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À deux, c'est mieux: Étude pilote portant sur la faisabilité, l'acceptabilité et l'impact potentiel d'une intervention de groupe sur les relations amoureuses pour jeunes hommes ayant un trouble psychotique

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Résumé

Objectif: Évaluer la faisabilité, l'acceptabilité et l'impact potentiel d'une intervention de groupe cognitive comportementale de 12 séances portant sur les relations amoureuses pour des jeunes hommes célibataires ayant un trouble psychotique. **Méthode:** Un format A-B-A intra-sujets (*n*=7) où chaque participant est son propre contrôle. Des ANOVAs intra-sujets à mesures répétées ont été conduites pour comparer des facteurs pouvant contribuer aux difficultés à initier et maintenir une relation intime (meilleurs fonctionnement social, fonctionnement amoureux, estime de soi, théorie de l'esprit, et moins d'autostigmatisation) à travers le temps (6 temps de mesure). **Résultats:** La faisabilité et l'acceptabilité ont été établies. Quant à l'impact potentiel de l'intervention, des différences significatives dans le temps ont été trouvées pour les facteurs de fonctionnement social (sous-échelle «behaviors»), de fonctionnement amoureux et de la théorie de l'esprit (sous-échelle «mentalizing»). Aucune différence significative dans le temps n'a été trouvée pour les facteurs de fonctionnement social (sous-échelle «beliefs»), d'estime de soi, d'autostigmatisation et de la théorie de l'esprit (sous-échelle «reasoning»). **Conclusion:** Des études similaires de plus grande envergure avec des groupes contrôles devraient être faites afin de contribuer à aider davantage les jeunes hommes ayant un trouble psychotique dans leur développement social et amoureux.

Mots-clés: intimité, psychose précoce, relations amoureuses, rétablissement, thérapie cognitive comportementale

Abstract

Aim: To assess the feasibility, acceptability and potential impact of a cognitive behavioral group intervention occurring over 12 sessions and focusing on romantic relationships for single men with early psychosis. **Methods:** An A-B-A within-subjects design (n=7) where each participant act as his own control. Within-subjects repeated measures ANOVAs were conducted to compare factors that might lead to difficulties initiating and maintaining intimate relationships (better social functioning, romantic relationship functioning, self-esteem, theory of mind, and less self-stigma) across time (six timepoints). **Results:** Feasibility and acceptability were established. As for the potential impact of the intervention, significant time differences were found for the social functioning ('behaviors' subscale), the romantic relationship functioning, and theory of mind ('mentalizing' subscale). No significant time differences were found for the social functioning ('beliefs' subscale), self-esteem, self-stigma, and theory of mind ('reasoning' subscale) factors. **Conclusions:** Similar and large-scale studies with control groups should be conducted to further help men with early psychosis in their social and romantic development.

Key words: cognitive behavioral therapy, early psychosis, intimacy, recovery, romantic relationships

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A-B-A Où A représente le temps et B représente l'intervention

ANOVA Analysis of variance

BPRS-E Brief Psychiatric Rating Scale-Expanded Version

CBT Cognitive behavioral therapy

FESFS First Episode Social Functioning Scale

ISMIS Internalized Stigma of Mental Illness Scale

MEPs Men with early psychosis

NOS Not otherwise specified

RRFS Romantic Relationship Functioning Scale

SEFS-SF Self-Esteem Rating Scale-Short Form

1. INTRODUCTION

Men with early psychosis (MEPs) are for the most part single, despite a strong desire to experience romantic relationships and the documented positive impact of affective support on the recovery process in mental disorders (Slade & Hayward, 2007). According to these authors, recovery can be defined as the personal process to overcome a psychiatric diagnosis' negative impacts despite the disorder's continual presence. It also refers to the work done on oneself that allows individuals to live a satisfactory life that is full of hope and that feels contributive, despite the disorder's limitations (Slade & Hayward, 2007). In other words, recovery means to live a fulfilled life, which implies all aspects of life, such as family, employment, school, independent living, hobbies, but also romantic relationships. Many studies have focused on these different aspects of life among psychotic individuals, except romantic relationships, which seem to have been neglected (Jääskeläinen, Juola, Hirvonen, McGrath, Saha, Isohanni, Veijola, & Miettunen, 2012; Bertolote & McGorry, 2005; Slade & Hayward, 2007).

People with a psychotic disorder have a narrower social network, which implies less friends and therefore less meeting opportunities (Pillay, Lecomte, & Abdel-Baki, 2016). Indeed, they often have premorbid social functioning difficulties that may come from childhood that predict deficits in social functioning after a first episode of psychosis (Lecomte, Corbière, Ehmann, Addington, Abdel-Baki, & MacEwan, 2014). Despite evidence that men with psychosis are less likely to engage in a romantic relationship than men in the general population, or that MEPs experience more difficulties in romantic relationships, are less socially engaged, and describe their social life as less interesting than women with early psychosis, few studies

focused on this issue. An intimate relationship is fundamental and primary in one's life and is highly desired by many individuals with a psychotic disorder, whom may consider it as part of their life project, on equal standing with employment and independent living. Many factors may play a role in the lack of social engagement of MEPs and therefore in their romantic relationship difficulties. These factors concern difficulties in social contacts, in cognitive flexibility, in verbal skills and in interpersonal problem-solving, anticipated discrimination, and a misunderstanding of intimacy (Bonfils, Rand, Luther, Firmin, & Salyers, 2016; Pillay et al., 2016; Lecomte, Wallace, Perreault, & Caron, 2005; Latour-Desjardins, Abdel-Baki, Auclair, Collins, & Lecomte, 2017).

People with a psychotic disorder also have to deal with stigma, which refers to a society's extremely negative reactions to people with a mental disorder and which creates social distance from them (Franz, Carter, Leiner, Bergner, Thompson, & Comption, 2010). Furthermore, stigma has a deleterious effect on personal development, thereby limiting sexual and relational possibilities (McCann, 2003). One may also internalize this stigma, called self-stigma, for example, when one prevents himself or herself from doing something because of the mental disorder. Self-stigma also has a negative impact on social functioning and therefore on meeting opportunities. People with a psychotic disorder may thus have a tendency to think that they should not attempt to engage in intimacy with another person because of their mental disorder (Knight, Wykes, & Hayward, 2006).

Moreover, people with a psychotic disorder often have low levels of self-esteem and this can be a consequence of the negative effects of stigma (Knight et al., 2006). For example, they may frequently think that they will be rejected and will not be able to find a life partner

because of their diagnosis (Rose, Willis, Brohan, Sartorius, Villares, Wahlbeck, & Thornicroft, 2011). Also, more difficulties in meeting potential partners may arise from a lack of experience and low self-confidence (Redmond, Larkin, & Harrop, 2010).

Some romantic relationship obstacles from MEPs' perspectives include social cognition difficulties, such as recognizing others' emotions and intentions (Latour-Desjardins et al., 2017). This refers to Theory of mind deficits, namely, mentalizing and reasoning deficits, which have been linked to many symptoms in psychotic disorders (Achim, Ouellet, Roy, & Jackson, 2011; Bora, Yucel, & Pantelis, 2009).

According to Bonfils and colleagues (2016), romantic relationships in themselves have a positive impact on recovery and functioning in people with psychotic disorders. A romantic relationship seems to break social isolation, and therefore, helps the individual become better supported in managing their disorder and improving many social functioning spheres. In general, social functioning includes all that is necessary to successfully live in today's society, from the ability to be independent, to the establishment of positive relationships (social skills) and to school and work-related skills (Lecomte et al., 2014).

Group cognitive behavioral therapy (CBT) has been shown to be efficacious in reducing social difficulties among people with early psychosis. For example, a study comparing a group CBT program to social skills training, a well-known and recognized treatment for people with severe mental illness, showed that group CBT had a significant effect over time on participants' overall symptoms, as well as positive effects on self-esteem and active coping skills at post-treatment compared to the control group, in addition to lower drop-out rates, making group CBT a promising choice for people with early psychosis (Lecomte, Leclerc,

Corbière, Wykes, Wallace, & Spidel, 2008).

Furthermore, group interventions seem to work better with people with early psychosis compared to individual interventions. Indeed, this can be partly explained by the need for these individuals to feel like they belong in a group of peers, the stronger impact of normalization, and more (Leclerc & Lecomte, 2012). This study also showed that group CBT is effective in reducing symptoms, but also offers advantages that surpass basic skills training mentioned above, such as increased self-esteem, more active coping strategies when confronted with stress, and increased social support.

As described in the previous paragraphs, given the important role that social functioning, romantic relationship functioning, self-esteem, self-stigma, and the theory of mind abilities seem to play in MEPs' difficulties in initiating intimate relationships, a group CBT targeting romantic relationships and focusing on the above factors has been established for MEPs, and was validated using a clinical team focus group and a patient-partner. The present study now aims to determine the feasibility, acceptability and potential impact of this intervention on these same factors in MEPs.

It was hypothesized that the intervention would be feasible and acceptable, and that significant improvements would be observed across each scale of interest, including the symptoms assessment.

2. METHODS

2.1 Design

This study used an A-B-A within-subjects design whereby each participant acted as his own control. This enabled the authors to determine the impact of the intervention while also taking into consideration the effect of time. This methodology also offers a good estimate of potential impacts without having to recruit a considerable number of participants to randomize them into two distinct groups (Knight et al., 2006). The A-B-A within-subjects design is a recognized methodology for determining the impact of an intervention in psychotherapy studies (Byiers, Reichle, & Symon, 2012).

2.2 Measures

The Brief Psychiatric Rating Scale-Expanded version (BPRS-E) is an instrument that is frequently employed to document positive and negative psychiatric symptoms using a total of 24 items. Many studies have shown that the expanded version is a sensitive and effective measure for assessing these symptoms, and has a good inter-rater reliability (Ventura, Nuechterlein, Subotnik, Gutkind, & Gilbert, 2000). It has also been validated with geriatric and non-geriatric psychiatric samples (Panos, 2004). The interviewer normally asks the questions out loud, taking care to focus only on the past two weeks for most symptoms, while other symptoms are assessed through live observations. Each symptom is given a level of severity ranging from 1 (absent) to 7 (extremely severe). A total score average is then attributed also ranging from 1 (absent) to 7 (extremely severe). The French version of the BPRS-E was used for the study (Mouaffak, Morvan, Bannour, Chayet, Bourdel, Thepaut,

Kazes, Guelfi, Millet, Olié, & Krebs, 2010).

The First Episode Social Functioning Scale (FESFS) has nine subscales assessing social functioning, including autonomy and work, but in the present study, the authors focused solely on the Friendship and Intimacy subscales because these appeared to be more closely linked to romantic relationship difficulties in MEPs. Both subscales are divided into 'behaviors' and 'beliefs' subscales and evaluate the frequency of a specific behavior in the past three months, for example, 'In the past 3 months, I have been meeting with potential partners', as well as what the person thinks about himself or herself in relation to behavior, for example, 'I am totally comfortable meeting potential partners'. Each subscale has 11 questions, which are rated on a 4-point Likert scale ranging from 'never' to 'always' for the 'behaviors' subscale, and from 'totally disagree' to 'totally agree' for the 'beliefs' subscale. These scores were thus used for analyses. The instrument contains 77 items in total and has an internal consistency ranging from 0.63 to 0.80 depending on the subscale. Both convergent and discriminant validity have previously been established (Lecomte et al., 2014). The French version of the FESFS was used for the study, developed by these same authors.

The Romantic Relationship Functioning Scale (RRFS) measures romantic relationship functioning and contains 22 items, each evaluated on a 5-point Likert scale, from 'totally disagree' to 'totally agree'. It includes questions such as 'I feel confident in my romantic relationship skills' and 'I feel disconnected from my peers'. The global scores were used for statistical analyses. It has a good internal consistency in the general population (α=0.89) and in samples of people with severe mental disorders (α=0.91). Construct and convergent validity have also been established (Bonfils et al., 2016). The RRFS was translated in French by the

study researchers, using back-translation for the purpose of the study.

The Self-Esteem Rating Scale-Short Form (SERS-SF) assesses self-esteem, contains 20 items and is rated on a 7-point Likert scale ranging from 'never' to 'always'. It has been validated in a general population sample as well as a sample of people with severe mental disorders (Nugent, 1995; Lecomte, Corbière, & Laisné, 2006). The instrument's internal consistency is good (α=0.89), its test-retest reliability is adequate (r=0.91), and it has shown adequate convergent validity. Ten items assess positive self-esteem through positive affirmations about the self, for example, 'I think my friends find me interesting', and the other ten items assess negative self-esteem through negative affirmations about the self, for example, 'I feel inferior to others'. The global positive and negative self-esteem scores were used for statistical analyses. The French version of the SERS-SF was used for the study (Lecomte et al., 2006).

The Internalized Stigma of Mental Illness Scale (ISMIS) assesses self-stigma, contains 29 items, each on a 4-point Likert scale, ranging from 'highly disagree' to 'highly agree'. A sample item would be: 'I feel shy or ashamed to have a mental illness'. The global scores were used for statistical analyses. The instrument has a very good internal consistency (α=0.90) and a very good test-retest reliability (r=0.92). The instrument has also demonstrated excellent concurrent, divergent, and construct validity (Ritsher, Otilingam, & Grajales, 2003). The French version of the ISMIS was used for the study (Brohan, Dolores, Sartorius, & Thornicroft, 2011).

Lastly, Achim and colleagues' (2011) Stories Test is a French instrument used to measure the theory of mind abilities, specifically mentalization and reasoning. Administration involves asking the participant to read thirty short stories out loud and verifying, via questions, the

concordance level between their answers compared to those normally expected in people who generally make good inferences about others' mental states. The items are separated in two main subscales: mentalizing questions and reasoning questions. Each question receives either 2, 1, or 0 points, depending on the answer provided. An example of a question assessing mentalization would be: 'What is Paul trying to say right now?' for a sentence with double meaning: 'Paul is going to an important meeting, but is running late. He tells his wife ''Jane, I want to put on my blue sleeve, but it is very wrinkled'' '. An example of a question assessing reasoning would be: 'Why would the clothes be all wet?' for a story about a sky getting very dark and a protagonist coming home from shopping to find the clothes hanging on the clothesline outside, completely wet. The global mentalizing and reasoning scores were used for statistical analyses. The instrument has shown adequate convergent validity with the Sarfati's cartoon task (r=0.42, p<0.001) and an excellent inter-rater reliability (r=0.98, p<0.001).

The questionnaire assessing participants' satisfaction with respect to the intervention was created by the main researcher and was used to document qualitative information regarding what the participants thought about the intervention. It contained five questions such as 'What did you like about the intervention?', 'What did you dislike?', 'What did you learn?', 'What would you like to see change?', and 'Would you recommend the intervention to a friend and if yes, why?'.

2.3 Procedure

The project was approved by the institutions' research ethics boards of both participating clinics. With the help of psychiatrists at the head of each clinic and through an advertising

poster, mental health workers recruited potential participants that met all criteria. A total of 29 young men were approached to participate to this study and the recruitment period lasted for about two weeks in each clinic. Eight men wishing to engage in a romantic relationship were recruited to participate to this pilot study and gave consent, the first half coming from the first clinic (clinic 1) and the other half coming from the second clinic (clinic 2). Inclusion criteria were to have had at least one psychotic episode, be a single and heterosexual man between the ages 18 to 35, and be interested in receiving help regarding romantic relationships. Exclusion criteria consisted only of being unable to communicate in French.

All participants first completed a socio-demographic questionnaire at baseline (T0), for descriptive purposes. The Brief Psychiatric Rating Scale-Expanded version (BPRS-E) was used to document participants' symptoms at each timepoint. The participants also completed the following questionnaires at baseline: the First Episode Social Functioning Scale (FESFS) – Friendship and Intimacy subscales; the Romantic Relationship Functioning Scale (RRFS); the Self-Esteem Rating Scale-Short Form (SERS-SF); the Internalized Stigma of Mental Illness Scale (ISMIS); and the Stories Test. Four weeks after baseline, participants once again completed this battery of questionnaires (T1). They took part in the group intervention once a week over the course of 12 weeks. At the fourth and eighth sessions (T2 and T3), they completed the FESFS-SF and RRFS (primary dependent variables). After the intervention had ended, participants were again asked to answer the entire battery of questionnaires (T4), as well as a questionnaire that evaluated their satisfaction with the intervention (see below for description). Finally, they were asked to complete the entire battery of questionnaires one last time four weeks later as part of a follow-up (T5). All instruments previously mentioned were administered individually by a research assistant.

2.4 Intervention

This cognitive behavioral group intervention was developed by LESPOIR (*laboratoire d'étude sur la schizophrénie et les psychoses orienté vers l'intervention et le rétablissement*), following analyses from previous studies, qualitative interviews and professional consultations. It is based on a CBT model, with added themes on attachment, self-esteem, problem-solving, social cognition (i.e., theory of mind), emotion recognition, and emotion regulation. It was provided on a weekly basis for twelve consecutive weeks by two mental health professionals. Sessions had a cognitive component (i.e., discussions, reflexive exercises, and take-home exercises) and a behavioral one (i.e., practical take-home exercises and role-plays). The entire intervention follows a manual with specified themes and content for each session (see Table 1).

More specifically, session 1 focused on determining whether one is ready to initiate an intimate relationship, with the help of self-focused exercises such as ''Who am I?'', ''Why is it important for me being in a relationship?'', and ''What do I think are the pros and cons of being in a relationship?''. In a more psychoeducational scope, information was provided about the vulnerability-stress-protective factors model to understand symptoms. Sessions 2 and 3 focused on strategies to increase social skills (i.e., increasing the chances of meeting someone, showing that one is or isn't interested in the other) and included some work on social cognition, such as recognizing signals that the other is or isn't interested. A role-play exercise on meeting someone interesting was also conducted.

Session 4 focused on personal values and recognizing whether a clash exists between these values and the relationship. Session 5 focused instead on identifying the qualities that could be

appreciated by another (i.e., social cognition), as well as the pros and cons of disclosure. The take-home exercise concretely asked participants to find a potential bad habit and figure out how to change it. Session 6 focused on understanding one's emotions and learning what love is through self-observation and social skills exercises. Session 7 focused on social cognition and more specifically understanding what is likely going on inside the other person's head. An in-session exercise and a take-home exercise on the cognitive biases model were also conducted (i.e., describing a situation and identifying one's beliefs about the situation and the consequences attached to these beliefs).

Session 8 focused instead on attachment style, that is, knowing one's fears and how to talk about them (using social skills). Sessions 9 and 10 focused on sexuality and intimacy, with psychoeducation on consent, pornography, and contraception. Work on social skills was also continued and emphasized how to talk about sexual dysfunctions with a potential partner. The before-to-last session, session 11, focused on problem-solving through role-play and the cognitive biases model described earlier (i.e., situation-belief-consequence), as well as pros and cons of each solution.

The last session, session 12, focused on communication skills through psychoeducation and role-plays and addressed reconciliation in the face of conflicts. At the end of the session, participants had to review what was discussed during the intervention with questions such as 'What did I learn about myself?' and 'What would I like to further work on in the near future?', and were asked to provide brief feedback on what they liked and disliked throughout the sessions, what went well, etc. As described above, and to summarize, psychoeducation was an important aspect of the intervention, as were cognition and behavior. The sessions aimed at

improving problem-solving, self-esteem, self-stigma, recognizing one's own beliefs (and verifying them) and emotions, and more. Role-plays were often used as practice and participants had cognitive and/or behavioral take-home exercises after every session.

2.5 Data analysis

The results for each participant on each scale are first described. Within-subjects repeated measures ANOVAs were used to compare each scale over time. Because of the small sample, the Least Significant Difference post-hoc test was used to determine at which point in time significant differences arose.

3. RESULTS

Results will be presented through feasibility first, followed by acceptability and, finally, the intervention's impact. The intervention's feasibility was first demonstrated by the fact that it was possible to recruit MEPs wanting to receive help with romantic relationships in such a short period of time, that is to say two weeks (White, Gumley, McTaggart, Rattrie, McConville, Cleare, & Mitchell, 2011). Indeed, many were interested but many also did not participate due to social anxiety and lack of availability, commitment or interest. No descriptive statistics are available for these informations.

The intervention's acceptability was assessed through participants' presence in sessions: participation rate was 84% overall, which is excellent. Moreover, those who missed sessions often had good reasons to do so, such as an exam at school the next morning or a date with a girl. Two participants missed none of the sessions, one participant missed one session, two participants missed two sessions, and two participants missed three sessions. The last participant was considered a drop-out, having missed half the sessions. Acceptability was also measured using participant's responses to the satisfaction questionnaire, which was completed at the first assessment meeting after the intervention was over (White et al., 2011). The participants' feedback suggested they had a very good experience overall. Indeed, one participant said it helped him know what he wants in a relationship, two others said they particularly liked learning how to communicate in a relationship, and two others said what they liked most were role-plays and exercises. Overall, participants claimed that they would recommend the intervention to a friend, that they believed they had learned a lot and that often, they found the sessions to be too short. Some negative points were also mentioned, such

as wanting to talk more about specific topics, particularly sexuality.

Descriptive statistics for the total sample and specific results for each participant on each scale are shown in Tables 2 and 3, respectively. Note that for the negative self-esteem and self-stigma scores only, it is desirable that these decrease over time, whereas for all other scales, it is desirable that these increase over time.

3.1 Participant number 1

Participant number 1 was 24 years old, was never hospitalized and had a psychosis not otherwise specified (NOS) diagnosis. He had never been in a serious romantic relationship before. However, towards the end of the intervention, he became involved in a relationship and still was at follow-up. He attended all of the sessions. Constant increases were observed for his 'beliefs' and 'behaviors' friendship functioning scores (significant for 'behaviors'). Half of his 'beliefs' intimacy functioning scores were missing, but these nonetheless increased at follow-up. His 'behaviors' intimacy functioning score consistently increased (significant), as did his romantic relationship functioning score (significant). With respect to his positive self-esteem score, it also increased until the end of the intervention and continued to do so at follow-up. Similarly, his negative self-esteem score improved and maintained at follow-up. His self-stigma score improved across all the measurement timepoints. Lastly, his 'mentalizing' score (Stories Test) also increased (significant).

3.2 Participant number 2

Participant number 2 was 20 years old, was hospitalized at that same age and had a bipolar illness type I diagnosis. He had never been in a serious romantic relationship and attended

70% of the sessions. His overall 'beliefs' friendship functioning score increased at follow-up. His overall 'behaviors' friendship functioning score also increased (significant), as did his overall 'behaviors' intimacy functioning score (significant). His positive self-esteem score increased and his negative self-esteem score improved overall. Lastly, both his 'mentalizing' score (significant) and his 'reasoning' score increased.

3.3 Participant number 3

Participant number 3 was 28 years old, was hospitalized at 24 years old and had a delirious paranoid disorder diagnosis. He had had two serious romantic relationships before and attended 80% of the sessions. His overall 'behaviors' friendship functioning score increased (significant). His 'behaviors' intimacy functioning score also increased (significant). His romantic relationship functioning score also increased (significant) and his negative self-esteem score constantly improved. His T0 and T4 self-stigma scores are missing but he showed improvement from T1 to follow-up. Lastly, his theory of mind 'mentalizing' score also increased (significant).

3.4 Participant number 4

Participant number 4 was 28 years old, was first hospitalized at 26 years old (and was two other times) and had a schizophrenia diagnosis. He had never been in a serious romantic relationship and attended all of the sessions. His overall 'beliefs' friendship functioning score increased and his 'behaviors' friendship functioning score also increased (significant for 'behaviors'). His overall 'behaviors' intimacy functioning score increased (significant). His romantic relationship functioning score increased (significant), as did his positive self-esteem

score (not significant). Lastly, his 'mentalizing' score increased significantly.

3.5 Participant number 5

Participant number 5 was 31 years old, was hospitalized at 23 years old and had a schizoaffective bipolar type diagnosis. He had never been in a serious romantic relationship and attended 73% of the sessions. His overall romantic relationship functioning score increased (significant). His overall negative self-esteem score improved at follow-up. Lastly, his 'mentalizing' score also increased (significant).

3.6 Participant number 6

Participant number 6 was 20 years old, was hospitalized at 17 years old and had a psychosis NOS diagnosis. He had had four serious romantic relationships before and, towards the end of the intervention, became involved in a relationship and still was at follow-up. He attended 91% of the sessions. His overall 'beliefs' friendship functioning score increased. His overall 'behaviors' friendship functioning score also increased (significant). His 'beliefs' intimacy functioning score increased as well. His overall 'behaviors' intimacy functioning score also increased (significant), as did his overall romantic relationship functioning score (significant), and his negative self-esteem score improved at follow-up. Lastly, his overall 'mentalizing' score also increased (significant).

3.7 Participant number 7

Finally, participant number 7 was 19 years old, was hospitalized at that same age and had a bipolar I with psychotic features diagnosis. He had never been in a serious romantic

relationship and attended 82% of the sessions. He was recruited late and his baseline scores were missing, so the following results are for T1 and up. His overall 'behaviors' friendship functioning and 'behaviors' intimacy functioning scores increased (significant). His overall positive self-esteem score also increased. His self-stigma score constantly improved. Lastly, his 'mentalizing' score also increased (significant).

3.8 Social functioning - friendship and intimacy

On the 'behaviors' subscale, scores from the FESFS showed that participants had significantly higher friendship functioning, with post-hoc analyses revealing increases specifically from baseline to T2, baseline to follow-up, T1 to T2, and T1 to follow-up, $F(5,36)=2.48$, $p=0.03$ (small effect size according to Cohen (1988) ($d=0.21$)). They also had significantly higher intimacy functioning on that same subscale, with post-hoc analyses revealing increases specifically from T1 to T2, T1 to follow-up, and T3 to follow-up, $F(5,36)=2.48$, $p=0.049$ (small effect size ($d=0.12$)). On the 'beliefs' subscale, no significant differences were found over time with regards to participants' friendship functioning scores, $F(5,36)=2.48$, $p=0.34$ (very small effect size ($d=0.05$)) and participants' intimacy functioning scores, $F(5,36)=2.48$, $p=0.69$ (very small effect size ($d=0.04$)).

3.9 Romantic relationship functioning

The results on the RRFS scale are shown in Figure 1 from participant number 1 to participant number 7, respectively. Scores showed that participants had significantly higher romantic relationship functioning, with post-hoc analyses revealing increases specifically from T1 to T3, T1 to T4, and T1 to follow-up, $F(5,36)=2.48$, $p=0.04$, with a small effect size ($d=0.24$).

Only participant number 1's scores increased without subsequently decreasing, and four participants had higher scores at T4 and/or T5 than at T0 and/or T1.

3.10 Self-esteem

No significant differences were found over time with respect to participants' positive self-esteem scores, $F(3,24)=3.01$, $p=0.56$ (very small effect size ($d=0.01$)) or participants' negative self-esteem scores, $F(3,24)=3.01$, $p=0.12$ (small effect size ($d=0.07$)).

3.11 Self-stigma

No significant differences were found over time with regards to participants' self-stigma scores, $F(3,24)=3.01$, $p=0.66$, with a very small effect size ($d=0.02$).

3.12 Theory of mind

Scores on the Mentalizing subscale of the Stories Test showed that participants had significantly better mentalizing processes in relation to understanding others' intentions, with post-hoc analyses revealing increases specifically from baseline to follow-up, $F(3,24)=3.01$, $p=0.019$, with a small to medium effect size ($d=0.37$). No significant differences were found over time for participants' reasoning scores, $F(3,24)=3.01$, $p=0.85$ (very small effect size ($d=0.02$)).

3.13 Psychiatric symptoms

Scores on the BPRS-E showed that participants' symptoms were significantly reduced, with post-hoc analyses revealing improvement specifically from baseline to follow-up and T1 to follow-up, $F(3,24)=3.01$, $p=0.015$, with a medium effect size ($d=0.41$).

4. DISCUSSION

This pilot study aimed to determine the feasibility, acceptability and the potential impact of a novel intervention focusing on romantic relationships in young men with a psychotic disorder. Participants' romantic relationship functioning scores were significantly higher during the intervention and at follow-up, suggesting that the intervention helped as expected. This was further substantiated by the fact that two participants became involved in a relationship during the intervention and maintained these relationships at follow-up. The techniques and notions taught during the intervention were mentioned by one of these participants as having substantially helped him in this regard. However, the other participant had had previous romantic experience. Thus, the fact that he had a girlfriend at the end of the treatment may not only be attributable to the intervention.

On the 'behaviors' subscale, participants had significantly better friendship and intimacy functioning during the intervention and at follow-up, but not on the 'beliefs' subscale. These findings indicate that the intervention may be more effective at changing behavior than changing cognition in the social domain, particularly with respect to friendship and intimacy functioning. A possible explanation for this may be that the intervention largely focused on scenarios and role-plays, and therefore, behavior, across all sessions. Moreover, one participant was absent during both sessions 7 and 11, which were the two sessions specifically focusing on beliefs, and which may partly explain the lack of improvement in this area.

Meanwhile, participants' 'mentalizing' scores on the Stories Test significantly improved from baseline to follow-up, suggesting that the intervention may have helped participants become better at mentalizing and therefore, understanding others' intentions. This finding cannot be

attributed to practice effect on the Stories Test, given that the 'reasoning' scores do not seem to have improved as the 'mentalizing' scores did. It can be hypothesized that participants' mentalization improved but not their reasoning because the intervention specifically focused on helping them understanding the mental states of oneself and others, as in sessions 2, 3, 6, and 7, with less focus on how to think logically (reasoning).

Taken together and considering the small sample size, these findings provide preliminary evidence that the intervention can have a positive impact on some of the factors measured over time, but many other aspects should also be taken into account.

Participants' overall symptoms improved significantly during the intervention and at follow-up, suggesting that the intervention may play a role in improving overall mental health and general mood. Symptomatic improvements have often been observed following group interventions using CBT principles with a positive recovery focus (Lecomte et al., 2008; Lecomte, Cyr, Lesage, Wilde, Leclerc, & Ricard, 1999).

Results from one participant to another seemed to differ, suggesting individual differences. Participant number 1 seemed to have benefited the most from the intervention. He experienced improvements on 9 out of 10 measures, and importantly, became involved in a relationship. This may be partly explained by the fact that he attended all the sessions and his symptoms were significantly reduced. However, he also had never been hospitalized for his psychotic disorder, suggesting that he had better general functioning from the start. Participants 2, 3, 4, and 6 tended to have similar results and seemed to have benefited quite well from the intervention. They all experienced several improvements, such as in social and romantic functioning, and participant number 6 became involved in a relationship. They respectively

attended 70%, 80%, 100%, and 91% of the sessions. They all had significant symptomatic improvements except participant number 6. Participants 5 and 7 seemed to have benefited the least from the intervention. They improved on 3 and 5 out of the total 10 measures, respectively, including their 'mentalizing' score. They respectively attended 73% and 82% of the sessions and this rate, compared to that of the others, can help explain why they may have benefited the least from the intervention. Participant number 5 had some personal complications and had to miss the last two sessions, which may also partly explain why he may not have benefited as much from the intervention. Lastly, participant number 5 had a significant symptomatic improvement, but not participant number 7. However, it is important to consider that, out of seven participants, two had had romantic experiences before and five had had none, which may have affected the results. In addition, another characteristic that may have influenced the results is diagnosis. For example, schizoaffective participants may have been more at ease in the romantic sphere than schizophrenic participants.

Although the present study suggests that a cognitive behavioral group intervention targeting romantic relationships for MEPs may help improve such individuals' social functioning, romantic relationship functioning, and theory of mind on some levels, certain limitations can also help explain the absence of differences on some of the scales across time, such as missing data (e.g., participant 7 who missed baseline, questions skipped by participants), which limited the statistical power of the comparisons of the present study. Another limitation concerns participant 5, who dropped out of the intervention after session 9 for personal reasons, missing the last two sessions, thus likely altering his results at T4 and T5. The RRFS's validity is also questionable, given that the instrument measures beliefs about romantic skills, and therefore, may be less relevant when completed by persons not involved in a relationship. Also, if

recovery had been measured, the study would have been more complete. The methodology (A-B-A within-subjects design) also limits the study due to the fact that it is a pre-experimental design without a control group. Furthermore, to limit the heterogeneity of the sample, young men with a psychotic disorder specifically were studied. Consequentially, the generalizability of the findings is limited and, therefore, it is harder to generalize, for example, to women with a psychotic disorder or even older men. Another important limitation of the study pertains to the different ways in which the intervention may have been conducted in each participating clinic, as each may have provided two different experiences (different therapists, different ways of interacting with participants in sessions, etc.).

Conducting a larger study with several more participants and a control group (MEPs with intervention versus MEPs without intervention/MEPs with normal group CBT) would be of high interest to complement the results of this pilot study. In future studies, answers to the satisfaction questionnaire should be recorded by a research assistant and not completed by participants, so that answers can be further developed and not partially answered or left out. It would also be useful for future studies to correlate absenteeism with participant's T4 and T5 results.

Given the documented positive impact of romantic relationships on recovery and general functioning in people with psychotic disorders, helping MEPs in the intimacy sphere at a greater level is extremely important. This could help many such individuals to break from social isolation and begin the recovery process at an earlier stage in the disorder.

To conclude, romantic relationships have a substantial positive impact on individuals with psychotic disorders and it is of great importance to help MEPs in the intimacy sphere, given

their greater difficulties in this area. Moreover, it is important to focus specifically on this clinical population for several reasons, many of which have been detailed in the introduction. Finally, future research should compare the benefits derived from a cognitive behavioral group intervention targeting romantic relationships to those obtained by participants in the control group.

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Annexe 1

Table I: The intervention session by session

Session title	Content
Session 1: Am I ready?	- Rules, goals, why I wish to be in a relationship, pros and cons (support vs stress).
Session 2: What you need to know about dating	- How, where to meet people, pros and cons of each method, how to describe myself.
Session 3: Dating – part 2	- How to get ready for a date, how to show interest or recognize it, small talk, role-play reciprocal conversation.
Session 4: From dating to going out	- What am I looking for, my values, how do I know if the person is right for me?
Session 5: My qualities as a lover/partner and disclosure about mental illness	- What are my qualities, what can I offer, when should I (if ever) disclose and how, pros and cons of each scenario?
Session 6: Recognizing my feelings and sharing them	- How do I recognize when I have specific emotions, how do I know if I'm in love, how to share positive and negative feelings, how do I cope with difficult emotions?
Session 7: What is going on?	- How to inquire, verify what the other is thinking, explain CBT model and seek alternative explanations and how to seek facts?
Session 8: My story and my fears	- What scares me about being in a couple (abandonment, dependency, clingy)? How to talk about our fears, how to find the right distance?
Session 9: Sex and intimacy	- Expectations, when to propose sex? How to determine consent? Pornography vs reality, sexual preferences, exploration, identity.
Session 10: Sex and intimacy – part 2	- Protection/contraception, sexual problems – what to do?
Session 11: Managing conflicts	- Problem-solving steps and strategies.
Session 12 – Communication and happiness	- Communication skills in conflicts, strategies to keep the couple healthy and happy, review of the group module.

Annexe 2

Table II: Descriptive statistics on participants

MEPs (*n*=7)	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Clinic	1	1	1	1	2	2	2
Age	24	20	28	28	31	20	19
Highest education level	Secondary	Less than secondary	Secondary	Less than secondary	Secondary	Post-secondary	Secondary
Cultural Background	Canadian	Canadian	Canadian	Canadian	Canadian	Canadian	Canadian
Age at first hospitalization	N/A	20	24	26	23	17	19
Diagnosis	Psychosis NOS	Bipolar illness type I	Delirious paranoid disorder	Schizo-phrenia	Schizo-affective bipolar type	Psychosis NOS	Bipolar I with psychotic features
BPRS-E score							
T0	1.50	1.50	1.54	1.62	1.23	1.19	N/A
T1	1.69	1.65	1.42	1.31	1.23	1.42	1.69
T4	1.04	1.35	1.27	1.19	1.19	1.42	1.73
T5	1.04	1.31	1.19	1.15	1.19	1.23	1.73

Annexe 3

Table III: Results for each participant

MEPs (*n*=7)		1	2	3	4	5	6	7
Social functioning score, friendship (beliefs) - 1 to 4 scale								
T0		2.50	3.00	2.00	2.67	3.67	2.67	N/A
T1		2.67	3.17	2.17	2.50	3.17	3.00	3.17
T2		2.83	3.17	2.33	3.00	3.17	2.83	2.80
T3		2.83	3.00	1.83	3.00	3.00	3.17	3.33
T4		3.00	2.83	2.17	2.83	3.00	3.33	3.00
T5		3.00	3.50	1.83	3.50	3.50	3.00	2.17
Social functioning score, friendship (behaviors) - 1 to 4 scale								
T0		2.17	2.50	N/A	2.33	3.33	3.33	N/A
T1		2.33	2.33	2.00	2.33	3.00	3.50	2.17
T2		2.83	2.67	2.50	2.83	3.33	3.67	2.67
T3		2.83	3.17	2.00	3.00	2.50	3.50	3.33
T4		2.83	2.83	1.83	3.33	3.00	3.50	2.00
T5		2.83	3.17	2.17	3.17	3.33	3.67	2.67
Social functioning score, intimacy (beliefs) - 1 to 4 scale								
T0		1.60	3.25	2.60	3.00	3.80	2.40	N/A
T1		N/A	2.75	2.60	3.20	2.75	3.20	3.20
T2		N/A	2.75	2.75	3.40	3.40	3.00	2.80
T3		N/A	2.75	2.60	3.20	3.20	3.60	3.20
T4		3.00	2.75	2.60	3.00	4.00	3.40	3.40
T5		2.80	3.00	2.60	3.00	3.20	3.00	3.00
Social functioning score, intimacy (behaviors) - 1 to 4 scale								
T0		1.82	2.45	1.67	2.09	3.00	2.73	N/A
T1		2.00	2.20	1.64	1.82	2.78	2.73	1.82
T2		2.44	2.50	1.91	2.09	2.82	3.30	2.18
T3		2.44	2.70	1.64	2.55	2.00	3.09	3.18
T4		2.82	2.36	1.55	2.73	2.40	3.18	1.73

T5		3.09	2.91	1.73	2.45	2.73	3.64	2.09
Romantic relationship functioning score - 1 to 5 scale								
T0		2.73	3.73	2.68	2.91	3.38	3.09	N/A
T1		2.86	2.76	3.00	2.95	3.05	3.45	2.82
T2		3.36	3.38	2.91	2.95	3.86	3.45	3.59
T3		3.50	3.00	3.23	3.09	3.23	3.95	3.86
T4		3.68	3.50	3.05	3.36	3.29	3.86	2.82
T5		3.82	3.32	3.18	3.14	3.73	3.45	2.73
Self-esteem score (positive) - 1 to 7 scale								
T0		4.10	4.90	3.90	4.60	6.20	5.40	N/A
T1		4.20	5.00	2.70	4.50	6.10	5.10	4.00
T4		4.90	5.70	1.50	4.40	6.20	4.80	5.20
T5		4.60	6.30	2.10	4.90	6.10	5.30	4.70
Self-esteem score (negative) - 1 to 7 scale								
T0		3.60	1.70	5.63	2.60	2.60	2.30	N/A
T1		2.60	2.00	4.50	2.60	1.80	2.30	3.90
T4		1.90	1.60	4.25	2.60	2.30	2.40	4.60
T5		2.00	1.30	3.30	3.20	2.00	2.10	4.60
. **Self-stigma score - 1 to 4 scale**								
T0		2.14	1.11	N/A	2.10	1.03	1.59	N/A
T1		1.86	1.21	1.96	2.31	1.07	1.83	2.14
T4		1.28	1.17	N/A	2.21	1.38	1.62	2.03
T5		1.21	1.21	1.48	2.21	1.41	1.62	1.90
Theory of mind score (mentalizing/reasoning) 1 to 50 scale/1 to 12 scale								
T0		50/12	37/9	44/12	41/11	34/12	44/10	N/A/N/A
T1		45/12	48/11	48/11	44/11	45/11	46/11	46/12
T4		48/12	50/11	47/11	41/11	48/11	50/11	46/12
T5		49/12	49/11	47/12	48/11	46/10	49/10	49/10

Annexe 4

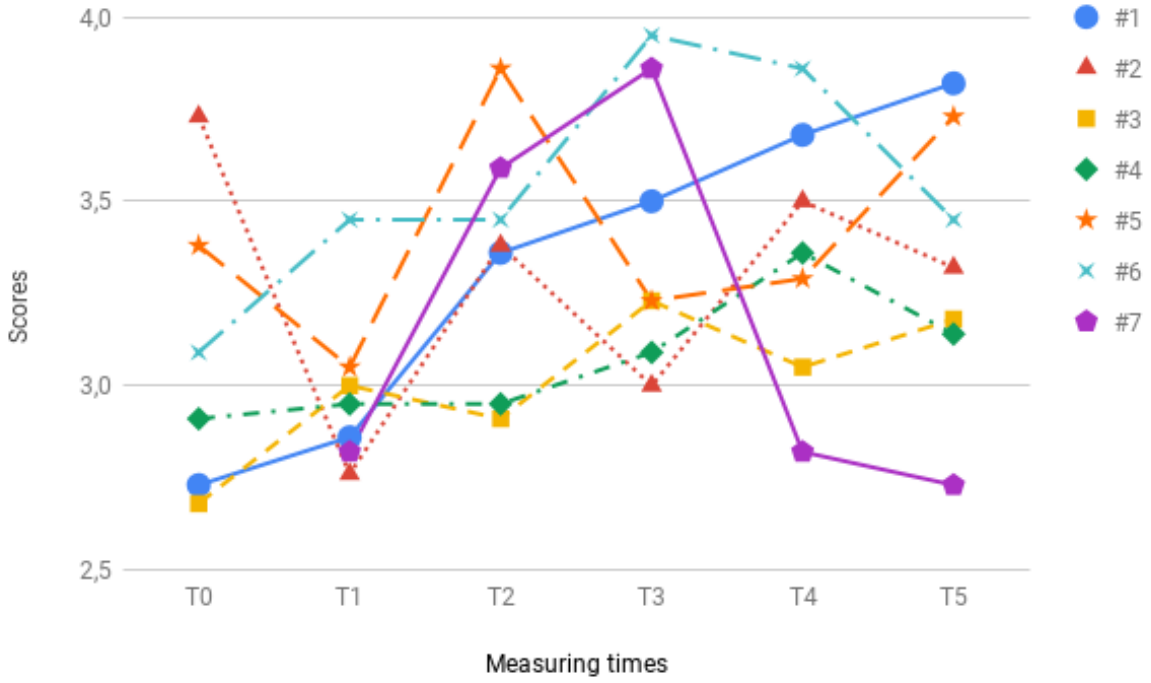

Figure 1: Scores for each participant on RRFS 1 to 5 scale