***Supplementary Material***

Acceptability and feasibility of recovery-oriented group Acceptance and Commitment Therapy for psychosis in routine practice: an uncontrolled pilot study

John Farhall1,2, Marilyn L Cugnetto1,2, Eliot Goldstone2, Jesse Gates1,2,3, Jacinta Clemente2, Eric MJ Morris1,2\*

1 School of Psychology & Public Health, La Trobe University, Bundoora, Victoria, Australia; 2 NorthWestern Mental Health, Royal Melbourne Hospital, Epping, Victoria, Australia; 3 Orygen, Parkville, Victoria, Australia

\*Corresponding author. E-mail: Eric.Morris@latrobe.edu.au

**Abstract**

**Background**: Personal recovery is a persisting concern for people with psychotic disorders. Accordingly, mental health services have adopted frameworks of personal recovery, prioritizing adaptation to psychosis alongside symptom remission. Group Acceptance and Commitment Therapy (ACT) for psychosis aims to promote personal recovery alongside improved mood and quality of life.

**Aims:** The objectives of this uncontrolled, prospective pilot study were to determine whether ‘Recovery ACT’ groups for adults are a feasible, acceptable and safe program within public mental health services, and assess effectiveness through measuring changes in personal recovery, wellbeing, and psychological flexibility.

**Method**: Program and evaluation feasibility, acceptability and safety indicators were collected from referred consumers (*n*=105). Adults (*n*=80) diagnosed with psychotic disorders participated in an evaluation of ‘Recovery ACT’ groups in Australian community public mental health services. Participants completed pre- and post-group measures assessing personal recovery, wellbeing, and psychological flexibility. A brief interview sought verbal feedback about participation.

**Results**: Of 101 group enrollees, 78.2% attended at least one group session (*n*=79); 73.8% attended three or more, suggesting feasibility. Eighty of 91 first-time attendees participated in the evaluation. Based on completer analyses (*n*=39), participants’ personal recovery and wellbeing increased post-group. Outcome changes correlated with the linear combination of psychological flexibility measures. Nearly all participants expressed a positive experience and indicated the program improved their life.

**Conclusions:** ‘Recovery ACT’ groups are feasible, acceptable and safe in Australian public mental health services. ‘Recovery ACT’ may improve personal recovery, wellbeing, and psychological flexibility. Uncontrolled study design, completer analyses, and program discontinuation rates limit conclusions.

**Keywords:** Acceptance and Commitment Therapy; psychosis; personal recovery; group

**Introduction**

Schizophrenia and other psychotic disorders impact 20.9 million persons worldwide (Charlson et al., 2018) and an estimated 50,000 in Australia (Morgan et al., 2012), and contributed to 1.7% of global years lost to disability in 2016 (Charlson et al., 2018). Recovery from psychosis is variable: while a minority of people experience just one psychotic episode with full symptomatic recovery, the course of disorder is typically recurring; clinical and social recovery varies (Alvarez-Jimenez et al., 2012; Emsley, Chiliza, Asmal, & Harvey, 2013). Importantly, there are also common difficulties experienced with wellbeing and quality of life. Experiencing a satisfying life in the community often requires a process of *personal* recovery alongside clinical recovery (Anthony, 1993). Personal recovery (Glover, 2012; Slade, 2009)–a process of finding identity, purpose and hope in the context of mental illness–has been adopted as an overarching framework for practice in mental health services in Australia (Commonwealth of Australia, 2013a, 2013b) and elsewhere (e.g., Department of Health, 2009).

Treatment recommendations for psychosis include antipsychotic medication and psychosocial interventions (Galletly et al, 2016; NICE, 2014). Psychological therapies, particularly cognitive behavior therapy for psychosis (CBTp; Thomas, 2015), have been recommended for all individuals diagnosed with psychosis (NICE, 2014). CBTp typically targets distress and disability associated with persistent psychotic symptoms, with primary outcomes in efficacy studies typically reported in terms of symptom reduction. While CBTp is efficacious (Jauhar et al., 2014; Laws, Darlington, Kondel, McKenna, & Jauhar, 2018), effect sizes are modest (Turner, van der Gaag, Karyotaki, & Cuijpers, 2014; Wykes, Steel, Everitt, & Tarrier, 2008) and widespread implementation has likely been hindered by availability of trained clinicians to provide the 10 or more individual sessions required to impact psychotic symptoms (Farhall & Thomas, 2013; NICE, 2014).

Acceptance and commitment therapy (ACT) is a contextual cognitive behavior therapy that aims to increase psychological flexibility, the ability to adapt to changing situations and be open, aware and committed to behaviors congruent with values (Gloster, Meyer, & Lieb, 2017). ACT does this by promoting skills in: present moment awareness; observing and accepting inner experiences; connection with personal values; and engagement in committed action (Hayes, Strosahl, & Wilson, 2012). ACT was first adapted to the needs of consumers[[1]](#footnote-2) hospitalized with acute psychotic symptoms (Bach & Hayes, 2002; Gaudiano & Herbert, 2006), and further developed for community and outpatient settings (Morris, Johns, & Oliver, 2013). ACT does not explicitly target symptoms – rather, through present moment awareness and acceptance of experiences, it helps people manage the presence of unremitting symptoms and distress, promoting commitment to values-based action to live a meaningful life (Hayes et al., 2012).

Although under-powered, initial ACT studies (Bach, Gaudiano, Hayes, & Herbert, 2013; Bach & Hayes, 2002; Gaudiano & Herbert, 2006) demonstrated that participants offered ACT had lower re-hospitalization rates than those engaged in treatment as usual. These studies propelled the exploration of ACT as an outpatient intervention to reduce distress and preoccupation with symptoms including command hallucinations (Shawyer et al., 2012), comorbid depression (White et al., 2015) and persistent psychotic symptoms (Shawyer et al., 2017). Meta-analyses indicate ACT and mindfulness-based interventions for psychosis may be effective, particularly in group formats (Jansen, Gleeson, Bendall, Rice, & Alvarez-Jimenez, 2020; Louise, Fitzpatrick, Strauss, Rossell, & Thomas, 2018).

Johns and colleagues in the United Kingdom (UK) were the first researchers to orient ACT for psychosis around supporting personal recovery in groups, devising a four-session group-based program (‘ACT for Life’; Butler et al., 2016; O’Donoghue, Morris, Oliver, & Johns, 2018). They assessed self-reported functioning in three life domains as the primary outcome in an initial uncontrolled trial (Johns et al., 2016), and wellbeing in a pragmatic randomized-controlled feasibility trial of a six-session group (Jolley et al., 2020). Results from both trials signaled improved functioning, wellbeing, and psychological flexibility associated with group participation.

Based on early results from the ‘ACT for Life’ program (Butler et al., 2016; O'Donoghue et al., 2018), clinicians and academics in Australia adapted and implemented the group manual into a program called ‘Recovery ACT’ (R-ACT), with eight sessions and other modifications to suit local needs (Gates et al., 2021). This pilot program was offered to consumers by local clinicians in public mental health outpatient settings. This study aims to: 1) assess feasibility, acceptability and safety of the R-ACT program, and its evaluation, as delivered in routine clinical practice to consumers diagnosed with a psychotic disorder, and 2) consider signals of effectiveness on personal recovery, wellbeing, and symptom measures, and explore measurement of theoretical mechanisms, specifically, whether psychological flexibility processes were activated for participants and whether these were related to recovery outcomes. We hypothesized the program would be feasible, acceptable, and safe, and that group participation would promote psychological flexibility processes, as measured by increased cognitive defusion, mindfulness, and engagement in committed action, and decreased experiential avoidance. We hypothesized change in psychological flexibility would be associated with change in consumers’ wellbeing and personal recovery from psychosis.

**Method**

***Recovery ACT Group Program***

The R-ACT program encourages engagement in values-based actions while relating to psychotic symptoms and other internal experiences (e.g., thoughts, feelings) with curiosity. Program methods include use of a central metaphor, mindfulness skills training, values identification and development of values-based SMART goals. The central metaphor, the ‘Passengers on the Bus’ (O'Donoghue et al., 2018), encourages group participants to identify with a bus driver who figuratively drives the bus of their life towards or away from personal values. The driver’s relationship and how they cope with their ‘passengers’ (i.e., internal experiences) determines the direction; participants are supported to use group skills to enable values-based actions. R-ACT involves seven weekly 90-minute core group sessions and a booster session approximately a month later. Groups are led by two facilitators familiar with ACT, and trained in ACT for psychosis. The R-ACT manual (accessible from https://osf.io/7bwgp) was developed to train facilitators and to ensure treatment fidelity.

***Design***

The overall study used a mixed-methods, uncontrolled, single-group prospective cohort design to test feasibility, acceptability, safety, and effectiveness of a pilot psychosocial intervention (Mueser & Drake, 2005). Participants completed pre-group and post-group self-report measures about personal recovery, wellbeing, and psychological flexibility. Two interview components assessed feasibility, acceptability and outcomes: a group-participant individual interview and a facilitator focus group. The facilitator feedback was subjected to a thematic analysis and is reported elsewhere (Gates et al., 2021).

***Participants***

There were 105 referrals to the program; 101 consumers enrolled and were invited to participate in the evaluation. Of these, 90 consented, 11 declined to participate, and one had incomplete consent documentation. Nine consumers completed the program and evaluation for a second time, and one consumer enrolled three times. Figure 1 displays the participant flow diagram. Participants were adults aged between 18 to 60 years old, with a file diagnosis of a psychotic disorder, accessing NorthWestern Mental Health Integrated Community Teams, and engaged in a R-ACT group for the first time. There were no exclusion criteria. The study received Quality Assurance approval from Melbourne Health’s Human Research Ethics Committee (QA 2015.151), and conformed to the Declaration of Helsinki.



Figure . Participant flow diagram.

***Procedure***

Facilitators sought referrals approximately two months before a group’s start. Interested consumers attended an individual engagement session with a facilitator. Consumers who enrolled in the program were invited to participate in the evaluation and, following an informed consent procedure, written consent was obtained. There was no financial compensation for participation. Participants completed measures pre- and post-group. Demographic and clinical information were extracted from participants’ electronic medical records. Participant feedback interviews were conducted either after completion of the core sessions or following the booster session.

Investigators reviewed consumer and facilitator feedback after the initial five groups. The following quantitative measures were added to pilot broader outcomes observed: Behavioral Activation for Depression Scale–Short Form, Internalized Stigma of Mental Illness Scale, and General Self-Efficacy scale. We discontinued administration of the Psychotic Symptom Rating Scales (Haddock, McCarron, Tarrier, & Faragher, 1999) on feasibility grounds: facilitators reported time constraints for administration and many participants had no symptoms to rate on completed Delusions (pre-group 48.9% of *n*=47; post-group 57.1% of *n*=21) and Auditory Hallucinations sub-scales (pre-group 64.4% of *n*=45; post-group 72.7% of *n*=22).

***Measures***

*Demographic and clinical information* included age, gender, current employment status, highest level of employment, and educational attainment. Clinical information included: primary and co-occurring mental health file diagnoses, date of first contact with mental health services, number of listed episodes of outpatient mental health care (defined as a period of care of three months or greater in a mental health service), and number of psychiatric inpatient admissions.

*Feedback interview.* Participants completed a post-group semi-structured interview with a facilitator and were asked six open-ended questions about the group: *general reflection, helpful and unhelpful aspects and activities, perceived effect of the group on their life*, and *suggested changes*. The interviewer recorded participants’ responses.

*Program feasibility.* Recruitment indicators included: 1) number of referrals, 2) number of groups conducted, 3) median and range of group size, 4) number of clinicians serving as facilitators.

*Engagement* *in group* (i.e., treatment adherence) indicators were: 1) initial engagement (i.e., received intervention defined as attending at least one session), 2) attendance rates (three or more sessions considered a minimum to benefit). No *a priori* numerical targets were set; the data were intended for discussion with the facilitators and services.

*Program acceptability* indicator was discontinuation rates augmented by participant feedback responses.

Indicators of *evaluation feasibility in routine practice* were: 1) consent rates (proportion of participants consenting to participate in the evaluation compared to number invited), 2) measures completion rates (assistance required), 3) missing data rates, 4) *post hoc*, choice of outcome measures.

Evaluation acceptability indicator was withdrawal rate.

Program and evaluation safety. Facilitators reported serious adverse reactions and serious adverse events as defined by NHMRC (2016).

*Personal recovery.* The 22-item version of the Questionnaire about the Process of Recovery (QPR) is a valid and reliable measure of personal recovery (Neil et al., 2009). Items are rated from 0 (‘disagree strongly’) to 4 (‘agree strongly’) then summed with higher totals indicating greater perceived progress in personal recovery.

*Wellbeing*. The CORE-10 is a valid and reliable measure of wellbeing (Connell & Barkham, 2007). The ten items reflect common distressing symptoms and problems, rated for intensity from 0 (‘not at all’) to 4 (‘most or all the time’) over the past week. Lower totals indicate greater wellbeing.

*Engagement in committed action*. The Valuing Questionnaire is a valid and reliable measure of engagement in actions consistent with personal values (Smout, Davies, Burns, & Christie, 2014). The Valuing Questionnaire has two factors: Progress and Obstruction. Items related to progress and obstruction in acting on chosen life directions in the past week are rated from 0 (‘not at all true’) to 6 (‘completely true’). We used the 5-item Progress factor; higher totals reflect higher levels of committed action.

*Mindfulness*. The Southampton Mindfulness Questionnaire is a valid and reliable measure of an individual’s “relationship with distressing thoughts and images,” developed for people with psychosis (Chadwick et al., 2008, p. 452). The 16 items are rated from 0 (‘strongly disagree’) to 6 (‘strongly agree’). Higher totals reflect greater mindfulness.

*Cognitive defusion.* The Cognitive Fusion Questionnaire is a valid and reliable measure of “the tendency for behavior to be overly regulated and influenced by cognition” (Gillanders et al., 2014, p. 84). Seven items are rated from 1 (‘never true’) to 7 (‘always true’); lower totals reflect greater use of cognitive defusion.

*Experiential avoidance*. The Acceptance and Action Questionnaire-II (Bond et al., 2011) measures experiential avoidance of thoughts and emotions. Seven items are rated from 1 (‘never true’) to 7 (‘always true’), then summed with higher totals reflecting greater levels of experiential avoidance.

*Positive psychotic symptoms.* The Psychotic Symptom Rating Scales (Haddock et al., 1999) is an interviewer-administered measure comprised of an 11-item auditory hallucinations scale, and a 6-item delusions scale. Each scale assesses for dimensions of positive symptoms such as preoccupation, conviction, and distress with items rated from 0 (absent) to 4 (severe).

*Behavioral Activation for Depression Scale–Short Form* measures behaviors targeted in behavioral activation treatments for depression (Manos, Kanter, & Luo, 2011). Nine items are rated from 0 (‘not at all’) to 6 (‘completely’) for how true each statement was for the past week. Four items are reverse scored. Higher totals reflect greater behavioral activation.

*Internalized stigma* was measured using the 29-item Internalized Stigma of Mental Illness Scale (Boyd Ritsher, Otilingm, & Grajales, 2003), which has excellent internal consistency, test-retest reliability, and construct validity. Items are rated from 1 (‘strongly disagree’) to 4 (‘strongly agree’). Five items are reverse-scored. The total score is the mean of all answered items with higher scores reflecting greater internalized stigma.

*Self-efficacy*. The General Self-Efficacy scale (Schwarzer & Jerusalem, 1995) is widely used and has good internal consistency. Ten items are rated from 1 (‘not at all true’) to 4 (‘exactly true’). Higher totals indicate greater self-efficacy.

***Data analyses***

Feasibility, acceptability, and safety data were based on program records (recruitment [*n*=105] and engagement [*n*=101]) and is reported prior to analysis of data from those consenting to the evaluation (*n*=90). For participants who repeated the program (*n*=10), only data from their first group was analyzed. We conducted descriptive statistics of the feasibility, acceptability and safety indicators. Data were analyzed using IBM’s SPSS Statistics Version 25. Analyses were run for all participants who had pre-group and post-group data (completers, *n*=39), regardless of number of sessions attended. Completers and non-completers did not significantly differ in any demographic, clinical or baseline measures. Paired samples t-tests were conducted to determine presence of significant change from pre-group to post-group for outcome and process measures. We calculated a reliable change criterion (Jacobson & Truax, 1991) per measure, and classified those who scored above the criterion as ‘reliably improved’, and those who scored below the criterion as ‘reliably deteriorated.’ We conducted multiple linear regressions to explore associations between change in process measures and outcome measures. Responses to feedback interview questions were categorized based on manifest content by one author (MC); categories were reviewed with two other authors (JF, EM). More than one response per question was possible. Frequencies were tabulated using ExcelTM spreadsheets

***Funding and support***

Evaluation of the program was supported by a research assistant and two investigators (EM, JF) who coordinated the project, including data management and analysis, and ethics approval and oversight. Costs were borne by the mental health service, with pro-bono university support. Local area managers granted permission for facilitators to allocate time to complete the evaluation.

**Results**

***Feasibility, acceptability and safety***

*Program feasibility*

Program records showed that all but one of 105 separate referrals led to an engagement session with a facilitator. Referrals included nine consumers referred for a second group and one for a third. (In routine service provision, consumers are eligible for repeated group referrals, and included alongside first-time attendees). Of these referrals, 101 enrolled in one of nine groups run at three outpatient mental health services from October 2015 to March 2019. One declined to enroll initially and another two withdrew enrollment prior to the group’s commencement. The number of consumers in a group ranged from 3 to 13, with a median of 10.

Seventy-nine consumers (78.2%) initially engaged with the program; program attendance records were available for 65 (82.3%) of these, with 48 (73.8%) attending three or more sessions. Nine clinicians (6 women) served as facilitators: eight were registered psychologists and one a post-graduate trainee. All facilitators attended training conducted by a senior investigator (EM). Two facilitators led groups, including at least one who was experienced. When groups were running, at least two group clinical supervisions by an ACT expert (EM, JF) were offered, along with peer consultation from an experienced facilitator: attendance was not formally recorded.

*Program acceptability*

Program dropout rates include 22 who did not engage with the program, and 21 who discontinued (76.2% after the first session) (Table 1). Reasons for program dropout were available for 60.5% of participants. Most reasons for discontinuation (9/15) were unrelated to the program: three adverse events (e.g., deterioration in mental state); two serious adverse events (inpatient psychiatric admission); four other reasons (e.g., employment). According to participants who completed a feedback interview (*n*=38), over 90% of *general reflection* responses characterized the group as helpful or enjoyable.

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| Table 1. *Program acceptability and safety (n*=43*) (n[%]).* |  |  |
|   |   | Dropout Category |
| Reason for Program Dropout | Did not commence (*n*=22) | Discontinued (*n*=21) |
| Missing |  | 11 (50%) | 6 (28.6%) |
| Related to group | Other (no benefit, dislikes group, ambivalence) | 1 (4.5%) | 2 (9.5) |
|  | Adverse Reaction (anxiety) | 3 (13.6%) | 4 (19%) |
|  | Serious Adverse Reaction | 0 (0%) | 0 (0%) |
| Not related to group | Other (employed, relocation, physical injury) | 3 (13.6%) | 4 (19%) |
|  | Adverse Event (paranoia, deterioration in mental state) | 2 (9.1%) | 3 (14.3%) |
|   | Serious Adverse Event (inpatient psychiatric admission) | 2 (9.1%) | 2 (9.5%) |

*Evaluation feasibility*

Of the 101referrals enrolled in a group and invited to participate in the evaluation, 80 first-time attendees consented to participate in the evaluation (80/91=87.9%), 10 repeat referrals consented, 10 declined (including one repeat referral), and one was excluded. The following data are confined to the first group any participant attended. Nearly all participants (78/80=97.5%) who consented to the evaluation completed pre-measures. Of those who engaged with the program (*n*=64), 19 (29.7%) discontinued the program and were lost to follow-up for the evaluation, four (6.3%) remained in the program and were lost to follow-up (one of whom did not complete pre-measures), and 41 (64.1%) completed post-measures. Given that two of these had no pre-measures, data from 39 participants were used for completer analyses. All completers who had attendance data available (*n*=29) attended three or more sessions (median/mode=7, range 3-8).

*Evaluation acceptability*

There were no withdrawals from the evaluation.

*Safety*

There were four serious untoward clinical events unrelated to the program or evaluation, and none that were related (Table 1).

***Demographic and clinical characteristics***

Table 2 reports demographic and clinical characteristics of the 78 participants who were mostly unemployed men (57.7%) ranging in age from 18 to 58. Modal education level was late secondary school. Most participants were diagnosed with schizophrenia or schizoaffective disorder (*n*=48) and had at least one prior psychiatric admission (*n*=63, range 1-9).

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| Table 2. *Demographic and clinical characteristics (n = 78)a* |   |
| Gender | Female | 33 (42.3%) |
|  | Male | 45 (57.7%) |
| Age (years; *M*(*SD*)) |  | 32.1 (10.5)  |
| Number of episodes of care (*M (SD*)) |  | 2.21 (1.48) |
| Number of psychiatric admissions *(M(SD))* |  | 2.76 (3.02) |
| Group site | NAMHS - Noogal Clinic | 36 (46.2%) |
|  | NAMHS - Hotham Street Community Team | 34 (43.6%) |
|  | Mid West AMHS | 8 (10.3%) |
| Diagnosed mental health condition | Schizophrenia & Schizoaffective Disorder | 48 (61.5%) |
|  | Mood Disorder with Psychotic Features | 13 (16.7%) |
|  | Other Psychotic Disorder | 13 (16.7%) |
|  | Non-Psychotic Disorder | 4 (5.1%) |
| Highest education level achieved (n=76)b | Secondary 7-10 | 18 (23.7%) |
|  | Secondary 11-12 | 25 (32.9%) |
|  | Tertiary commenced | 16 (21.1%) |
|  | Tertiary completed | 16 (21.1%) |
|  | Never attended | 1 (1.3%) |
| Current employment status (pre-group) | Unemployed | 69 (88.5%) |
|  | Casual | 1 (1.3%) |
|  | Part-time | 7 (9.0%) |
|   | Employed | 1 (1.3%) |
| Note. aTwo participants did not complete pre-measures. bPercentage is a valid percent. |

***Pre-group to post-group change in outcomes and process variables***

Table 3 reports paired t-tests and reliable change frequencies for the outcome and process measures. From pre-group to post-group, participants on average experienced a significant increase in wellbeing and personal recovery with small effect sizes, and decreases in auditory hallucinations (medium effect size). Participants also demonstrated significant increases in mindfulness and committed actions (medium effect sizes), and significant decreases in experiential avoidance (small effect size), but no significant change in cognitive fusion. Compared to pre-group, participants showed a significant decrease in internalized stigma, and increase in behavioral activation (medium effect sizes) while self-efficacy remained unchanged. Over 20% of participants demonstrated reliable improvement in personal recovery, committed actions, mindfulness, and auditory hallucinations, and 13% in wellbeing.

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| Table 3. *Descriptive statistics, Paired t test and Reliable change for Outcome and Process Measures.*  |
|   |   |   |   | Paired Differences |   |   | Reliable Change |
|  |  | Time 1 (Pre-group) | Time 2 (Post-group) | *d* (T2 - T1) |  |  |  |  | Reliably Improved | No reliable change | Reliably Deteriorated |
| Outcomes | *n* | *M (SD)* | *M (SD)* | *Mean diff (SD)* | Std. Error | 95% CI | *t* | Cohen's *d* | *n* (%) | *n* (%) | *n* (%) |
| CORE-10  | 38 | 16.87 (7.25) | 14.18 (7.18) | -2.68 (7.07) | 1.15 | -5.01, -0.36 | -2.34\* | 0.38 | 5 (13.2) | 32 (84.2) | 1 (2.6) |
| QPR | 38 | 53.76 (13.24) | 58.72 (11.00) | 4.96 (12.70) | 2.06 | 0.79, 9.13 | 2.41\* | 0.39 | 8 (21.1) | 27 (71.1) | 3 (7.9) |
| VQ Progress | 37 | 16.41 (7.48) | 19.45 (5.60) | 3.04 (6.38) | 1.05 | 0.91, 5.17 | 2.90\*\* | 0.48 | 11 (29.7) | 25 (67.6) | 1 (2.7) |
| SMQ | 38 | 42.71 (16.67) | 49.99 (11.15) | 7.28 (15.47) | 2.51 | 2.19, 12.36 | 2.90\*\* | 0.47 | 8 (21.1) | 28 (73.7) | 2 (5.3) |
| AAQ-II | 39 | 29.42 (9.19) | 26.94 (8.12) | -2.49 (7.73) | 1.24 | -4.99, 0.02 | -2.01a | 0.32 | - | - | - |
| CFQ | 39 | 31.60 (10.13) | 29.03 (8.80) | -2.58 (8.77) | 1.40 | -5.42, 0.27 | -1.84a | - | - | - | - |
| BADS-SF | 15 | 23.60 (6.40) | 26.93 (6.38) | 3.33 (5.23) | 1.35 | 0.44, 6.23 | 2.47\* | 0.64 | 1 (6.7) | 14 (93.3) | 0 (0) |
| ISMIb | 15 | 2.42 (0.26) | 2.25 (0.38) | -0.18 (0.27) | 0.07 | -0.33, -0.03 | -2.50\* | 0.65 | 1 (6.7) | 14 (93.3) | 0 (0) |
| GSE | 15 | 25.23 (4.63) | 24.37 (4.19) | -0.87 (2.75) | 0.71 | -2.39, 0.66 | -1.22 | - | - | - | - |
| PSYRATS - D | 19 | 5.89 (8.34) | 5.00 (6.96) | -0.90 (6.04) | 1.39 | -3.80, 2.02 | -0.65 | - | - | - | - |
| PSYRATS - Hc | 20 | 8.30 (13.29) | 3.95 (8.57) | -4.35 (8.91) | 1.99 | -8.52, -0.18 | -2.19\* | 0.49 | 5 (25) | 15 (75) | 0 (0) |
| Notes. Completers’ analysis. a*p*<0.08; \**p*<0.05; \*\**p*<0.01; \*\*\*Skewed and kurtotic distribution. b To calculate the reliable change criterion for the ISMI total score, standard deviation values per item as reported in Boyd Ritsher et al. (2003) were averaged. c To calculate the reliable change criterion for PSYRATS-H, test-retest reliability values per item as reported in Haddock et al. (1999) were averaged. CORE-10 = Clinical Outcomes in Routine Evaluation; QPR = Questionnaire about the Process of Recovery; VQ = Valuing Questionnaire; SMQ = Southampton Mindfulness Questionnaire; AAQ-II = Acceptance and Action Questionnaire-II; CFQ = Cognitive Fusion Questionnaire; BADS-SF = Behavioral Activation for Depression Scale – Short Form; ISMI = Internalized Stigma of Mental Illness Scale; GSE = General Self-Efficacy scale; PSYRATS – D = Psychotic Symptom Rating Scales delusions scale; PSYRATS-H = Psychotic Symptom Rating Scales auditory hallucinations scale. |

***Regression analyses***

Two multiple linear regression analyses were conducted, one using change in personal recovery as the criterion and the other change in wellbeing, and both using change in process measures as the predictors (Table 4). All process measures were entered simultaneously in each regression equation.

The overall equation for the model associated with change in perceived personal recovery was significant. Only change in committed action was a significant predictor of change in recovery, alone accounting for 40% of the variance, while the other variables contributed an additional 10%. Change in mindfulness and change in cognitive fusion were significantly correlated with change in committed action (bivariate correlations are .37 and -.34, respectively).

The overall equation for the model associated with change in wellbeing was also significant. Change in mindfulness was a significant predictor of wellbeing change, accounting for 53% of the variance, while the others contributed an additional 8%. Change in committed action, cognitive fusion, and experiential avoidance were all significantly correlated with change in mindfulness (bivariate correlations are .37, -.60, -.64).

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| Table 4. *Summary of Linear Multiple Regressions* |  |  |  |  |
| Equation | β | *t* | *r* | Partial *r* |
| Equation 1: Change in personal recovery (QPR) |   |   |  |  |
| F (4, 31) = 7.847\*\*\*; R2 = .503; adjusted R2 = .439 |  |  |  |  |
| Change in engagement in committed action (VQ-Progress) | 0.501 | 3.621\*\* | 0.635 | 0.545 |
| Change in mindfulness (SMQ) | 0.223 | 1.285 | 0.508 | 0.225 |
| Change in cognitive fusion (CFQ) | -0.115 | -0.549 | -0.454 | -0.098 |
| Change in experiential avoidance (AAQ-II) | -0.047 | -0.218 | -0.413 | -0.039 |
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| Equation 2: Change in wellbeing (CORE-10) |  |  |  |  |
| F (4, 31) = 12.200\*\*\*; R2 = .612; adjusted R2 = .561 |  |  |  |  |
| Change in engagement in committed action (VQ-Progress) | 0.003 | 0.025 | -0.288 | 0.005 |
| Change in mindfulness (SMQ) | -0.492 | -3.211\*\* | -0.731 | -0.500 |
| Change in cognitive fusion (CFQ) | 0.078 | 0.424 | 0.608 | 0.076 |
| Change in experiential avoidance (AAQ-II) | 0.303 | 1.597 | 0.677 | 0.276 |
| Notes. \**p* < .05; \*\**p* < .01; \*\*\**p* < .001. CORE-10 = Clinical Outcomes in Routine Evaluation; QPR = Questionnaire about the Process of Recovery; VQ = Valuing Questionnaire; SMQ = Southampton Mindfulness Questionnaire; AAQ-II = Acceptance and Action Questionnaire-II; CFQ = Cognitive Fusion Questionnaire. |

***Feedback interview***

Thirty-seven of 80 eligible first-time participants (46.3%, *n*=78, 2 missing data) completed the feedback interview. Descriptive statistics of the responses are displayed in Table 5. Most participants’ *general reflection* responses (93.2%) indicated they found the group to be a positive experience. Nearly all responses (91.9%) regarding the *perceived effect of group* indicated that learning about ACT improved their lives. ‘Engaging in values-based actions or working towards goals’ was the most frequently reported reason cited for improvement (27.1%). Consistent with this, the *most helpful aspects* of the group reported (*n*=58 responses) included the ACT-based activities/concepts (34.5%), and the group format (44.8%) which was described as normalizing their lived experience and reducing feelings of isolation. The *most unhelpful aspects* of the group reported (*n*=38 responses) was active group participation (sharing in the group [13.2%]; acting out the central metaphor [13.2%]). Regarding specific activities, those most frequently reported as *‘most useful’* (*n*=59 responses) were the central metaphor (33.9%) and mindfulness exercises (39.0%), while those identified as *‘least liked/useful’* (*n*=34 responses) were mindfulness exercises (26.5%) and no activities (20.6%). Regarding *suggested changes*, most participants (70.3%) reported the group format preferable to engaging in individual ACT.

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| Table 5. *Descriptive statistics of first-time attendees' feedback interview responses* |
| **General reflection: Q1: How did you find the ACT for psychosis group?** |  | **Least useful activity: Q3a: Which group activity was the least useful for you?** |
| Eligible participants (*n*=78) | *n* (%) |  | Eligible participants (*n*=78) | *n* (%) |
| At least 1 response provided | 37 (47.4%) |  | At least 1 response provided | 34 (43.6%) |
| Missing data | 41 (52.6%) |  | Missing data | 44 (56.4%) |
| Responses (*n*=73)\*; 3 broad categories | *n* (%) |  | Responses (*n*=34)\*; 10 categories | *n* (%) |
| Helpful | 44 (60.3%) |  | Mindfulness exercises\*\* | 9 (26.5%) |
| Enjoyable | 24 (32.9%) |  | None | 7 (20.6%) |
| Negative response | 5 (6.8%) |  | Passengers on the Bus metaphor & Acting out exercise\*\* | 4 (11.8%) |
|  |  |  | Clipboard exercise\*\* | 3 (8.8%) |
| **Helpful aspects: Q2: What did you find most helpful about the group?** |  | SMART goals activity\*\* | 3 (8.8%) |
| Eligible participants (*n*=78) | *n* (%) |  | Other | 3 (8.8%) |
| At least 1 response provided | 36 (46.2%) |  | Noticing exercise\*\* | 2 (5.9%) |
| Missing data | 42 (53.8%) |  | Values activity\*\* | 1 (2.9%) |
| Responses (*n*=58)\*; 5 broad categories | *n* (%) |  | Sticky labels activity\*\* | 1 (2.9%) |
| Positive group environment | 26 (44.8%) |  | Group not helpful | 1 (2.9%) |
| ACT activities or concepts | 20 (34.5%) |  |  |  |
| Learning coping strategies | 7 (12.1%) |  | **Perceived effect of group: Q4: Did learning about ACT improve your life?** |
| Increased motivation | 3 (5.2%) |  | Eligible participants (*n*=78) | *n* (%) |
| Other | 2 (3.4%) |  | At least 1 response provided | 37 (47.4%) |
|  |  |  | Missing data | 41 (52.6%) |
| **Useful activity: Q2a: Which group activity was the most useful for you?**  |  | Dichotomous response (*n*=37) | *n* (%) |
| Eligible participants (*n*=78) | *n* (%) |  | Yes | 34 (91.9%) |
| At least 1 response provided | 35 (44.9%) |  | No | 3 (8.1%) |
| Missing data | 43 (55.1%) |  | Specific responses (*n*=85)\*, 13 categories | *n* (%) |
| Responses (*n*=59)\*; 8 categories | *n* (%) |  | Engaging in values-based actions or working towards goals | 23 (27.1%) |
| Mindfulness exercises\*\* | 23 (39.0%) |  | Symptom reduction/improved wellbeing/recovery | 9 (10.6%) |
| Passengers on the Bus metaphor & Acting out exercise\*\* | 20 (33.9%) |  | Increased motivation to use skills/hope/self-efficacy | 8 (9.4%) |
| SMART goals\*\* | 4 (6.8%) |  | Increased cognitive defusion | 8 (9.4%) |
| Clipboard metaphor/exercise\*\* | 3 (5.1%) |  | Increased knowledge of ACT/coping skills | 6 (7.1%) |
| Values activity\*\* | 3 (5.1%) |  | Thinking differently (perspective shifting) | 6 (7.1%) |
| Group format (Universality, Instillation of hope)\*\*\* | 2 (3.4%) |  | Universality, Imparting information, Instillation of hope\*\*\* | 6 (7.1%) |
| All activities | 2 (3.4%) |  | Improved/increased coping skills | 5 (5.9%) |
| Other | 2 (3.4%) |  | Increased awareness | 4 (4.7%) |
|  |  |  | No | 3 (3.5%) |
| **Unhelpful aspects: Q3: What did you like least about the group?**  |  | Increased acceptance/acknowledgment | 3 (3.5%) |
| Eligible participants (*n*=78) | *n* (%) |  | Increased socialisation/improved interpersonal relationships | 3 (3.5%) |
| At least 1 response provided | 34 (43.6%) |  | Other | 1 (1.2%) |
| Missing data | 44 (56.4%) |  |  |  |
| Responses (*n*=38)\*; 7 categories | *n* (%) |  | **Suggested changes: Q5: Preferred individual sessions, or group program?** |
| Active group participation | 10 (26.3%) |  | Eligible participants (*n*=78) | *n* (%) |
| Nothing | 7 (18.4%) |  | At least 1 response provided | 37 (47.4%) |
| Specific program activity | 6 (15.8%) |  | Missing data | 41 (52.6%) |
| Non-attendance/non-participation of other group members | 5 (13.2%) |  | Dichotomous response (*n*=37) | *n* (%) |
| Program design (e.g., session length, number of activities) | 4 (10.5%) |  | Group | 26 (70.3%) |
| Non-program related factor (e.g., time of group) | 3 (7.9%) |  | Individual | 7 (18.9%) |
| Experiencing distress during group | 3 (7.9%) |   | Either | 4 (10.8%) |
| Note: \*More than 1 response possible per participant. \*\* (O'Donoghue et al., 2018). \*\*\* (Yalom & Leszcz, 2005). |

**Discussion**

This unfunded, single-group real-world study demonstrated R-ACT is a feasible, acceptable and safe program to conduct in routine outpatient public mental health care for adults diagnosed with a psychotic disorder. Program records indicated the program and its evaluation were feasible with over 95% of consumers enrolled in the program and its evaluation and 78% initially engaging with the program; acceptable with most program discontinuation unrelated to the program and no withdrawals from the evaluation; and safe with no reported serious adverse reactions. Uncontrolled pilot data are consistent with the program’s potential effectiveness in improving personal recovery and wellbeing. Participants who completed the program had significant increases in personal recovery and wellbeing by the end of the 7-week program with three psychological flexibility processes changing in the expected directions with small to medium effect sizes. Engagement in committed actions were associated with change in personal recovery, while change in mindfulness was associated with change in wellbeing. For a subgroup, the program was associated with a decrease in internalized stigma and auditory hallucinations, and an increase in behavioral activation. About one-fifth of participants demonstrated reliable improvement in personal recovery.

***Implementation feasibility, acceptability and safety***

We observed consistent indicators that the program was feasible to implement and acceptable to participating consumers, facilitators and public mental health services, and safe. The program was feasible: nine groups were conducted by nine facilitators over three years at three services. Nearly all referred consumers attended an engagement session and over 95% enrolled in a group (some more than once). Engagement in groups was easily sufficient for program viability: 78% attended at least one session (including all completers), and all completers with attendance data (74.4%) attended more than three sessions suggesting our *a priori* minimum dose could be achieved. Further, no serious adverse reactions were reported indicating R-ACT is safe.

 An unexpected indicator of program feasibility and acceptability is its expansion within and across a public mental health service. While initially intending to pilot the program for two groups, positive responses from facilitators and consumers resulted in the services and facilitators conducting additional groups. Further, clinicians at a nearby service sought our assistance to offer the program, also joining the study. The program’s feasibility and acceptability were likely assisted by facilitators’ and services’ access to training and support from senior psychologists experienced in ACT for psychosis. Another motivator facilitators reported was the opportunity to implement psychology-specific services in their case-management role (Gates et al., 2021).

Rates of discontinuation did not appear to threaten viability of either the program within routine practice, or a future evaluation trial, however, the reasons for discontinuation were notable. Reasons for program discontinuation suggest a minority of participants were deterred by anxiety about the group format. Regardless of whether this reflects community levels of social anxiety (Crome et al., 2015) and/or the co-occurrence of anxiety in persons living with psychotic disorders, rates of discontinuation for this reason were manageable and are not uncommon (e.g., Chadwick, Hughes, Russell, Russell, & Dagnan, 2009). However, the program itself targets such distress, and modelling by facilitators encourages development of skills aimed at mitigating such experiences (O’Donoghue et al., 2018). Some program discontinuation was associated with deterioration in mental state; this, also, is not unexpected for consumers recovering from psychotic disorders (e.g., Johns et al., 2016), and facilitators reported no evidence of the group being a causal factor. Nonetheless, future exploration of strategies to support attendance such as further case manager or peer supports, and taster sessions, may be fruitful.

For those who completed the group, feedback interview responses further underscored the program’s acceptability with over 93% of responses characterizing the group as helpful/enjoyable. Benefit was derived from participation, namely connecting with individuals with similar lived experience and from reduced feelings of isolation, two common group therapeutic factors (Yalom & Leszcz, 2005).

***Evaluation feasibility, acceptability and safety***

Not only was the program feasible, acceptable and safe, so too was the evaluation process. All facilitators and services engaged in the program’s evaluation. Local area managers granted facilitators time to recruit and consent participants and collect data. Available environmental supports contributed strongly to the feasibility and acceptability of the program’s evaluation for facilitators and services (Gates et al., 2021). The program’s evaluation was supported by an in-house academic unit taking responsibility for ethics applications, data management and analysis, and led by senior psychologists experienced in program implementation in public mental health services.

The evaluation was also reasonably acceptable to consumers. Over 85% of consumers invited to participate in the evaluation consented, with high measure completion rates.

***Pilot data***

The larger than expected data set enabled an analysis of data revealing statistically significant signals of change on outcome measures, and importantly, associations with outcomes by theoretically-based process measures. These results both support the use of our primary outcome measures, and suggest that more definitive trialing of R-ACT is warranted. Our results build on evaluations of the first group-based ACT program for personal recovery from psychosis, ‘ACT for Life’ (Johns et al., 2016; Jolley et al., 2020). Although run in a different country, both programs were conducted in publicly-funded secondary specialist mental health services in lower socio-economic status districts. Another small, uncontrolled study in Turkey also indicates group ACT for recovery from psychosis may increase quality of life, decrease delusions and experiential avoidance (Burhan & Karadere, 2021). Together, these studies suggest group-based ACT is an acceptable outpatient program for adults diagnosed with psychosis, building core ACT skills, and possibly increasing personal recovery with improvements in psychotic symptoms, functioning and wellbeing. Our choice of a well-recognized measure of personal recovery, the QPR, as the primary outcome measure, was intended to capture this construct more comprehensively than previous studies. The outcome signal from this measure was in the range of effect sizes for psychological interventions for psychosis (Turner et al., 2014). Participants’ feedback suggests the group format as particularly helpful in reducing feelings of isolation and normalizing their diagnosed condition.

We found change in psychological flexibility processes correlated with change in personal recovery and wellbeing, consistent with results from the ‘ACT for Life’ study (Johns et al., 2016). Engagement in committed action was associated with increased personal recovery; increased mindfulness was associated with improved wellbeing. Although replication is needed, these results provide increasing confidence that group ACT supports greater personal recovery and wellbeing, when also considered in light of findings from a recent pragmatic randomized controlled feasibility trial (Jolley et al., 2020).

Our study extends knowledge of possible impacts of group ACT for psychosis. During the first groups offered, facilitators noticed that some participants were reporting less self-stigma or engaging in more active lives. Informed by these observations, measures assessing internalized stigma and behavioral activation were added to the evaluation. What was clinically observed appeared captured by the measures – after completing the program participants reported significant reductions in internalized stigma and increases in behavioral activation. Both findings are important and relevant.

Internalized stigma is a common experience for people living with psychosis (Brohan, Elgie, Sartorius, & Thornicroft, 2010). Coupled with participants’ feedback, the group format may have helped normalizing participant’s mental health experience, leading to a greater self-acceptance (less internalized stigma). This finding contributes to the field of psychosocial interventions targeting self-stigma among individuals diagnosed with psychosis (Lucksted et al., 2017; Wood, Byrne, Enache, & Morrison, 2018).

Participants also described engaging more in activities. Conceptually, change in behavioral activation supports the observed changes in engagement in committed action-a core component of the ACT model. This result is consistent with qualitative research reporting the experiences of people completing individual therapy with ACT for psychosis (Bacon, Farhall, & Fossey, 2014). Participants’ feedback also supports this result. A theme emerged from participant interviews regarding the group’s perceived effect: continued engagement in value-based actions despite experiencing psychotic symptoms.

***Strengths and limitations***

The uncontrolled study design is a primary limitation. Although initially proposed as a feasibility and acceptability study, the pilot data are consistent with the ACT model and now require replication. It is possible that changes in outcomes may be attributed to non-intervention factors (e.g., natural course of condition), however, changes in ACT-specific processes were likely due to program participation and some were associated with outcomes. Over 90 percent of participants noted the program improved their life, and most attributed the improvement to engaging in values-based actions and the group format. Furthermore, facilitators were involved in the program evaluation and contributed to the program’s implementation and evaluation. This collaboration likely supported the evaluation regarding measure selection, evaluation engagement, and measure completion. Although assessments were conducted by the facilitators and thus not blind, all measures were self-reports, and were scored and analyzed by a research assistant. Nonetheless, the possibility of a favorable bias in participants’ responses cannot be ruled out. Another limitation in estimating program feasibility is missing attendance data.

We chose completer analyses rather than intention-to-treat, to seek treatment efficacy signals for those exposed to the intervention; results may have favored the treatment as one-third discontinued the program. However, there were no significant baseline differences between those completing post-group measures and those who did not.

***Conclusion***

This is the first study of group-based ACT targeting personal recovery from psychosis adapted to the Australian context, following the original UK-based program. Although conducted in a different public mental health service in another country, with some modifications, the program was feasible to run with minimal external support, acceptable to consumers, facilitators and services alike, and safe. Improvements in participants’ personal recovery and wellbeing suggest the program has potential to deliver its target outcomes. Our finding that increases in psychological flexibility processes were associated with gains in personal recovery and wellbeing suggests these may be active change processes. While our conclusions are tentative, the evidence indicates a controlled trial is warranted. Such a study is now underway (ANZCTR no. 12620000223932).

**Acknowledgement:** We wish to acknowledge the contribution of the group participants, all consumers who access mental health services through NorthWestern Mental Health, The Royal Melbourne Hospital, Melbourne, Australia. We also thank the co-facilitators and the managers of the mental health services involved.

**Declaration of Conflict of Interest:** None.

**Data Availability Statement:** The data are not publicly available as the authors do not have research participants’ permission to share data.

**Financial Support:** This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

**Ethical Standards:** The study received Quality Assurance approval from the Royal Melbourne Hospital’s Human Research Ethics Committee (QA 2015.151). Research conformed to the Declaration of Helsinki.

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1. In Australia, ‘consumer’ is the most widely used term to refer to ‘service users’ or ‘clients’ or ‘people accessing services for their mental health.’ It was the term used in the services in which the study was conducted. [↑](#footnote-ref-2)