



# Is loneliness a feasible treatment target in psychosis?

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## Abstract

**Purpose** Loneliness is a challenge for individuals with psychosis; however, interventions rarely target loneliness in this group.

**Method** We developed a pilot positive psychology group intervention designed to reduce loneliness in psychosis and examined its feasibility and acceptability.

**Results** Sixteen participants attended 5.38 (SD = 0.70) out of six sessions, with a dropout rate of 10%. Participants were significantly less lonely at post-treatment ( $p < 0.001$ ,  $d = 1.51$ ), and maintained their improvements from post-treatment to follow-up ( $p = 0.81$ ,  $d = 0.07$ ).

**Conclusions** Loneliness may be a feasible and acceptable treatment target within psychosocial treatments.

**Keywords** Loneliness · Psychosis · Social anxiety · Positive psychotherapy intervention

## Introduction

Loneliness, defined as a subjective sense of social isolation [1], has been identified as a challenge for those with psychosis [2]. Despite this finding, little work has been conducted on developing and testing evidence-based loneliness interventions for individuals with psychosis [3]. Interventions that focus on improving social skills, social support, increasing social opportunities, and addressing maladaptive social cognition can effectively reduce loneliness [4] but one type of intervention that has not been examined is Positive Psychology Interventions (PPIs).

PPIs are posited to promote positive emotions in the individual [5–7] which can signal a willingness to connect with others [8], potentially facilitating positive social interactions. So far, PPIs in psychosis have demonstrated feasibility (i.e., low dropout rates) and have yielded improvements in

outcomes [7, 9]. It is plausible that PPIs can build positive affect within existing relationships, improving relationship quality, and thus reduce loneliness [10]. There is also growing evidence that a PPI approach targeting loneliness is both feasible and acceptable when delivered via a smartphone application. These related pilot studies were conducted in young people with psychosis [11], young people with a social anxiety disorder and those without mental ill health [12].

The study aim was to examine the feasibility of targeting loneliness in individuals with psychosis within a PPI group program. First, we hypothesized that the PPI group program would be feasible and acceptable for participants with psychosis. Second, we hypothesized that participants would report significantly lower loneliness at post-treatment compared with baseline. In an exploratory analysis, we also looked at changes on factors thought to influence loneliness severity, from psychosis severity, depression, social anxiety, psychological well-being, and social skills [3, 11–14].

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## Methods

### Participants

Twenty individuals aged 18–31 years old ( $M = 22.95$ ,  $SD = 3.46$ ; 45% women)<sup>1</sup> were recruited from community mental health service located in the Eastern metropolitan region of Melbourne, Australia. Two male participants ( $M = 23.50$ ,  $SD = 2.12$ ) dropped out and were excluded from the analyses. The inclusion criteria were: (1) a psychotic disorder diagnosis; (2) a score of  $> 40$ <sup>2</sup> on the UCLA loneliness scale [15]. Exclusion criteria included any of the following in the past month: (1) score of moderate or more on a positive psychotic symptom as assessed by the positive and negative syndrome scale (PANSS; [16]); (2) moderate or severe risk issues;<sup>3</sup> (3) psychiatric hospitalization; (4) substance abuse/dependence.<sup>4</sup> Table 1 shows the participant demographics. Overall, participants reported a primary diagnosis which was schizophrenia (33.33%), followed by schizoaffective disorder (38.89%), schizophreniform (16.67%), and psychotic disorder NOS (11.11%). A further 44% also reported a diagnosis of social anxiety disorder.

### Positive connect group intervention

The group aim was to help participants utilize their strengths and practice positive interpersonal skills that can build close relationships. The content of the manualized program<sup>5</sup> developed by MHL, DP, and JG, is available upon request. Four groups were conducted across 2 years led by MHL and an additional clinician from the service. Sessions (1.5–2 h) were conducted weekly over 6 weeks. An optional booster session was offered 4 weeks after session 6.

**Table 1** Demographics of positive connect group participants

	<i>M</i> (SD) or %
Age	22.89 (3.61)
Gender (% female)	50%
Ethnicity	
Asian Australian or Asian	38.9%
White (including Caucasian, European, Australian)	33.3%
Multiracial/biracial	5.6%
Not listed	11.1%
Relationship status	94.4%
Living status	
Residing with housemates	16.7%
Residing at home with immediate family	66.7%
Residing at home with relatives	16.7%
Residing with	
One other person	22.2%
Two other people	16.7%
Three other people	27.8%
Four other people	27.8%
Five other people	5.6%
Completed education (in years)	13.19 (2.20)
SCID-5 Diagnosis	
Schizophrenia	33.33%
Schizoaffective	38.89%
Schizophreniform	16.67%
Psychosis NOS	11.11%
SCID-5 secondary diagnosis	
Social anxiety disorder	44%
Duration of untreated psychosis (in months) <sup>a</sup>	56.13

SCID-5 structured clinical interview for diagnostic and statistical manual of mental disorder fifth edition

<sup>a</sup>Missing  $n = 2$

### Measures

Participants completed the assessment battery<sup>6</sup> across three time points ( $T_1$ , baseline;  $T_2$ , post-treatment after session 6;  $T_3$ , 3-month follow-up).

### The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (SCID-5 research version; [17])

The SCID-5 was administered to determine study eligibility. 30% of the assessments were randomly selected and rated by an independent coder, with 100% consensus on diagnostic reliability.

<sup>6</sup> With the exception SCID-5 which was administered at baseline only.

<sup>1</sup> 18 individuals aged between 18 and 31 years old ( $M = 22.89$ ,  $SD = 3.61$ ; 50% women) made up the final sample.

<sup>2</sup> While there is no known threshold for problematic or severe loneliness, a score of 40 and above was used to indicate above the median score across different samples [15].

<sup>3</sup> As assessed by the risk section in the SCID-5 major depressive episode module; SCID-5 [17].

<sup>4</sup> Those who accepted into the group program were strongly advised not to change their medication regime or take on additional therapy offered to them during their involvement in this trial. All participants included in the study reported no changes in treatment during their time of the trial at  $T_2$  and  $T_3$ .

<sup>5</sup> The manual was modified and adapted from Parks and Seligman's (2017) 8-week group positive psychotherapy program.

**The revised UCLA Loneliness Scale (revised UCLA-LS; [15])**

The UCLA-LS, a 20-item self-report scale, was used as a measure of loneliness severity, employing a 1 (never)–4 (always) Likert-type scale. Internal consistency scores across time ranged from good to excellent ( $T_1$ ,  $\alpha=0.89$ ;  $T_2$ ,  $\alpha=0.91$ ;  $T_3$ ,  $\alpha=0.94$ ).

**The Positive and Negative Syndrome Scale (PANSS; [16])**

The PANSS was used to measure psychotic symptom severity. The scale is a 30-item clinician-rated symptom severity measure. The items are rated on a 7-point Likert scale ranging from 1 (absent) to 7 (extreme severity). We report the PANSS total score. Internal consistency scores across time ranged from acceptable to good ( $T_1$ ,  $\alpha=0.74$ ;  $T_2$ ,  $\alpha=0.83$ ,  $T_3$ ,  $\alpha=0.87$ ).

**The Calgary Depression Scale for Schizophrenia (CDSS; [18])**

The CDSS, a 9-item clinician-administered tool, was used to measure severity of depressive symptoms in individuals with psychotic disorders. Items are scored on a 4-point Likert scale from 0 (absent) to 3 (severe). Internal consistency scores ranged from acceptable to good ( $T_1$ ,  $\alpha=0.73$ ;  $T_2$ ,  $\alpha=0.82$ ;  $T_3$ ,  $\alpha=0.79$ ).

**The Social Interaction Anxiety Scale—straightforward items (S-SIAS; [19])**

The S-SIAS, a 20-item self-report questionnaire, was used to measure anxiety-related reactions to social interactions. Items are scored on a 5-point Likert scale from 0 (not at all) to 4 (extremely). We used only the 17 straightforwardly worded items due to validity issues with the reverse items [20]. Internal consistency scores across time were excellent ( $T_1$ ,  $\alpha=0.96$ ;  $T_2$ ,  $\alpha=0.96$ ;  $T_3$ ,  $\alpha=0.94$ ).

**The Scales of Psychological Well-Being (SPWB; [21])**

The SPWB, a 54-item questionnaire, was used to measure eudaimonic well-being. Items are scored on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree). We report the overall SPWB score. Internal consistency scores across time were excellent ( $T_1$ ,  $\alpha=0.92$ ;  $T_2$ ,  $\alpha=0.94$ ;  $T_3$ ,  $\alpha=0.97$ ).

**Social Skills Performance Assessment (SSPA; [22])**

The SSPA, an 8-item clinician administered tool, was used to determine whether the intervention had any unintended effect on social skills. Items are scored on a 5-point Likert scale to indicate either very poor skills (1) to very skilled (5)

in a particular domain. The SSPA involves two 3-min role plays with the research assistant on pre-determined social situations (e.g., participant plays the role of a tenant meeting a new neighbour). Two independent trained coders rated the audio-recorded role plays on nine parameters.<sup>7</sup> Intraclass correlation coefficients (ICCs) for  $T_1$ – $T_3$  ranged from acceptable to excellent (scenario 1; ICCs = 0.74–0.85; scenario 2: ICCs = 0.86–0.94).

**Acceptability and feasibility**

Feasibility (i.e., attendance) and acceptability (i.e., satisfaction ratings) were the main outcomes. We established a threshold for feasibility as more than 70% attendance and for acceptability, more than 50% of participants rated as very satisfied across different categories (e.g., ease of understanding, etc.).

**Procedure**

Human research ethics approval was obtained from the relevant ethics committees. Case managers working in public mental health services nominated 73 potential participants for this program over 18 months. Trained research assistants (all provisional psychologists) contacted these potential participants via telephone. Potential participants were asked to confirm their interest in participating in a group program and to complete the UCLA Loneliness 3-item Scale [23] over the telephone. Only 30 out of 73 (41%) were interested in a group program and eligible to proceed to a face-to-face baseline study assessment screen. At the face-to-face baseline assessment, 3 out of 30 individuals failed to meet the study eligibility according to UCLA-LS, SCID-5, and/or PANSS. If eligible, participants proceeded to complete all remaining measures. A total of 27 were offered a place in the group program but only 20 proceeded with the group program (74% uptake). The reasons cited for not being able to participate in the group program which included not being able to make the specific group time due to scheduling, change of mind, or moving away.

**Data analytic procedure**

We calculated descriptive statistics and conducted a one-way repeated measure ANOVA with time (UCLA-LS  $T_1$ – $T_3$ ) as a within-subject factor. To account for possible confounding effects on loneliness, we conducted a series of repeated measures ANCOVA, using psychotic, depression, social

<sup>7</sup> The coders did not code the SSPA grooming question as only audio coding was available. The research assistant conducting the assessment coded this item.

**Table 2** Post-intervention acceptability ratings of the positive connect group program

Question	Very		Somewhat		Not at all	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Ease of understanding	15	83.3	2	11.1	1	5.6
Enjoyment of group	12	66.7	5	27.8	1	5.6
Usefulness of group	12	66.7	6	33.3	0	0
Group was respectful	16	88.9	2	11.1	0	0
Look forward being with people	9	50	8	44.4	1	5.6
Group helped me enjoy life	11	61.1	7	38.9	0	0
Group helped me feel connected with others	11	61.1	7	38.9	0	0
Group helped increase social confidence	11	61.1	6	33.3	1	5.6
Helped create new relationships	5	27.8	11	61.1	2	11.1
Helped accept mental health symptoms	13	72.2	5	27.8	0	0

**Table 3** Loneliness, mental health symptoms, social skills, and well-being across time

	<i>M</i> ( <i>SD</i> )			<i>T</i> <sub>1</sub> vs <i>T</i> <sub>2</sub>			<i>T</i> <sub>1</sub> vs <i>T</i> <sub>3</sub>		
	<i>T</i> <sub>1</sub>	<i>T</i> <sub>2</sub>	<i>T</i> <sub>3</sub>	<i>t</i> (17)	<i>p</i>	Cohen's <i>D</i>	<i>t</i> (15)	<i>p</i>	Cohen's <i>D</i>
UCLA-LS	52.61 (9.30)	42.33 (9.66)	42.25 (10.52)	6.42	<0.001**	1.51	7.35	<0.001**	1.84
S-SIAS	29.94 (16.92)	23.83 (15.80)	27.13 (15.39)	2.74	0.01*	0.64	1.34	0.20	0.34
CDSS	5.33 (3.94)	2.94 (3.26)	2.31 (2.85)	3.18	0.01*	0.75	4.93	<0.001**	1.23
PANSS	41.67(7.00)	36.22(6.12)	34.44(5.80)	5.42	<0.001**	1.28	4.82	<0.001**	1.21
SSPA	66.24 (11.55)	68.76 (8.66)	67.14 (7.36)	-0.99	0.34	-0.24	-1.12	0.29	-0.31
SPWB	197.07 (33.08)	216.00 (37.37)	214.00 (51.75)	-3.06	0.01*	-0.79	-1.59	0.14	-0.43

Total *N* = 18, except for *T*<sub>3</sub> where *n* = 16 due to 2 participants lost to follow-up

*UCLA-LS* University of California Loneliness Scale, *S-SIAS* Straightforward Items from Social Anxiety Interaction Scale, *CDSS* Calgary Depression Scale for Schizophrenia, *PANSS* Positive and Negative Symptom Syndrome Total Score, *SSPA* Social Skills Performance Assessment Scale, *SPWB* Scales of Psychological Well-Being Scale. Values are based on observed values. *T*<sub>1</sub> refers to baseline; *T*<sub>2</sub> refers to post-treatment, *T*<sub>3</sub> refers to 3-month follow-up

\*\**p* < 0.001, \**p* < 0.05

anxiety, social skills, and psychological well-being scores as covariates. We then conducted paired sample *t* tests for all variables, comparing *T*<sub>1</sub> with *T*<sub>2</sub>, and *T*<sub>1</sub> with *T*<sub>3</sub>.

## Results

### Acceptability and feasibility

For feasibility (attendance), 2 out of 20 (10%) dropped out before *T*<sub>2</sub>, citing social anxiety (*n* = 1) and difficulty relating to others (*n* = 1) as reasons. There was a 90% attendance rate (*M* = 5.38, *SD* = 0.70, *n* = 18) out of six sessions, and a further 67% of participants attended the booster session. Regarding acceptability, all but one acceptability ratings were met (i.e., the group did not help participants create new relationships). This was consistent with the group focus of improving current relationships rather than creating new relationships (see Table 2 for ratings).

### Loneliness, mental health, and psychological well-being

Table 3 shows the means and standard deviations of scores for loneliness, social anxiety, depression, psychotic symptoms, social skills, and psychological well-being. There was an effect for loneliness scores across time,  $F(2, 30) = 33.87$ ,  $p < 0.001$ , partial  $\eta^2 = 0.69$ , and no significant covariates ( $ps > 0.05$ ). Paired sample *t* tests results indicated that loneliness, depression, and psychosis were significantly reduced from *T*<sub>1</sub> to *T*<sub>2</sub> (UCLA-LS:  $p < 0.001$ ,  $d = 1.51$ ; CDSS:  $p = 0.01$ ,  $d = 0.75$ ; PANSS:  $p < 0.001$ ,  $d = 1.28$ ), and from *T*<sub>1</sub> to *T*<sub>3</sub> (UCLA-LS:  $p < 0.001$ ,  $d = 1.84$ ; CDSS:  $p < 0.001$ ,  $d = 1.23$ ; PANSS:  $p < 0.001$ ,  $d = 1.21$ ). Although social anxiety significantly reduced and psychological well-being significantly increased from *T*<sub>1</sub> to *T*<sub>2</sub> (S-SIAS:  $p = 0.01$ ,  $d = 0.64$ ; SPWB:  $p = 0.01$ ,  $d = -0.79$ ), changes between *T*<sub>1</sub> and *T*<sub>3</sub> were insignificant. There was no change in social skills across time (all  $ps < 0.05$ ).

## Discussion

Our findings provide preliminary evidence that a PPI targeting loneliness is a feasible and mostly acceptable for those with psychosis. Our attendance rate of 90% and 10% dropout rate were comparable with previous PPI studies (e.g., dropout rates from 12.5 to 19% [7, 9]). Participants reported significantly lower loneliness, social anxiety, depression, psychotic symptoms, and significantly higher psychological well-being, from pre- to post-treatment. Social anxiety and psychological well-being effects were not maintained, suggesting that these factors require further examination. Furthermore, almost half of our samples (44%) reported a current diagnosis of social anxiety disorder as assessed by the SCID-5, so it is plausible that treatment effects were unsustainable because of comorbidity. The PPI did not improve social skills and more importantly, loneliness was not influenced by social skills.

Our study is not without its limitations. First, we had a small sample size which may not be entirely representative of the mental health consumers diagnosed with a psychotic disorder. Case managers identified several potential participants but only 40% of those referred were willing to connect with others within a group therapy context. Second, we may have recruited a biased sample in that the group program may have appealed to those who were more motivated to connect or those who highly valued interacting with other peers. Our sample included younger people aged from 18 to 31, which may reflect a bias where younger people were more interested in connecting with peers within a group setting, compared with older people. Last, loneliness is a signal that motivates people to reconnect [24]; therefore, we should expect that most people should feel less lonely if at a later time they manage to connect successfully. Hence, improvements seen here in this study may reflect this trend. One way to determine if the effects are indeed a result of the group intervention is to deliver a randomised controlled trial. Hence, these limitations should be taken into account in light of the study findings.

While positive connect has only been trialled as a pilot group program, it has already been implemented by trained mental health clinicians as part of their standard early psychosis service delivery model. There are two plausible reasons for this implementation. First, while loneliness has been reported to be an increasing complaint among consumers of youth mental health services, few programs focus on reducing subjective feelings of loneliness. Hence, the group program readily catered to the unmet needs of the consumers. Second, both young people and clinicians involved in the trial have reported overwhelmingly positive experiences with the program.

In conclusion, our findings indicated that a positive psychology intervention targeting loneliness is feasible and mostly acceptable for those with psychosis.

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## Compliance with ethical standards

**Conflict of interests** The authors declare no conflict of interests.

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