

Loneliness in people with psychosis

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Abstract

In this study the effects of an eating club intervention on loneliness for people with psychotic disorders (HospitalITY) were examined. Data were obtained via a structured diary technique, the Experience Sampling Method (ESM) using 35 items per assessment measuring loneliness, mood state, interactions and current context/location. All participants were notified to fill in the ESM questionnaire at nine moments throughout the duration of the study (12 months). Notification was on four fixed timeslots a day. This was done for three days consecutively during every moment. The study consists of participants with a clinically diagnosed psychotic disorder (N=43). Participants were either assigned to the intervention (eating club) group (N=27) or control group (WLC) (N=16). We have hypothesized that upon experiencing more loneliness participants will also experience more negative mood. Furthermore, we have hypothesized that loneliness is lower on days of the eating club than days without the eating club. Strong positive correlations were found between loneliness and negative related mood states (e.g. $r=0.554$, $p<0.001$ for sadness, $r=0.557$, $p<0.001$ for anxiety, $r=0.519$, $p<0.001$, for insecurity and $r=0.515$, $p<0.001$ for perceived inferiority) and a strong negative correlation was found between loneliness and positive mood (happiness; $r=-0.259$, $p<0.001$). Analyses did not show significant changes in loneliness during days with/without the eating club ($F=2.275$, $p=0.690$), Results might be influenced by the amount of observations due to the large amount of data per participant and the little amount of observations on days during an eating club. The robustness of the found effects should be focus of further research within this domain.

Introduction

Loneliness refers to the (subjective) feeling of perceived social isolation, in which an individual can feel unwelcome and distressed, and can occur even with people around (Qualter et al., 2017). Loneliness can occur when there are differences between one's actual relationships and one's desired relationships, which can result in failure of the need for belonging (Perlman, 1982). People have a fundamental need to belonging, which emphasizes the importance of relationships when it comes to physical and mental health (Baumeister & Leary, 1995). People with a psychotic disorder experience difficulties in social and or occupation functioning in their daily lives (American Psychiatric Association, 2013). In a longitudinal study by Velthorst et al. (2017), 75% of participants with a chronic psychotic disorder showed social impairment. Certain (paranoid) delusions and false beliefs in people with psychotic disorders are believed to play a role in the social withdrawal from others (Freeman et al., 2007). Social withdrawal can become a safety behavior to reduce perceived threat from social interactions, which can result into a self-perpetuating cycle of social exclusion (Michalska da Rocha et al., 2018). Moreover, evidence from a systematic review and meta-analysis portrays the role of social impairment as a risk factor for psychotic disorders (Van Os et al., 2009).

In an Australian national survey, over 80% of people with psychosis reported loneliness and identified this as a barrier to recovery (Morgan et al., 2011). Consequently, lower feelings of loneliness are related to higher recovery from illness and increasing quality of life (Roe et al., 2011). Since, many processes emerge from interaction with others (Davidson & Roe, 2007), social functioning is increasingly recognized as a key outcome measure for assessing treatment success (Burns & Patrick, 2007).

This emphasizes the importance of effective interventions targeting social isolation among people with psychosis. Vogel et al. (2019) created such an intervention by offering

people with psychotic disorders peer support and skills training through an eating club: HospitalitY (HY) intervention. In the pilot the feasibility of the intervention was examined (Vogel et al. 2019). There was an high attendance, satisfaction and motivation rate. Moreover positive effects on loneliness, social support and self-esteem were reported. According to the nurses and participants this intervention seemed feasible. However, presumably, because of the short intervention period (5 months) and limited number of participants (N = 9) combined with insensitive outcome measures, the pilot intervention did not show important improvements. In the pilot paper it was discussed that Experience Sample Method (ESM) might be a more sensitive measure in detecting changes in recovery in the upcoming randomized controlled trial (RCT) than the regular pre-post intervention measures, focusing on symptom reduction as treatment outcomes and self-reports as measures. Such methods lack sufficient ecological validity and fail to take into account contextual factors. The ESM is a structured diary technique to assess associations between measured variables (Myin-Germeys et al., 2011).

In this study, ESM data about loneliness, mood, their current location, people whom they have communicated with, frequencies and experiences of interaction and experiences from the eating club intervention were collected. Here, we analyze a selection of the collected data. We hypothesized the following: (1) Participants in both the intervention and control group experience more negative related mood states when perceiving more feelings of loneliness. (2) Patients in the intervention group perceived less loneliness during days with the HY-eating club than days without the HY-eating club.

Method

Participants

Participants were recruited from six mental health organizations of the Netherlands. These participants obtained treatment of Flexible Assertive Community Teams (F-ACT).

Inclusion criteria for the trial were participants (aged 18-65) with a diagnosis of a schizophrenia spectrum disorder (DSM 5: 295.xx, 297.1, 298.8, 298.9) (American Psychiatric Association, 2013). Exclusion criteria were patients with excessive substance use dependence, patients with a baseline of frequent dinners at home with peers (with individual contribution, e.g. preparing own meals etc.), not being familiar with the Dutch language or appeal from the clinician of the patients (e.g. due to a recent episode). Informed consent was provided by all participants. The data collected of this study started in February 2017 and ended in October 2020. The ethical board of the University Medical Center Groningen decided that the study did not require ethical approval (reference METc2014.479).

Trial Design

Two conditions were created wherein the participants were randomly allocated: The intervention (eating club) group and a Waiting List Control (WLC) group. Random allocation of the participants was done by an online randomization site (www.randomizer.org), which creates random numbers. People in the research team were blind for these allocations. An independent person (who is not involved in the study) did the procedure of random allocation of treatment and randomization process and concealed this until the end of this study. Based on the participants their area code, block randomization (Lim & In, 2019) has been done. This was more practical due to that travelling long distances was not possible for certain participants. Each eating group consisted of at least three participants. In case of a drop out from the intervention group, a participant, randomly generated from the WLC group list, would be placed in the intervention group. Because of this an unbalanced block randomization with a 3:4 ration per block (Eating Club:WLC) was used. Since all participants were randomized at once (and thus not sequential), this resulted in a predefined order of replacements in cases of drop outs from the intervention group.

Intervention

The HY intervention took place in eight months, with 15 biweekly sessions. Before participants started with the intervention, individual assessments were made by the nurses to investigate goals (Gard et al., 2014) with an emphasis on social skills and daily living skills (e.g. financial adequacy, cooking self-hygiene, time-management) Moreover, before the start of the intervention, introduction meetings were held discussing finances, dietary wishes and other group rules. Furthermore, the patients organized these dinners in their homes in different turns. A nurse was available for support during these dinners. Participants were provided with an individual home-based skill training at the same time of organizing the dinner. Depending on the needs of the participant in charge of the dinner, sessions (either face-to-face or by telephone contact) were planned. This took 30 to 120 minutes, depending on the situation of the participant. The nurse offered support during the dinners. This support was according to the Guided Peer Support Groups (GPSG) methodology (Castelein et al., 2008). The nurses received a single day training for this methodology given by an expert in GPSG. Furthermore six one-hour supervision meetings took place between the nurse and a nursing supervisor throughout the time of the intervention. An extensive description of the intervention is provided by Vogel et al. (2019). Patients in the WLC group continued with their care as usual, entailing psychological treatments, psycho-education, family support, pharmacotherapy and vocational and rehabilitation treatments.

Data collection

Every participant involved in this study (intervention and WLC group) were expected to fill in the ESM questionnaire at nine moments throughout the duration of the study (12 months).

These moments were divided with six weeks in between each moment. During these moments participants have filled in these questionnaires at four fixed timeslots a day, with 3 hours in between each time slot. This was done for three days consecutively during every moment.

This ESM questionnaire entailed questions regarding mood states (“How happy/sad/anxious

are you currently?” on a 1-7 Likert scale, 1 = not at all, 7= extremely), loneliness (e.g. “I felt lonely today” on a 1-7 Likert scale, 1 = not at all, 7= extremely), amount and experiences of interactions (e.g.. “With how many people have you spoken?” on a 0-6 Likert scale, 0= zero people, 1= one person etc. (6 = \geq 6 people)) Likert scale, “ To what extent was engaging in this contact worthwhile?” on a 1-7 Likert scale, 1 = not worthwhile, 7= extremely worthwhile), location and context (e.g.. “did you attend an eating club today?”, 0-2 (0 = no, 1= yes, yesterday, 2 = today). Furthermore, the questions related to an assessment of the mood state of the day (e.g. “I felt lonely today”) have around 75% less observation than observations measuring current mood state. This is due to the fact that the assessment of the mood state of the day was done only once a day, compared to four times a day which was the case with the assessment of current mood state.

Data analysis

The study sample will be described using percentages for the frequency of males and females. Age of the sample will be described by the mean and standard deviation. Moreover, we will examine whether there is an association between loneliness and negative/positive mood using Pearsons correlations. Furthermore, the Mann Whitney U test will be used to examine whether loneliness is lower on days with the eating club.

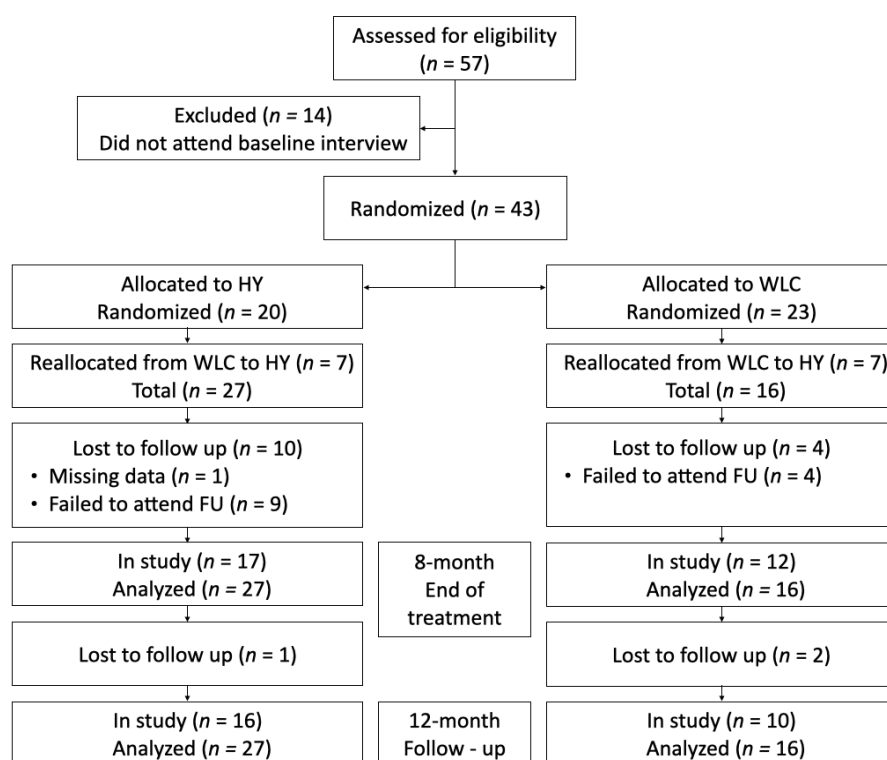
Results

A total of 43 participants were part of our study: 31 females (72%) and 12 males (28%). Twenty participants were initially assigned to the intervention group and 23 to the Waiting List Control (WLC) group (figure 1). Approximately 72% of all participants in this study indicated loneliness at the start of the During the intervention a total of seven participants went from the WLC group to the intervention group, due to drop outs. Six of these participants moved into the intervention before the second dinner, whereas one participant

joined at the ninth dinner. In the end this resulted in a total of 27 participants in the intervention group and 16 participants in the WLC group.

Less of half than the intervention group attended nine or more meetings, namely 10 out of 27. Furthermore there were additional drop-outs due to the following reported reasons: difficulties travelling to group members situated in rural areas, discomfort with the participants and worsening of their symptoms. One eating group was cancelled before the 12th meeting, due to the pandemic of Covid-19.

Figure 1. Flowchart of the HY RCT



Loneliness

Table 1. Descriptive Statistics (n=43 participants)

	Mean	Std. Deviation	N
I felt lonely today.	2,80	1,739	646

1 How happy do you feel right now?	5,04	1,369	2645
2 How sad do you feel right now?	2,59	1,589	2645
3 How anxious do you feel right now?	2,18	1,634	2645
I felt insecure today.	2,94	1,790	646
I felt inferior today.	2,57	1,701	646

Analyses were conducted for all participants in this study ($M_{age} = 35.46$, $SD_{age} = 9.62$). The descriptive statistics of the study sample (table 1) indicate the means for loneliness and mood for all ESM data. The table shows a relative high group mean for happiness and lower group means for negative mood and loneliness (1-7 Likert scale, 1 = not at all, 7= extremely).

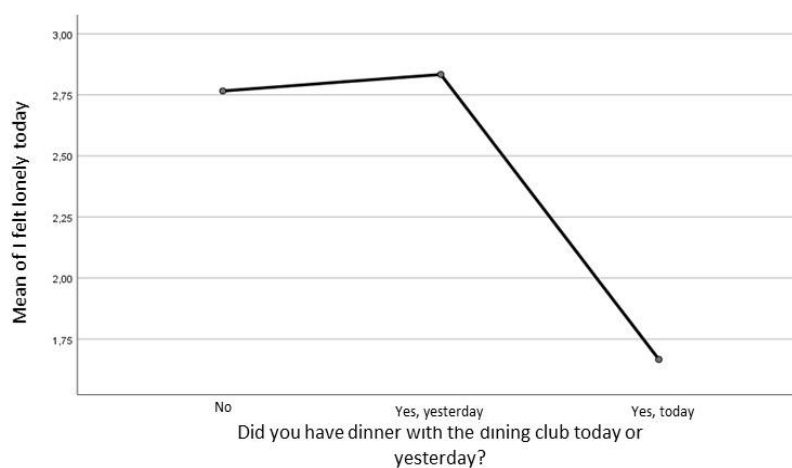
Table 2. Bivariate correlations between loneliness and mood (n=43 participants)

		I felt lonely today.
1 How happy do you feel right now?	Pearson	-,259**
	Correlation	
	Sig. (2-tailed)	,000
2 How sad do you feel right now?	N	646
	Pearson	,557**
	Correlation	
3 How anxious do you feel right now?	Sig. (2-tailed)	,000
	N	646
	Pearson	,558**
4 I felt insecure today	Correlation	
	Sig. (2-tailed)	,000
	N	646
5 I felt inferior today	Pearson	,519**
	Correlation	
	Sig. (2-tailed)	,000
5 I felt inferior today	N	646
	Pearson	,515**
	Correlation	

Sig. (2-tailed)	,000
N	646

Results upon analyzing the first hypothesis indicated a strong positive correlation for loneliness and sad mood ($r = 0.554$, $p < 0.001$, $n = 263$), loneliness and anxiety ($r = 0.557$, $p < 0.001$, $n = 646$), loneliness and feelings of inferiority ($r = 0.515$, $p < 0.001$, $n = 646$), loneliness and insecurity ($r = 0.519$, $p < 0.001$, $n = 646$) and a strong negative correlation between loneliness and feelings of happiness ($r = -0,259$, $p < 0.001$, $n = 646$) (see table 2 for overview). Furthermore, the Mann Whitney U test did not indicate significantly less loneliness during days of the eating club, than days without the eating club ($F(2, 275) = 0.690$, $p = 0,502$). However, a promising trend is visible in the plot (figure 2). The trend shows a decline of the mean in reported loneliness by more than one point on days of the eating club ($M_{loneliness} = 1.67$, $SD_{loneliness} = 1.16$), compared to days without the eating club ($M_{loneliness} = 2.77$, $SD_{loneliness} = 1.63$ on days without the eating club and $M_{loneliness} = 2.83$, $SD_{loneliness} = 0.98$ on the day after the eating club(s)).

Figure 2: Loneliness on days with and without the eating club (No, $n=259$ total observations, Yes, yesterday, $n=6$ total observations and Yes, today, $n=3$ total observations). Participants of HY ($n=43$)



Discussion

At start of the intervention approximately 72% of all participants in this study indicated loneliness. Results indicated a strong positive correlation between loneliness and sad mood, anxiety. Furthermore a strong negative association was found between loneliness and feelings of happiness, which is in favor of our hypothesis of experiencing more negative moods when feeling more loneliness. Finally, feelings of loneliness during days of the eating club intervention were not significantly different compared to loneliness on days without the eating club intervention.

We expected to see less loneliness during days of the eating club, since existing literature indicate a negative association between social interaction and loneliness (Gibney et al., 2019). The results indicated a lower mean score of loneliness on days of the eating club. However, no significant results were found presumably due to the little observations on days of the eating club. Therefore, it is difficult to determine whether there is actually no effect, or whether it is due to a power complication.

Strengths and limitations

One advantage of the current study is the ESM data. This method is known for being more ecologically valid and reliable way of measuring effects of an intervention within individuals (Myin-Germeys et al., 2011). Furthermore, the recruitment of participants from the Flexible Assertive Community Teams (F-ACT) made it possible to conduct this intervention and collect the ESM data from patients in treatment.

An critical point of view should be adopted upon interpreting the results. Firstly, the high amount of observations per participants (See table 2) (which is a characteristic of ESM) may have resulted in an inflated correlation statistic, since the assumption of independent observations violated. Although this correlation is strong, further research should be

conducted to investigate the robustness of the found association (loneliness and negative affect). Furthermore, analyzing the data revealed that too few people had an ESM measurement on an intervention day, something that could not have been anticipated in the design of the study (ESM measurements were fixed, dates for dinners were scheduled by participants themselves), so a reliable statement about whether or not there is a difference in loneliness compared to other days cannot be made. Alternatively to this, it could also be suggested that the amount of loneliness within a patient does not depend whether they just had an eating club or not. This could be conjugated to the definition of loneliness that was provided in the introduction, which states that loneliness can occur even with people around.

These results of this study are in line with previous studies that found a negative effect of loneliness (Morrison & Smith, 2018). The yielded ESM data indicates evidence of the association between negative mood and loneliness. Unfortunately, presumably due to the limited amount of observations, a difference in loneliness within the experimental group on HY-days were not found. This study emphasizes the importance of a suitable intervention for people suffering from psychotic disorders. Further research could focus on yielding more and targeted ESM data on days of such interventions, to be able to analyze the effects of the intervention in a balanced way.

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