Feasibility of teaching motivational interviewing to parents of young adults with recent-onset schizophrenia and co-occurring cannabis use

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A B S T R A C T

This study examined the feasibility of providing motivational interviewing (MI) training to parents of young adults with recent-onset schizophrenia and co-occurring cannabis use. The training was offered in a mental health care setting as part of a family motivational intervention (FMI). Ninety-seven parents were randomly assigned to either FMI or routine family support (RFS). To obtain a measure of parent’s MI skills at baseline and 3 months after they completed FMI, their role-play interactions with an actor portraying their child were coded. The coding method had satisfactory inter-rater reliability and internal consistency. At follow-up, parents in FMI showed significantly greater adherence to (p = .03) and competence in (p = .04) MI than parents in RFS. Parents in FMI also demonstrated significantly greater increases in expressing empathy (p = .01). These results demonstrate that FMI is a feasible method for increasing MI skills in parents. Additional research is needed to better understand the unique application of MI to parent–child interactions.

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1. Introduction

Motivational interviewing (MI) is a well-defined method for increasing people’s readiness to change by exploring and resolving their ambivalence (Miller & Rollnick, 2002). Several reviews and meta-analyses have demonstrated that MI is an effective approach for reducing alcohol and drug use in individuals with substance use disorders (e.g., Burke, Arkowitz, & Menchola, 2003; Hettema, Steele, & Miller, 2005; Smedslund et al., 2011). In recent years, MI has become increasingly popular for addressing substance use in patients with severe psychiatric disorders including schizophrenia, where substance use is associated with many complications of the illness (Cleary, Hunt, Matheson, Siegfried, & Walter, 2008). Research into the effectiveness of MI for reducing substance use in people with schizophrenia is still evolving. In a randomized controlled trial (RCT), Barrowclough et al. (2001) evaluated the effectiveness of MI and cognitive behavioral therapy for patients with schizophrenia in combination with education and support for the caregivers. At 9-month post-treatment, the combined treatment was superior to standard care in reducing patients’ frequency of substance use. In the treatment of co-occurring substance use in people with schizophrenia, the involvement of caregivers may have special relevance as ongoing family support has been associated with improved treatment outcomes in this population (Clark, 2001; Fischer et al., 2008). Research has also shown that patients with schizophrenia who use drugs are more likely to have interpersonal conflicts with their family members than their non-drug taking counterparts (Salyers & Mueser, 2001). Furthermore, caregivers have a more hostile and critical attitude toward their family member with schizophrenia if the illness is accompanied by drug use (Barrowclough, Ward, Weardon, & Gregg, 2005; Lopez, Nelson, Snyder, & Mintz, 1999). Given these negative attitudes, parents may tend to adopt a confrontational or intrusive approach in their interactions with patients about their drug use. However, such an approach may increase patients’ resistance to changing their substance use (Miller, Benefield, & Tongan, 1993). MI is a non-confrontational approach for overcoming resistance, which increases the likelihood that the patient will consider change. Although intended as a counseling style for professionals in mental or other health-care settings, MI may also be a feasible approach for parents to use in order to facilitate behavior change in their child.

To explore this possibility, we developed a training program in MI for parents of patients with recent-onset schizophrenia and co-occurring cannabis use. The training was combined with training in general interaction skills for parents. Whereas training in MI was focused mainly on teaching parents how to enhance their child’s intrinsic motivation to change their cannabis use, training in interaction skills was aimed at providing parents with communication and problem-solving skills for reducing family stress and conflicts related
to recent-onset schizophrenia. When evaluated in a controlled trial, this training package provided as an addition to usual mental health care led to significantly greater reduction in patients' frequency and quantity of cannabis use for at least 3 months after the training had been completed (Smeerdijk et al., 2012).

Research is now available on how professional training in MI should be best conducted and evaluated. There is evidence to suggest that MI training should contain at least a 2-day workshop, which incorporate follow-up supervision (Madson, Loignon, & Lane, 2009; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Söderlund, Madson, Rubak, & Nilsen, 2011). The most commonly used MI training elements are the MI spirit, basic MI skills, recognizing and eliciting change talk, and rolling with resistance. The MI spirit includes three elements: working in a collaborative fashion, evoking reasons or beliefs for change from within the person, and affirming person's autonomy. The basic MI skills involve asking open questions, reflecting, affirming, and summarizing.

When providing any MI training, a key question concerns whether the trainees use MI as intended and whether they are doing so effectively (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005; Rollnick & Miller, 1995). In recent years, several observational measures have been developed to assess clinicians' adherence to and competence in MI though the monitoring of the intervention, which is usually done via audiotape or videotape recordings (Madson & Campbell, 2006). These measures can be used as research tools to determine whether MI was offered as intended and whether it could be reliably differentiated from other interventions. Furthermore, these assessments can be used to measure changes in the use of MI before and after training, providing an evaluation of the training.

As far as we are aware, Smeerdijk et al. (2012) is the only study employing a formal training in MI skills for non-professionals. Despite the apparently positive effects of the MI training on patients' cannabis use, the extent to which the parents were able to master MI skills was not reported. Accordingly, based on the data from this RCT, the present study examined the feasibility of training parents in MI skills to supplement the usual mental health care for young adults with recent-onset schizophrenia. Compared with parents who received routine mental health care, it was hypothesized that parents who had training in MI would show greater adherence to and competence in using MI skills. It was also hypothesized that training in MI would be more effective in decreasing parents' behaviors that were incongruent with MI principles than would routine support.

2. Methods

2.1. Participants

As noted above, the present study was part of a family motivational intervention (FMI) project, a longitudinal single-blind randomized controlled trial (Smeerdijk et al., 2012) to compare the effectiveness of training parents in MI and interaction skills with routine family support (RFS). Parents were potentially eligible if their child: (a) met DSM-IV criteria for schizophrenia or psychotic-related disorder, with onset within the previous 5 years, based on the Comprehensive Assessment of Symptoms and History (CASH; Andreasen, Flaum, & Arndt, 1992), (b) was between 16 and 35 years old, (c) had used cannabis a minimum of 2 days/week during the previous 3 months, and (d) had contact with at least one parent for a minimum of 10 hours/week during the past month. Patients were recruited from one of two psychiatric services in the Netherlands (Academic Medical Center of the University of Amsterdam and Mental Health Service North-Holland-North) where they were receiving in- or outpatient treatment for a psychotic disorder. The patients' treatment program was described previously (Linszen, Dingemans, & Lenior, 1994); it included pharmacotherapy, psychoeducation and rehabilitation activities. Parents were approached only after the patient had given written informed consent. Both parents were invited to participate, but families with only one consenting parent were included.

2.2. Procedures

Allocation of parents to either FMI (experimental condition) or RFS (control condition) was based on random assignment of each child. Parents were assessed at two time points: within 4 weeks before FMI started (baseline) and 3 months after FMI had ended (follow-up). Every effort was made to complete a parent's baseline assessment within the first month that their child was hospitalized.

In order to evaluate parents' use of MI, they were invited at both assessment points to take part in a role-play interaction about cannabis use with an actor portraying their child. Role-play interactions were conducted with all participating parents who were available. When both parents participated in the study, role-plays were held with each parent separately. In the interaction the first author played the role of the 'child', and was blind to parents' allocation. A standardized scenario was used in which the child expressed ambivalence about changing his or her cannabis use. Although the role-play followed a script, the actor modified this as necessary to maintain authenticity. Parents were given the following instructions for processing the interaction: (1) try to imagine that you are engaging in a real-life conversation with your child about his or her cannabis use, (2) try to act in the same way as you would do normally toward your child, (3) start the conversation by inviting your child to talk about his or her cannabis use, and (4) keep the conversation going and stop only when a signal is given. The role-play was scheduled to last 10 minutes, but a minimum of 6 minutes was considered sufficient for evaluation of parents' use of MI.

The role-play interactions were audio-taped and subsequently rated by three students in clinical psychology at the University of Amsterdam. The raters were blind to the parents' treatment allocation. To be a qualified rater, the person had to complete: (1) a 2-day expert-led workshop on using MI as a professional and, (2) a 1-day expert-led workshop on how to evaluate the use of MI according to the manual that accompanied the coding instrument. After the workshop, there were two supervised practice sessions in which the raters discussed their ratings of five randomly selected child–parent interactions. After agreement had been reached, each rater rated a subset of 10 randomly selected interactions in order to evaluate the inter-rater reliability of the coding instrument.

2.3. Measure of MI skill acquisition

A literature search revealed no published measure to assess MI skill acquisition in non-professionals. Therefore, three researchers each with experience in MI training and fidelity assessment adapted existing coding instruments for use in the present study. Potential items were identified by reviewing the relevant literature on MI and two coding instruments: the Coding System for Integrity of Treatment-Motivational Interviewing (CoSIT-MI; De Jonge, 2005) and the Motivational Interviewing Treatment Integrity Code (MITI; Moyers, Martin, Manuel, Miller, & Ernst, 2007). The reliability and sensitivity for detecting improvement in the use of MI resulting from practice following MI training, have been found good for the CoSIT (De Jonge, 2005) and also for the MITI (Moyers et al., 2005; Pierson et al., 2007). Items were selected on the basis of how well they reflect the underlying spirit of MI and their perceived ability to detect improvements in parents' performances of MI. This focus was based on the assumption that proficiency in MI skills could be reached only if parents had a clear understanding of the interpersonal processes underlying MI. We expected that this understanding would encourage parents to adopt an approach toward their children that was characterized by collaboration, evocation, and respecting autonomy. After consensus had been reached, 15 items were retained for the
The aim of IST was to teach parents practicing the skills. The training in interaction skills was based on the kinds of training were standardized according to a detailed manual and included lectures, role-plays, and homework assignments for the study were offered two group sessions of family psycho-education in the first month of the hospitalization. After psycho-education had been completed, the parents participated in either FMI or RFS over a period of 6 months.

2.4. Family interventions

According to standard routine care, all patients and parents in the study of the MI Network of Trainers (MINT) trained them to teach MI skills for patients with recent-onset schizophrenia. The sequence and content of the sessions were based on the stages of the learning model for MI (Miller & Rollnick, 2002). The aim of the MI training in this project was to teach parents how to promote changes in the cannabis use of patients with recent-onset schizophrenia. The sequence and content of the sessions were based on the stages of the learning model for MI (Miller & Rollnick, 2002). After becoming familiar with the underlying philosophy of MI, the parents were taught skills in asking open questions, reflecting feelings, and formulating summaries to identify, elicit, and reinforce patient's self-motivational statements for changing their cannabis use (i.e., change talk). In the last part of the training, parents were taught how to identify and deal with the patient's resistant behavior. When the patient was willing to change, the parents were taught how they could assist the patient in formulating and carrying out a change plan. Although parents were encouraged to apply MI whenever they found it appropriate, they were advised to do so specifically at moments when the patient was open to talking about his or her cannabis use or expressed concern about or discontent with the present state.

2.4.1. Family Motivational Intervention (FMI)

FMI compromised six group sessions of interactions skills training and six group sessions of MI skills training. Each session lasted 3 hours and sessions were scheduled every other week. Groups consisted of 12 to 14 parents, including both single parents and couples. Both kinds of training were standardized according to a detailed manual and included lectures, role-plays, and homework assignments for the training. The training in interaction skills was based on the Interaction Skills Training (IST) program for schizophrenia (Kuipers, Linszen, Kuipers, & Keet, 2009). The aim of IST was to teach parents communication and problem-solving skills to cope with problems related to recent-onset schizophrenia and thereby reduce family tension and stress. The following key skills were practiced: active listening, sending clear signals and maintaining boundaries. MI skills training was based on the underlying spirit of MI including the elements collaboration, evocation, and respecting autonomy, and on basic MI principles, such as rolling with resistance, expressing empathy, developing discrepancy (between the person’s current behavior and his or her goals and values), and supporting self-efficacy (Miller & Rollnick, 2002). The aim of the MI training in this project was to teach parents how to promote changes in the cannabis use of patients with recent-onset schizophrenia. The sequence and content of the sessions were based on the stages of the learning model for developing competence in MI (Miller & Moyers, 2006). After becoming familiar with the underlying philosophy of MI, the parents were taught skills in asking open questions, reflecting feelings, and formulating summaries to identify, elicit, and reinforce patient's self-motivational statements for changing their cannabis use (i.e., change talk). In the last part of the training, parents were taught how to identify and deal with the patient's resistant behavior. When the patient was willing to change, the parents were taught how they could assist the patient in formulating and carrying out a change plan. Although parents were encouraged to apply MI whenever they found it appropriate, they were advised to do so specifically at moments when the patient was open to talking about his or her cannabis use or expressed concern about or discontent with the present state.

2.4.2. Routine Family Support (RFS)

Before written informed consent was requested, parents were assured that RFS would continue to be offered regardless of whether or not they agreed to participate in the research. RFS included consultations with an experienced family therapist about topics such as emotional processing, medication management, and social re habilitation. Parents determined their own topics, and formal skills were not practiced. In accordance with FMI, RFS was scheduled every other week across a 6-month period, with a maximum of 12 sessions. Differences between FMI and RFS sessions were that RFS lasted 1 hour instead of 3 hours, and the sessions were offered individually to the single parents or to the parent couples instead of in a group format.

2.5. Clinicians training

Two clinicians, who were licensed to conduct family consultations for patients with schizophrenia, performed the FMI training program. Both clinicians had been trained in MI specifically for the project, and they had gained experience in using MI in their consultations for a period of 5 months prior to the start of the first FMI group. A member of the MI Network of Trainers (MINT) trained them to teach MI skills to the parents. Supervision sessions were held throughout the first

<table>
<thead>
<tr>
<th>Item</th>
<th>Brief description</th>
</tr>
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<tbody>
<tr>
<td>MI adherence and competence</td>
<td></td>
</tr>
<tr>
<td>Affirmation</td>
<td>Parent makes a positive statement/compliment or comments on the child's personal strengths, abilities, or efforts to bring about change.</td>
</tr>
<tr>
<td>Exploring feelings</td>
<td>Parent makes an effort to grasp the child's feeling and also what the child is feeling but has not yet explicitly mentioned.</td>
</tr>
<tr>
<td>Expressing optimism</td>
<td>Parent exhibits confidence in the child's personal strengths or efforts to change.</td>
</tr>
<tr>
<td>Evocation</td>
<td>Parent explores the child's reasons for, ideas about, and efforts in how change should occur.</td>
</tr>
<tr>
<td>Reflective listening</td>
<td>Parent uses a statement that repeats, paraphrases, or summarizes what the child said.</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Parent fosters and encourages power sharing and incorporates the child's opinions.</td>
</tr>
<tr>
<td>Develop discrepancy</td>
<td>Parent elicits and reinforces the child's ambivalence about reasons for change.</td>
</tr>
<tr>
<td>Rolling with resistance</td>
<td>Parent shifts focus, gives a positive reflection, or reframes when the child expresses resistance.</td>
</tr>
<tr>
<td>Global empathy</td>
<td>Parent shows evidence of understanding or makes efforts to grasp the child's point of view.</td>
</tr>
<tr>
<td>MI non-adherence</td>
<td></td>
</tr>
<tr>
<td>Arguing</td>
<td>Parent uses arguments to persuade without taking into account child's point of view.</td>
</tr>
<tr>
<td>Blaming</td>
<td>Parent emphasizes that the child is at fault for the problem or the difficult situation.</td>
</tr>
<tr>
<td>Labeling</td>
<td>Parent uses one or more negative connotations to describe the child's behavior.</td>
</tr>
<tr>
<td>Information gathering</td>
<td>Parent follows a questions-answer pattern for information gathering without using sufficient reflection or reframing in order to explore the child's motivations and ideas.</td>
</tr>
<tr>
<td>Following own agenda</td>
<td>Parent follows own direction and shows no interest or only superficial interest in the child's reasons for change and/or ignores child's ideas and experiences.</td>
</tr>
<tr>
<td>Expert</td>
<td>Parent relies on giving information and advice or offers solutions without asking permission or without acknowledging the child's point of view and circumstances.</td>
</tr>
</tbody>
</table>
FMI group, in which the clinicians received feedback and additional coaching based on their videotaped performances while training parents how to use MI according to the instructions in the manual. This kind of reflective practice has been shown to be effective in strengthening clinicians’ competence in MI (Bennett et al., 2007). To maintain the clinician’s skills in MI training, supervision was continued at regular intervals throughout the trial.

2.6. Statistical analyses

Inter-rater reliability of the coding instrument was calculated using the intra-class correlation coefficient (ICC), in a two-way mixed model (Shrout & Fleiss, 1979), with mean category scores as the fixed effect and raters as the random effect. Relative to Pearson correlations, ICC is a more conservative estimate of reliability because it takes into account possible differences in the mean ratings between raters. The internal consistency of the MI adherence, MI competence and MI non-adherence was assessed at baseline and follow-up using Cronbach’s alpha. For additional analyses, the items that comprised the non-adherence category were recoded into 0 when the MI non-adherence behavior was not exhibited and into 1 when the MI non-adherence behavior was exhibited. Category scores were computed for MI adherence, MI competence, and MI non-adherence by summing the scores on the respective items. To meet the assumption of normally distributed scores applied to parametric tests, log transformations were conducted on the baseline and follow-up category scores. If a distribution remained skewed or kurtosis was significant, non-parametric test was used. Between group differences on MI adherence, MI competence, and MI non-adherence by summing the scores on the dependent variables and the log transformed follow-up scores as the dependent variables and the log transformed adherence, MI competence, and global empathy were assessed using a one-way analysis of covariance (ANCOVA), with the log transformed baseline scores as the covariates. To assess group differences in changes from baseline to follow-up on MI non-adherence, a Mann-Whitney U test was conducted. For all comparisons, two-tailed tests were used, and level of significance was set at \( p < .05 \).

3. Results

3.1. Parents’ participation and characteristics

Fig. 1 shows the progress of the parents through the trial. Of the 141 parents who were approached about participation, 97 agreed to participate and attended the baseline assessment. After informed consent was obtained, the parents were allocated to FMI \( (n = 53) \) or RFS \( (n = 44) \). Of the parents who had been allocated, 25 single parents and 14 couples participated in the FMI group, and 22 single parents and 11 couples participated in the RFS group. None of the parents were trained in mental health care or had any prior knowledge of MI. At baseline and at follow-up, some parents declined to perform the role-play, or they were not included because the parent stopped the role-play before at least 6 minutes had elapsed. For the parents who attended the baseline assessment, taped role-play assessments could be made and were found to be suitable for 42 (79%) parents in the FMI group and 35 (80%) parents in the RFS group. At baseline, parents in the two groups did not differ significantly in terms of gender, marital status (e.g. single or partnered), ethnicity, or amount of contact time with the patient \( (ps \text{ range from .45 to .97}) \). Parents in the two groups also did not differ significantly with respect to demographic or clinical characteristics of the child, details of which have been reported previously (Smeerdijk et al., 2012). For the parents who attended the follow-up assessment \( (87\% \text{ in the FMI group and } 73\% \text{ in the RFS group}) \), taped interactions could be made and were found to be suitable for 35 (76%) parents in the FMI group and from 26 (81%) parents in the RFS group. At follow-up, parents in the two groups did not differ significantly in terms of gender, marital status, ethnicity, or amount of contact time with the patients \( (ps \text{ range from .11 to } .75) \).

3.1.1. Reliability estimates of the categories

Inter-rater reliability (ICCs) and internal consistency (Cronbach’s alphas) were calculated for the categories: MI adherence, MI competence, and MI non-adherence. The ICCs ranged from .63 to .81,
indicating adequate to good agreement between the raters. Considering the small number of items within each category (< 10), internal reliability at baseline was considered acceptable for all categories ($\alpha = .63$ to .74). At follow-up, the internal reliability was acceptable for MI adherence ($\alpha = .72$) and competence ($\alpha = .66$), and good for non-adherence ($\alpha = .83$).

### 3.1.3. MI adherence, competence and global empathy

The parents in the FMI and RFS groups did not significantly differ on baseline mean scores on the categories MI adherence, MI competence, or global empathy (all $p$'s > .05). After baseline scores had been statistically controlled, the mean category score on MI adherence at follow-up was significantly higher in the FMI group than in the RFS group. Exploratory analyses revealed that parents in the FMI group exhibited a significant increase in overall MI adherent behaviors from baseline to follow-up, whereas parents in the RFS group showed no change. However, the number of different MI adherent behaviors that were used in both groups was still relatively small, FMI: 3.68 (SD = 1.80) and RFS: 3.15 (SD = 2.19). Within the FMI group, the single parents and the parent couples did not significantly differ at follow-up on mean MI adherence scores, after adjusting for the baseline scores.

At follow-up, when baseline scores were entered as covariate, competence in the use of the MI adherent behaviors was significantly higher in the FMI group than in the RFS group. Specifically, MI competence increased by 6.08 (SD = 10.75) points in the FMI group, but increased only by 0.31 (SD = 8.06) points in the RFS group. After adjusting for baseline scores, there was no significant difference within the FMI group between the single parents and the couples on their follow-up mean scores on MI competence.

Finally, at follow-up global empathy was significantly higher in the FMI group than in the RFS group after the baseline score had been controlled. Group baseline and follow-up mean category scores on MI adherence, and MI competence, and on global empathy are summarized in Table 2, which also shows the results of the between-groups analyses of covariance on the baseline and follow-up mean category scores.

<table>
<thead>
<tr>
<th>Category</th>
<th>FMI baseline</th>
<th>FMI follow-up</th>
<th>RFS baseline</th>
<th>RFS follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI adherence</td>
<td>12.19 (3.63)</td>
<td>14.54 (5.42)</td>
<td>12.74 (3.89)</td>
<td>12.54 (3.35)</td>
</tr>
<tr>
<td>MI competence</td>
<td>16.55 (7.09)</td>
<td>22.57 (9.31)</td>
<td>17.49 (7.22)</td>
<td>18.62 (7.16)</td>
</tr>
<tr>
<td>Global empathy</td>
<td>3.52 (0.89)</td>
<td>4.38 (1.38)</td>
<td>3.26 (1.38)</td>
<td>3.69 (1.26)</td>
</tr>
</tbody>
</table>

### 3.1.4. MI non-adherence

At baseline, the FMI and RFS groups did not significantly differ on their mean score on the MI non-adherence category. In the FMI and RFS group, parents exhibited a mean number of 1.38 (SD = 1.53) and 1.42 (SD = 1.75) MI non-adherent behaviors, respectively. A Mann–Whitney U test indicated that the two groups did not significantly differ in changes in overall MI non-adherence from baseline to follow-up. At follow-up, the mean number of exhibited MI non-adherent behaviors was .68 (SD = 1.51) in the FMI group and 1.31 (SD = 1.57) in the RFS group.

### 4. Discussion

The results show that it is feasible to use FMI to teach MI skills to parents of patients with recent-onset schizophrenia and co-occurring cannabis use. In role-play interactions, parents who had been trained in FMI used MI skills more often and performed these skills more competently than parents who had received RFS. These differences were maintained for at least 3 months after the training had been completed. Parents who had received the FMI training were also more likely to express empathy in the role-play sessions than parents who had received RFS. Contrary to the expectations, FMI was not superior to RFS in decreasing parents’ MI non-adherent behaviors. Nevertheless, it was difficult to evaluate this outcome statistically because of the infrequency with which MI non-adherent behaviors occurred. Given that cannabis use by patients with schizophrenia is associated with poor illness outcomes (Linsen et al., 1994; Zammit et al., 2008), it was surprising that the topic of cannabis use did not elicit from the parents more MI non-adherent behaviors, such as arguing, blaming, and labeling. This raises the question of whether the parents’ behavior with the simulated-child actor was different (e.g., less authoritarian) than how they usually interact with their child. However, similar methods have been found to be a valid and reliable way of evaluating MI skills in professionals (Bennet, Roberts, Vaughan, Gibbins, & Rouse, 2007). Furthermore, the use of a simulated-child actor allowed the parents’ behavior to be evaluated in a standardized manner. Nevertheless, future studies would benefit from asking parents to rate how similar the role-play interaction was to one they would have with their actual child or intended to have with their child.

To measure MI performance in a non-therapeutic setting, a modified coding instrument was used, which had not previously been evaluated for its psychometric properties. Nevertheless, the FMI coding instrument appears to have good to excellent inter-rater reliability and satisfactory internal consistency. Furthermore, the scores of the two groups before and after the training indicate good sensitivity for detecting improvement in MI as result of training. Despite these positive findings, further evaluation of the FMI coding instrument is warranted. For example, the coding instrument needs to be critically evaluated for its content validity and its relationship to well-established measures such as the MFI.

Although normative data are not available for defining a threshold of proficiency in MI for non-professionals such as parents, the overall results show that it is possible to enhance parents’ performance of MI through training. Specifically, increased adherence and competence rates were found for all of the MI adherent behaviors that reflect the underlying spirit of MI (e.g., evocation, collaboration, and affirming patient’s autonomy). This is an important finding because we believe that understanding the process of MI is crucial for practicing the method as intended, particularly for non-professionals in naturalistic interactions. It was also encouraging that the MI-trained group showed improvement in expressing empathy, especially because this is considered to be a key component of MI (Miller & Rollnick, 2002).

Despite these positive findings, additional research is obviously needed to evaluate the unique application of MI to naturalistic parent–child interactions. For example, further research needs to identify whether and how parents could use MI skills with their child, and how they may be able to create opportunities to use these skills. A better understanding of this could be particularly useful for modifying FMI to further improve the proficiency of parents in how and when to use MI. Even when training modifications are made, it may remain difficult for people with no clinical background to satisfactorily learn complex clinical skills such as MI. On the other hand, a lack of clinical experience might also facilitate MI skills acquisition among parents and other non-professionals, because

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Table 2: Parents’ mean (SD) category scores at baseline and at 10-month follow-up, and ANCOVA results for their change in mean category scores.

<table>
<thead>
<tr>
<th>Category</th>
<th>FMI baseline</th>
<th>FMI follow-up</th>
<th>RFS baseline</th>
<th>RFS follow-up</th>
<th>$F$ (df)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI adherence</td>
<td>12.19 (3.63)</td>
<td>14.54 (5.42)</td>
<td>12.74 (3.89)</td>
<td>12.54 (3.35)</td>
<td>4.97 (1.60)</td>
<td>.03</td>
</tr>
<tr>
<td>MI competence</td>
<td>16.55 (7.09)</td>
<td>22.57 (9.31)</td>
<td>17.49 (7.22)</td>
<td>18.62 (7.16)</td>
<td>4.63 (1.60)</td>
<td>.04</td>
</tr>
<tr>
<td>Global empathy</td>
<td>3.52 (0.89)</td>
<td>4.38 (1.38)</td>
<td>3.26 (1.38)</td>
<td>3.69 (1.26)</td>
<td>7.75 (1.60)</td>
<td>.01</td>
</tr>
</tbody>
</table>
they do not have prior therapeutic beliefs or habits that could interfere with their MI performance. This possibility accords well with the suggestion that it is difficult to learn MI when the person knows traditional counseling methods that might be incompatible with MI (Miller & Mount, 2001; Söderlund et al., 2011).

Certain limitations of the present study should be acknowledged. Almost one-third of the parents who were invited to participate refused to do so. Given the frequency of the meetings (12 sessions across 6 months) and the high level of commitment that was shown (91 and 89% in the FMI and RFS groups, respectively, attended at least eight sessions), the parents who did participate were clearly motivated to learn and practice the new behavior skills. The participants, therefore, might not be fully representative of the population of parents of children with recent-onset schizophrenia and co-occurring cannabis use. Furthermore, it is not known whether our findings can be generalized to different cultural settings or treatment systems, such as those in which cannabis use has not been decriminalized.

Another limitation is that in the role-play interactions the role of the child was played by the first author who had to remain blind throughout the study about the assignment of the parents to groups. Although efforts were made to maintain the blindness, such as by using separate rooms for research and therapy staff and reminding parents not to disclose their group allocation, the possibility cannot be ruled out that parents’ allocation was revealed by their MI performance at follow-up. As a result, the first author was aware of the allocation of at least eight (23%) parents in the FMI group.

Because the parents in the FMI group received training in both MI and interaction skills, it is also not known how much of the observed improvement in MI skills was due to the interaction skills training instead of to the MI training. However, the greatest improvement was found in the behaviors that reflect the underlying process of MI, which was a central theme of the MI training but not of the interaction skills training. Nevertheless, the interaction skills training could have had an impact on the parents’ MI behaviors independent of the training in MI.

In conclusion, this study demonstrated that FMI is a feasible training method for improving MI skills in parents of patients with recent-onset schizophrenia and co-occurring cannabis use. However, additional efforts are needed to enable parents to achieve greater proficiency in MI. Future studies should clarify why MI helps parents to change their child’s cannabis use.

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