. The finding that posttreatment changes were maintained in the PUP group is encouraging. However, 6 months is a relatively short time, and enduring change cannot be assumed. Indeed, it makes considerable clinical sense that such an intervention cannot be seen as a single stand-alone dose of treatment, but rather is a dose that provides substantial protection in the short term. The nature and value of further "booster" sessions need to be ascertained.

A second limitation is that the measures, although well validated, were self-report measures completed by the parent. The exception was methadone dose. Future research should obtain collateral evidence of change in the form of independent observation of parent-child interaction or collateral data collected from someone other than the parent. Despite this reservation, it is notable that methadone dose fell in the PUP group at 6 months, a reflection perhaps of increased stability in mood. This is a reasonable interpretation of the finding in the light of improvements in all measured domains of functioning and in the context of current methadone-prescribing practices in the participating services. Australian methadone-prescribing guidelines emphasize the importance of methadone as a vehicle for harm minimization, the promotion of stability, and a reduction in crime. Urine drug screening is not mandatory at either assessment or during ongoing treatment (Victorian Government Department of Human Services, 2000). The relative unavailability of cocaine and heroin in Queensland, Australia, has been associated with an increase in alcohol and cannabis use in those on methadone maintenance (Breen et al., 2005). Although alcohol use was assessed by the AUDIT, future studies should include other measures of substance use, in particular cannabis.

A final limitation that needs to be considered relates to the issue of "treatment dose." There are many studies demonstrating that supportive home visiting alone is not associated with a reduction in child abuse potential (e.g., Nair et al., 2003; Duggan et al., 2004). Nonetheless, it is still sensible to add a caveat that the active ingredient for those receiving the home-based PUP program may have been professional contact rather than the specific content of the intervention.

## 5. Conclusion

Notwithstanding the limitations above, there is now a growing focus on the development of interventions that address multiple domains in families' lives as well as building on existing strengths. The individual risk profile of each family needs to be considered. Interventions should be



underpinned by sound theoretical principles of psychological treatments. Support, advice on parenting, and assistance with day-to-day problems associated with being a parent of young children are essential but almost certainly not sufficient in and of themselves to help bring about improvements in both parental functioning and child behavior in the short term. Furthermore, treatment programs need to be sufficiently flexible to not only accommodate the real-life crises, but also enable the parent to learn to manage future events in which similar crises may occur. It appears that the PUP program holds promise as one such intervention.

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