Evaluation of a family-oriented parenting intervention for methamphetamine-involved mothers and fathers – The SHIFT Parent Training

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ABSTRACT

Introduction: A large number of people who use crystal methamphetamine in Germany are parents of young children. In the context of methamphetamine use, family situations and parenting are frequently impacted, and children are at risk of developing behavioral or emotional difficulties. SHIFT Parent Training was developed as a parenting intervention targeted specifically to the needs of methamphetamine-involved parents. The eight-session group training is delivered in substance use treatment settings and aims to foster abstinence and improve parenting skills and resilience within the families.

Methods: The primary goal of this pilot study was to assess the initial effectiveness and acceptance of the SHIFT intervention. The quasi-experimental study design included pre-, post- and 6-month follow-up measurements. Sixty-eight methamphetamine-involved parents participated in all stages of the study. Substance use, parenting practices, and family functioning and resilience were primary effectiveness outcome measures. Additionally, acceptance was assessed by participants' and professionals' feedback.

Results: Substance use problems were significantly lower in the intervention condition at the 6-month follow-up. Positive parenting of mothers and fathers also increased in the intervention group directly after participation. Both the intervention and control groups showed significant improvements in family functioning, parenting stress and children's behavioral issues. Participants and facilitators reported that they were highly satisfied with the program.

Conclusion: Our findings suggest that SHIFT Parent Training is an effective intervention and is well-accepted among parents and health professionals. The program improves relevant aspects of substance use-related issues and parenting and therefore poses a valuable addition to support services for methamphetamine-involved families.

1. Introduction

The use of methamphetamine, especially in its crystalline form (“crystal meth”), has become a global health issue across Europe, North America, Asia and Oceania (UNODC, 2015, 2016). In Germany, eastern regions close to the Czech Republic have been especially affected by the emergence of methamphetamine in the past decade (Die Drogenbeauftragte der Bundesregierung, 2016). Methamphetamine use constitutes a major public health concern, not only at the level of the substance-using individual, but also in terms of families and children involved.

Recent research has focused on the situation of families in which parental methamphetamine use is reported (hereafter, methamphetamine-involved families). Since methamphetamine is more commonly used by women of childbearing age, and as sexual disinhibition is one effect of the substance, many methamphetamine users are parents of young children (Milin, Lotzin, Degkwitz, Verthein, & Schaefer, 2014; Mühlig et al., 2016). Providing professional support to these families has become an increasing challenge for service providers and the close cooperation of child welfare and drug treatment services is frequently required (Hayward, DePanfilis, & Woddruff, 2010; Wetzel & Rothe, 2016).

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Similar to other families affected by parental drug use, methamphetamine-involved families are often described as unstable and disruptive (Brown & Hohman, 2006; Haight, 2008). A study in Germany found that the living situations within the families tend to be complicated by low socioeconomic status, parental mental illness and poly-drug use (Dyba, Klein, & Wetzel, 2017). Emotional responses of parents using methamphetamine can sometimes be volatile, ranging from high irritability to withdrawal and apathy (Brown & Hohman, 2006; Dyba, Moesgen, Klein, & Leyendecker, 2019). Mothers and fathers have been found to describe depressive perceptions of their parenthood on the Parenting Stress Index, defined as lacking self-confidence and feelings of self-reproachment in parenting (Abidin, 1983; Troester, 2011). Further stressors reported among methamphetamine-using parents include feelings of lacking competence in childrearing and perceived demand- ingness of their children (Dyba, Moesgen, Klein, & Leyendecker, 2018). As a result, the living situation of many children affected by parental methamphetamine use is likely to be disadvantageous. These children tend to exhibit behavioral problems in the form of externalizing tendencies and ADHD symptoms as well as emotional disturbances (Asanbe, Hall, & Bolden, 2008; Dyba et al., 2018; Paravesh, Mazhari, & Nazari-Noghabi, 2015), which can further strain the familial dynamic. Besides frequent pre- and postnatal substance exposure, the “drug-endangered children” (Altshuler, 2005, p. 171) are often at increased risk of experiencing trauma, physical or sexual abuse, and neglect. (Altshuler, 2005; Haight, 2008; Messina, Jeter, Marinelli-Casey, West, & Rawson, 2014).

This indicates the need to provide appropriate support for methamphetamine-using mothers and fathers and their often young children, and is recommended in methamphetamine treatment guidelines in Germany (Mühlig et al., 2016). Despite this, evidence-based programs for parents using illicit substances are scarce in Germany. Isolated interventions such as “The mother support training (MUT)” (Klein, 2006) - a modularized program for mothers in opioid substitu- tion treatment - have been demonstrated to be effective in reducing isolation and stressors associated with parenting (Klein, 2006). However, there has been a lack of programs addressing methamphetamine use or the needs of both mothers and fathers of young children.

Internationally, the range of existing interventions is broader and varies with regard to intended outcome, treatment setting, target group, and type of intervention. Several systematic reviews of interventions for substance-using parents have been conducted in recent years (e.g., Heimdahl & Karlsson, 2016; Moreland & McRae-Clark, 2018; Neger & Prinz, 2015; Nicclos et al., 2012; Peisch et al., 2018), and the existing programs have been demonstrated to be effective in the context of substance use, parenting practices, child adjustment, psychosocial variables, parenting stress and interactions among others (Moreland & McRae-Clark, 2018; Neger & Prinz, 2015). Yet so far, no intervention has specifically addressed methamphetamine-involved parents. Only the MATRIX program for stimulant-using female clients includes the topic of parenting and children briefly (SAMHSA, 2012). As Heimdahl and Karlsson (2016) noted, most programs equate parenting interventions in substance use treatment with programs for mothers, and the vast majority of research has been conducted in the US. While general, non-substance-specific aspects of existing programs can be used to shape interventions internationally, a direct transfer to other countries and support systems might be limited, due to cultural differences as well as country-specific organizational and financial structures of mental health, substance use, and child welfare services.

Hence, the present SHIFT1 Parent Training was developed and im-plemented in Germany. The intervention is intended especially for methamphetamine-involved mothers and fathers and accounts for their specific challenges and support needs, such as e.g. fostering sensitive and non-violent parenting and reflecting the impact of methamphetamine use on family relationships and children. With regard to their frequently complex and unstable family situations, the incorporation of the concept of family resilience (Walsh, 2003, 2016) was desired as an innovative approach to this group and to substance-involved families in general. This was implemented through psychoeducative elements and exercises on the three key factors of family resilience, which include shared belief systems, organizational patterns, and communication (Walsh, 2003).

Thus, the primary aim of this pilot study was to successfully im-plement the SHIFT Parent Training and evaluate the short- and long-term effectiveness of the intervention for the target group of metham-phetamine-involved parents in Germany. We examined primary effects of the intervention on parenting, parental substance use, family resi-lience and functioning, as well as secondary effects on children’s be-havior and participants’ parental and psychological distress. In addi-tion, the intervention aimed to consider the limitations of current national and international programs for parental substance use inter-ventions, especially regarding the inclusion of fathers and the focus on young children, as well as the feasibility and cost-effectiveness within the German social welfare system.

In addition, we assessed the acceptability and relevance of the in-tervention among participants, and perceptions of the intervention’s feasibility among facilitators.

2. Material and methods

2.1. Recruitment and study design

Recruitment was performed in cooperation with substance use treatment facilities and child welfare services in seven locations in the German federal states of Saxony and Thuringia. The inclusion criteria were a) having substance use problems, with methamphetamine being the main substance and b) being a parent or guardian of children aged up to eight years or currently expecting a first child. If the children were living outside the participant’s home, frequent contact at least every other week was required for study involvement. Participation was possible for both actively using and abstinent parents, if they were socially and cognitively capable of participating. Involvement in the research project was voluntary and not associated with any legal re-quirements.

Ninety-four parents met the inclusion criteria and expressed interest in participating. They each received a short, standardized intervention based on the principles of motivational interviewing (Miller & Rollnick, 2015) to increase their motivation for participation and abstinence and to reduce dropout rates. Of these eligible parents, 87 participated in baseline assessment and were included in the study. We employed a waitlist control group design. Due to recruitment difficulties in small residential and rural locations, formation of two parallel groups was not possible in all cooperating facilities. Overall, 18 participants could not be randomized to the control or intervention group, and hence these parents were all assigned to the intervention group.2 The flow chart in figure one illustrates the process, from the recruitment to follow-up measurement (Fig. 1).

The study design to evaluate the effectiveness of SHIFT was – due to the lack of complete randomization – a quasi-experimental pilot study with a control condition across three measurement points: the baseline assessment performed prior to the SHIFT intervention (t0), post-as-sessment immediately after the SHIFT intervention (t1) and follow-up

1 In German, SHIFT is not only known as the English word, but is also an acronym for “Suchthilfe-Familien-Training”, which can be translated as addiction care family training.

2 Since the analyses after the exclusion of these participants did not impact the direction of the presented effects, we included them as part of the analyzed sample to enlarge the statistical power of the analyses and to extend the results across different settings.
Participants were randomly assigned to either the intervention group or the waitlist control group in five of seven locations. Three groups proceeded without a control condition. The intervention group received the SHIFT Parent Training immediately after t0, while the waitlist control group did not receive an additional intervention at first. The waitlist control group could participate in the training after the 6-month follow-up assessment. Both groups were offered standard mental health, drug treatment and child welfare services as required during the pilot study. To evaluate practicability and acceptance, both the professionals and participants of the intervention group rated the SHIFT Parent Training at the end of each session and on completion of the intervention.

2.2. Sample

Of the 87 parents that participated in the baseline assessment, a total \( n = 68 \) (78.16%) could be reached throughout all measurements of this study. These 68 participants constitute the final sample described in Table 1. Parents had a mean age of \( M = 31.07 \) years (SD = 4.73) and had up to five children. Children involved were on average \( M = 6.26 \) (SD = 4.64) years old and primarily of preschool age. Two participants were currently pregnant and one was expecting her first child. Nine parents from the intervention group and six from the waitlist control group had no children living with them when they participated in the study. Only one participant was a stepparent of his children, while all others were biological parents. As demonstrated in Table 1, participants had already been engaged with healthcare and child welfare services. Chi-square and t-tests revealed that the intervention and waitlist control condition of both the recruited and the analyzed sample did not differ significantly for any of the relevant baseline variables (Table 1).

2.3. Intervention: the SHIFT Parent Training

The SHIFT Parent Training is a standardized group intervention for 6–10 participants per group, including both mothers and fathers of
Table 1
Sample characteristics for the intervention group and waitlist control group at baseline.

|                        | Intervention group (n = 40) | Waitlist control group (n = 28) | Total (N = 68) |
|------------------------|----------------------------|--------------------------------|---------------|
| Age M (SD)             | 30.70 (4.97)               | 31.89 (4.36)                   | 31.19 (4.73)  |
| Gender                 |                            |                                |               |
| Female                 | 29                         | 25                              | 54            |
| Male                   | 11                         | 3                               | 14            |
| Current pregnancy      |                            |                                |               |
| Yes                    | 1                          | 1                              | 2             |
| No                     | 39                         | 27                              | 66            |
| Current relationship   |                            |                                |               |
| Yes                    | 25                         | 14                              | 39            |
| No                     | 14                         | 14                              | 28            |
| Nationality            |                            |                                |               |
| German                 | 37                         | 34                              | 65            |
| Other                  | 3                          | 0                               | 3             |
| Substance use          |                            |                                |               |
| Past 4 weeks           | 1                          | 3                              | 4             |
| Past 6 months          | 8                          | 7                               | 15            |
| Experiences with       |                            |                                |               |
| professional helping   |                            |                                |               |
| system                 |                            |                                |               |
| Child welfare services | 32                         | 23                              | 55            |
| Addiction treatment    | 38                         | 28                              | 66            |
| Psychotherapy          | 27                         | 17                              | 44            |
| Number of children M   | 2.01 (1.06)                | 1.67 (1.05)                    | 1.94 (1.07)   |
| (SD)                   |                            |                                |               |
| Children's age M (SD)  | 6.24 (4.63)                | 6.29 (4.67)                    | 6.26 (4.64)   |
| Children's gender      |                            |                                |               |
| Female                 | 41                         | 22                              | 63            |
| Male                   | 45                         | 25                              | 70            |

children up to eight years of age. The goals of the intervention were to:
(a) Address family- and parenting-related issues and challenges specific to substance use and methamphetamine use in particular, including: fostering positive parent-child interactions, approaching parenting from a resource-oriented perspective, sensitization for non-violent parenting, education regarding the effects of parental methamphetamine use on children, reflection on methamphetamine use in the context of intimate relationships and dealing with feelings of guilt and shame.
(b) Consider the characteristics of methamphetamine-using parents in terms of potential variations in attention and cognitive capacities as a result of long-term substance use.
(c) Incorporate the concept of family resilience for the first time in the context of substance-involved families in Germany. The concept as defined by Walsh (2003) is constituted of three key elements, each defined by three specific processes within the family. These include (1) shared belief systems in terms of making a meaning of aversive events, an optimistic outlook and spirituality, (2) organizational patterns regarding flexibility, connection and psychosocial and economic resources as well as (3) and communication/problem-solving with regard to clear and emotionally open expressions as well as collaboration within the family.

Contents and practical techniques were based on effective strategies derived from cognitive behavioral and addiction therapy such as psychoeducation, interactive role-play and group discussions as well as worksheets. Existing exercises for group interventions for substance-using clients (e.g., Lindenmeyer, 2010, 2011) and the enhancement of sensitive, positive parenting practices (e.g., Hänggi, Schweinberger & Perrez, 2011) were adapted for the target group or new exercises were conceptualized. The intervention techniques, exercises and handbook were discussed and confirmed with a reference group of eleven professionals from participating substance use treatment and child welfare services before implementation.

The modularized intervention consisted of eight sessions that were originally scheduled for a length of 60–75 min per session. The standardized curriculum was to be provided by two professionals, one with a background in substance use treatment and one from child welfare services. SHIFT was offered primarily at the substance use treatment centers to facilitate access for the substance-using participants through a familiar, non-judgmental atmosphere. Professionals received one-day training before delivering the intervention. Additionally, they were provided with an instruction handbook, explaining the schedule and implementation of the group intervention and each exercise in detail. Also, continuous feedback loops between the professionals and the project team were incorporated. Generally, each of the eight SHIFT sessions followed the same schedule: (1) brief statement provided by each participant regarding his or her emotional state, (2) discussion of the previous weekly task, (3) psychoeducation with performance of 2–3 associated practical exercises and (4) introduction to the weekly task for the following week. In the course of the implementation (after session 2), the session length was extended to 90 min to ensure the completion of all the intended contents, and at the same time, to grant participants enough time for the exchange of personal experience. The full contents and exercises of each module are displayed in Table 2.

2.4. Outcome measures

2.4.1. Initial effectiveness

Primary outcome variables were: parenting practices, substance use, and family resilience and functioning. Secondary outcomes were: parenting stress, psychological distress, and children's behavioral problems. All relevant outcomes were operationalized using the following measures and asked at each of the three time points.

2.4.1.1. Parenting. Parenting was operationalized through measures covering both positive parenting as well as dysfunctional interactions. The German FZEV scale covers positive reinforcing parenting behavior and was based on the Parenting Practices Scale by Strayhorn and Weidman (1988). It is comprised of 13 items rated on a 4-point scale. The internal consistency of the measure is satisfactory for both mothers $\alpha = 0.85$ and fathers $\alpha = 0.87$ (Naumann, Kuschel, Betram, Heinrichs, & Hahlweg, 2007). We also used the short 13-item German version of the Parenting Scale (PS) (Arnold, O'Leary, Wolff, & Acker, 1993; Naumann et al., 2010) to assess dysfunctional parenting behavior. The short version is a multidimensional instrument that covers the two subscales “lax” and “over-reactive” behavioral tendencies in challenging parenting situations. The internal consistency for the long-form scale is $\alpha = 0.75$ for both subscales (Miller, 2001).

2.4.1.2. Substance use. The Drug Use Disorders Identification Test (DUDIT) (Berman, Bergman, Palmstierna, & Schlyter, 2005; Thormann & Schalast, 2002) is a 11-item scale that examines current drug use patterns and problems. We also asked participants to provide information regarding drug use before the baseline assessment (6 months, 4 weeks), within the 8 weeks during the intervention in the 6 months prior to the follow-up assessment.

2.4.1.3. Family resilience. Currently no validated German measure to assess family resilience is available. However, we used an adapted German version (FRAS-Ger) of the English “Family Resilience Assessment Scale” (Sixbey, 2005) as an exploratory measure. The original version consists of 68 items rated on a 4-point-scale. In this study, we selected 18 items with the highest factor loadings and translated them. Each of the three key factors of the family resilience construct (communication, shared beliefs and organizational patterns) was represented by six items.

2.4.1.4. Family functioning. The family related issues were additionally approached through family functioning. The short version of the
Table 2
Sessions and contents of the SHIFT Parent Training.

| Session no. | Session name                        | Objectives and contents                                                                 | Exemplary exercises                                      |
|-------------|-------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1           | Introduction: Start SHIFTing        | Getting to know each other, exchanging aims and expectations, agreeing on group rules   | “What is the SHIFT Parent Training” (worksheet)          |
| 2           | Parenting I: Approaching good times | Viewing parenthood positively, developing sensitivity for the needs of children, fulfilling children's needs, fostering the parent-child relationship | “Me as Mom or Dad” (worksheet/self-observation)          |
| 3           | Parenting II: Tackling challenges   | Reflecting parenting behavior, establishing and communicating clear rules, managing challenges successfully, raising children without violence | “Establishing and enforcing rules” (worksheet and role play) |
| 4           | Family Resilience I: None like us   | Viewing family life positively, becoming familiar with the concept of family resilience and its key characteristics, enhancing common optimistic belief systems within the family | “Key aspects of family resilience” (flipchart/psychoeducation) |
| 5           | Family Resilience II: Let's talk... | Acknowledging successful rules and procedures in the family, getting to know new ideas for promising rules and procedures, asking for help, communicating openly and positively, improving problem solving | “Helping hands” (worksheet)                               |
| 6           | Addiction and the family: Walking new paths – together | Dissolving the taboo of addiction within the family, accepting effects of addiction on the family, coping with feelings of guilt, identifying risk factors for relapse within the family, learning about how the family can help to stay clean, improving family relations | “Successful communication” (worksheet & roleplay)         |
| 7           | Romantic relationships: More than “just” parents | Nurturing the partner relationship, identifying conflict potentials within the relationship, coping with conflicts and arguments, reflecting on Crystal Meth use in sexual contexts | “My family and my clean life” (worksheet/self-observation) |
| 8           | Goodbye: Bye, and keep going!       | Reviewing the SHIFT Parent Training, establishing a positive outlook for the future and plans for change, transferring new skills into everyday routines, preventing relapse, coping with crises, fostering motivations for and utilization of help services, saying goodbye | “Emergency cards for me and my kid” (worksheet)           |

German Family Questionnaire (GFQ) (Sidor & Cierpka, 2016) economically covers family functioning in terms of emotional bonds between family members and their willingness to communicate. The scale consists of 14 items rated on a 4-point scale. The internal consistency of the scale is high at $\alpha = 0.91$.

2.4.1.5. Parenting stress. The German version of the Parenting Stress Index (PSI) (Abidin, 1983; Troester, 2011) is a self-report questionnaire consisting of 48 items rated on a 5-point scale. The measure includes twelve subscales to identify parental stressors. Seven of these subscales identify stressors within the “parent-domain,” while the other five are associated with the “child-domain.” The internal consistency of the main scale is $\alpha = 0.95$, and $\alpha = 0.91$ for the child-domain as well as $\alpha = 0.93$ for the parent-domain.

2.4.1.6. Psychological distress. We used six subscales of the Brief Symptom Checklist (BSCL) (Franke, 2017) to evaluate parents’ perceived impairment due to physical and psychological symptoms. Of the overall 53 items and nine subscales, we used only the following six subscales: depression, anxiety, obsessive-compulsive behavior, hostility, paranoid ideation, and psychotism, represented by a total of 33 items rated on a 5-point-scale. Four additional items representing unspecified psychological distress were also used. The internal consistency of the subscales ranges between $\alpha = 0.72$ (hostility) and $\alpha = 0.88$ (depression).

2.4.1.7. Children's behavior. The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001; Klasen, Woerner, Rothenberger, & Goodman, 2003) was used to assess children’s behavior. The measure’s 25 items are rated by parents on a 3-point scale for children above the age of 2 years. If parents had more than one child between the age of two and eight years, they were asked to fill out the SDQ for the child that they engaged with mostly and were also asked to refer to the same child in follow-up measurements. Besides an overall problem score, subscales allow for the calculation of a score for the children’s emotional problems, conduct problems, hyperactivity and social problems as well as their prosocial behavior. Reliability coefficients for the German version range between $\alpha = 0.58$ on the social problem scale and $\alpha = 0.82$ for the overall problem score.

2.4.2. Acceptance and practicability
To assess the acceptability of the intervention, participants filled out an 8-item questionnaire (4-point rating) after each module and on completion of the intervention. The content referred to their satisfaction with SHIFT, knowledge gained, and confidence in dealing with challenging situations with their children and family.

To ensure the practicability of the intervention, professionals conducting the intervention rated the materials and content on a self-constructed rating scale (4- and 5-point ratings) including their satisfaction with each session and the observed group dynamics. Their satisfaction with the program as a whole and general feedback was assessed after the last module. Furthermore, retention rates and attendance were documented.

2.5. Procedures and data analysis
Paper-pencil questionnaires for the effectiveness evaluation were filled out by participants at the cooperating facilities at baseline, post-intervention and follow-up. Parents received gift cards of increasing value for participation: 10€ at t0, 20€ at t1 and 30€ at t2. Missing values for validated scales were handled according to each measure's guidelines and cases were excluded for a measure if there was over 10% missing data. Paper-pencil questionnaires for evaluation parents’ acceptance and professionals’ rating on practicability of the eight modules were filled out in a group setting after each of the sessions of the intervention group. The rating of the overall intervention was performed...
in the same setting after the eighth and last module.

We analyzed the data using SPSS (Version 24). Since randomization could not be completed in all cooperating facilities and the control group was smaller, we analyzed the data in advance with regard to systematic differences between the two groups. In terms of the relevant outcome measures, the preliminary analysis revealed a small but significant difference in tendencies for over-reactive dysfunctional parenting behavior between the two groups at the baseline. Therefore, we refrained from including the subscale in further analyses. Hence, the laxness subscale of the German PS measure solely represents dysfunctional parenting. After preliminary data analysis, we performed repeated measures ANOVA for baseline to post-intervention short-term effects (t0-t1), with the examination of within-subject and between-subject effects for all primary and secondary outcomes. Additionally, we specified long-term effects (t0-t2), again using repeated measures ANOVA. For the evaluation of acceptability and feasibility descriptive statistical analyses were performed.

3. Results

3.1. Initial effectiveness

Table 3 contains mean scores by intervention group for the primary and secondary outcome measures at pre-intervention (t0), post-intervention (t1) and six-month follow-up (t2). Inferential statistical analysis for the short-term effects (t0–t1) is displayed in Table 4, while long-term effects (t0–t2) are shown in Table 5.

For substance-related issues (DUDIT), long-term results revealed a significant ordinal group by time interaction and a larger reduction reported by the intervention group (F[1,54] = 4.78, p = .033) between baseline and six-month follow-up. Overall, both the intervention and control group reported reduced scores across the three time points (F[1,54] = 8.28, p = .006). This is consistent with the parents’ reports on their methamphetamine use during the study. During the eight weeks of the intervention, two parents in each group reported methamphetamine use (5.00% of the intervention group and 7.14% of the control group). Yet, during the 6-month follow-up period, more parents from the control group reported their methamphetamine use during the study. During the eight weeks of the intervention, two parents in each group reported methamphetamine use (5.00% of the intervention group and 7.14% of the control group).

Regarding positive parenting the FZEV scale also revealed a significant semi-disordinal time by group interaction when considering the short-term post-intervention effects, since the intervention group did improve significantly at t1 measurements (F[1,64] = 4.06, p = .048) compared to the control condition. Yet, the effect was not sustained up to the 6-month follow-up. Parental reports on dysfunctional parenting in terms of laxness showed no significant differences in pre- and post-intervention and follow-up scores for both groups.

The exploratory, translated family resilience measure (FRAS-Ger) did also not show any significant effects in both groups across the three time points. Yet family functioning (GFQ) significantly improved within both the control- and intervention-group across all three measurements, which was statistically significant for the long-term effect between baseline and follow-up (F[1,66] = 6.84, p = .011).

The secondary outcome measures of parenting stress, parental psychological distress and children’s behavior revealed a positive long-term improvement in both the control and intervention condition.
between baseline and follow-up assessments. For the Parenting Stress Index, significant long-term effects were evident on the following subscales for the parent-domain: role restriction (F [1,63] = 10.44, p = .002), healthcare (F[1,63] = 11.04, p = .001), depression (F[1,63] = 9.96, p = .002), social isolation (F[1,63] = 6.10, p = .016) and attachment (F[1,63] = 10.58, p = .002). In the child-domain, both groups improved with regard to perceived demandingness (F [1,65] = 9.08, p = .004), hyperactivity (F[1,63] = 4.61, p = .036) and adaptability (F[1,63] = 4.19, p = .045). However, short-term effects for both groups were only significant for the attachment (F [1,64] = 6.42, p = .014) and depression subscales (F [1,64] = 4.14, p = .046).

Parental psychological distress (BSCL) was also significantly reduced in both groups post-intervention (F [1,65] = 4.22, p = .044) and at 6-month follow-up (F [1,66] = 18.62, p = .000). Long-term improvements were statistically significant on all of the measure’s subscales, while the strongest improvements were reported for hostility (F [1,66] = 30.08, p = .000). Regarding the short-term period, symptom reduction concerned the subscales of anxiety (F [1,65] = 4.50, p = .038), obsessive-compulsive (F [1,65] = 4.30, p = .042) and hostility (F [1,65] = 8.21, p = .006).

Children’s overall problem score (SDQ) was significantly reduced in both groups over the 6 months follow-up period (F [1,46] = 5.81, p = .020). Also, the subscale prosocial behavior increased in both groups between the baseline and 6-month follow-up (F [1,46] = 4.18, p = .047), but not as a short-term effect. Interestingly, on the subscale level, it was also observable that externalizing behaviors significantly decreased from t0 to t1 (F[1,50] = 8.05, p = .007), but the effect was again not sustained at the time of the third measurement.

### 3.2. Acceptance and practicability

As displayed in Table 6, parents in the intervention group perceived SHIFT as helpful for handling problematic situations with their children and family. In particular, the modules addressing parenting were rated highly. On average, parents participated in M = 6.37 modules (SD = 1.53), and more than one-third (n = 14, 35.0%) of the intervention group attended all eight modules.

The professionals’ overall rating of SHIFT on a 5-point scale (1 = very good to 5 = very poor) revealed high levels of satisfaction with the exercises (M = 1.79, SD = 0.43) and working materials (M = 2.00, SD = 0.68). The practicability of the sessions was also rated as good (M = 2.07, SD = 0.48), with concerns only expressed regarding time management and associated session goals (M = 3.29, SD = 0.51).

### 4. Discussion

Children from substance-involved families are known to be at risk for developing psychological problems and substance use disorders (Salò & Flykt, 2013; Solis, Shadur, Burns, & Hussong, 2012). In order to enhance children’s development within the family and to prevent unfavorable developmental pathways, there is a substantial need for evidence-based interventions targeting parents who use illicit drugs. This pilot study demonstrates the initial effectiveness and high acceptability of the SHIFT Parent Training; a short, standardized intervention tailored to methamphetamine-involved parents.

With regard to the primary outcomes, participation in SHIFT was associated with greater reductions in substance-related problems and enhanced parenting skills compared to controls. Parents receiving the intervention may have more strongly pursued drug treatment and abstinence after addressing parenthood issues and therefore, SHIFT may have indirectly reduced their substance use and related problems. This finding supports previous research that found that children and family were of great importance in the decisions of methamphetamine-using parents to pursue abstinence (Dyba et al., 2019). The intervention was also effective in enhancing positive parenting practices directly after participation in the intervention. As methamphetamine-involved parents often show strong tendencies for emotional withdrawal, and neglect (Brown & Hohman, 2006; Dyba et al., 2019), these results are

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**Table 6** Parents overall acceptance rating of the SHIFT Parent Training (4-point-rating from 0 = disagree to 3 = strongly agree).

| Rating of the overall intervention | n  | M      | SD       |
|-----------------------------------|----|--------|----------|
| Received new information          | 27 | 2.63   | 0.57     |
| Gathered new experiences          | 27 | 2.52   | 0.58     |
| Better able to handle problems with child | 27 | 2.41   | 0.80     |
| More understanding of child      | 27 | 2.33   | 0.78     |
| Better able to handle problems with partner | 26 | 2.00   | 0.85     |
| More understanding of partner    | 26 | 1.81   | 0.94     |
| Family is better able to handle problematic situations | 27 | 2.15   | 0.60     |

**Note:** Overall ratings were only obtained within the intervention group after the last session.
especially relevant in terms of improving the living situation of affected children.

However, strategies to sustain these achievements could be addressed in greater depth. There was no significant reduction in dysfunctional parenting regarding laxness in both groups, and the modification of dysfunctional parenting strategies may be more complex and difficult to implement directly into parenting routines. The adapted family resilience measure did also not display any significant improvements in both groups across the three measurements. Yet both the intervention and control group showed significant improvements in family functioning over the 6-month study period. Potentially, strengthening family resilience and improving communication and organization processes could be even more successful if family members were included as part of the program, which has previously been suggested in this research field (Neger & Prinz, 2015).

For the secondary outcome measures of parenting stress and children’s problematic behavior, both groups improved significantly over time. While the SHIFT Parent Training has the potential to favor these positive developments compared to usual treatment, this was not observed within this relatively small pilot study.

The acceptability of the intervention by participants is highly encouraging. All the modules were perceived as being helpful in dealing with children’s problematic behavior, and especially modules focused on parenting skills were highly rated by participants. Thus, the ratings and attendance rates underline the openness and desire of participants to engage with the topic and to develop associated skills. Working materials, practical exercises and the overall practicability were also highly rated by the professionals who delivered the intervention. However, their feedback indicates a need to improve time management for the modules, which was directly realized in the course of the implementation.

While the intervention poses a valuable addition to the current care situation of methamphetamine-involved families, the study has some limitations. First, the samples were mostly abstinent at baseline and had previous engagement in different support settings. Therefore, the results cannot necessarily be transferred to an untreated sample of methamphetamine-using mothers and fathers. Furthermore, since all measures were parental self-reports, social desirability bias cannot be ruled out entirely, especially since child welfare services were involved in the study. Supplementary reports of other caregivers could allow a more objective perspective and could therefore be incorporated in this research field in the future. Also the construct of family resilience could only be assessed with a translated, shortened scale, which still needs future validation. During the implementation of the study, it became evident that there would be an insufficient number of clients at some institutions (e.g., in regional or rural areas) to include a control condition. This is consistent with reported challenges of implementing randomized controlled trials in a real-life service setting for substance use disorders (Niccols et al., 2012). Since randomization was incomplete, potentially undetected differences in the groups at baseline might have affected the results. In addition it needs to be considered that both groups were offered standard mental health, substance use and child welfare services during the trial.

Future research should therefore focus on the evaluation of the intervention on a larger, randomized sample, and should also include detailed documentation of standard usual treatment. Generally, a broad implementation of the SHIFT Parent Training for methamphetamine-involved mothers and fathers in substance use treatment is intended in Germany, especially in regions most affected by the use of this substance. Furthermore, a translation of the manual, especially for English-speaking countries, is desired in the future. Since there is substantial need for evidence based programs targeting substance using parents, an adaption of the presented SHIFT intervention for parents using other illicit drugs is currently planned. This requires an adjustment of parts of the modules with substance-specific content, so parents involved with other substances such as opioids, cannabis, and/or cocaine can be included. If possible, evaluation of the intervention on a larger sample is desired, to assess differential responsiveness of subgroups (e.g. with regard to parental gender or nationality) as part of the statistical analyses.

5. Conclusion

The SHIFT Parent Training demonstrates great potential in reducing substance-related problems and enhancing parenting skills in methamphetamine-involved parents. So far, it is the only family-oriented intervention that considers the specific characteristics of this target group while addressing both mothers and fathers. In Germany, it is also the first group intervention of its kind for parents of young children that are involved with illicit substances. While SHIFT does not intend to replace complex or individualized therapeutic interventions for substance use and child welfare, it can be regarded as a complementary intervention in both fields. Since it offers a low-threshold opportunity for substance-using parents to relate to the topic of parenting, they might become more sensitive towards their children’s developmental and potential support needs early in treatment. In practice, a parallel offering of direct support interventions for children should be considered alongside the enhancement of parental skills.

Conflict of interest

The authors declare no conflict of interest.

Ethics

The research was conducted in accordance to the Declaration of Helsinki and approved by the ethics committee of the Catholic University of Applied Sciences, North Rhine-Westphalia.

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