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Positive Psychotherapy for Psychosis in Hong Kong: A Randomized Controlled Trial

Menza Hon-wai Chu[a*]
Bien Lau[a]
Joey Leung[b]
Sheung Chun Chan[b]
Betty Tang[a]
Charles Lau[a]
Christopher Newby[c]
Rose Chiu[a]
William Tak-lam Lo[b]
Beate Schrank[d]
Mike Slade[e]

[a]Occupational Therapy Department, Kwai Chung Hospital, Hong Kong, People's Republic of China
[b]Department of Psychiatry, Kwai Chung Hospital, Hong Kong, People's Republic of China
[c]School of Medicine, University of Nottingham, United Kingdom
[d]Karl Landsteiner University of Health Sciences, Department of Psychiatry, Krems,, Austria
[e]School of Health Sciences, Institute of Mental Health, University of Nottingham, United Kingdom

* Corresponding author
Menza Hon-wai Chu
Occupational Therapy Department
Kwai Chung Hospital
Hong Kong, People's Republic of China
Tel: (852) 2959-8078
Email: chuhw@ha.org.hk

Abstract

Recovery-oriented practice has been advocated in mental health services in Hong Kong since 2009. Well-being has become an important area of focus for mental health services. Positive Psychotherapy for Psychosis (PPP) is a well-being-focused intervention for use in psychosis, with preliminary evidence from a randomized controlled trial in the United Kingdom of impact on well-being and symptomatology. The aim of this study was to test the effectiveness of PPP on the well-being of people with psychosis in Hong Kong.

The study was a randomized controlled trial with two-arm parallel groups. Both groups received treatments as usual, and in addition the intervention group received a 13-session intervention based on a Cantonese Chinese translation of the PPP manual. Intention-to-treat analysis was used. The trial was registered (ANZCTR: ACTRN12620000464965).

A total of 154 participants (78 intervention, 76 control) were recruited. As compared to control group, intervention group participants showed significant changes over time on the primary outcome of well-being assessed using the Chinese Short Warwick-Edinburgh Mental Well-being Scale (p=0.001) and on secondary outcomes of hope (Agency subscale: p=0.029) and self-efficacy (p=0.001).

Positive Psychotherapy for Psychosis was found to be an effective treatment in improving the well-being and other mental health outcomes for people with psychosis. It can be recommended for use in mental health services to promote recovery.

Keywords: Recovery, Well-being, Postive Psychotherapy, Randomized controlled trial, Psychosis

1. Introduction

Recovery-oriented practice has been advocated in local clinical settings of mental health services in Hong Kong since 2009 (Lee et al., 2014). Well-being has become an important area of focus in mental health services (Browne et al., 2017; Fava, 2016; Slade et al., 2017b) It is an important variable as an outcome measure in personal recovery (Macpherson et al., 2016). Average well-being in people with psychosis is lower than subjective well-being levels in the general population (Broyd et al., 2016), partly due to high self-stigma (Dubreucq et al., 2021). Determinants associated with lower levels of well-being in people with psychosis include unemployment, lack of social support, poorer coping strategies and distressing beliefs.

The use of positive psychology approaches in mental health care is increasing (Walsh et al, 2017) for example in depression (Lopez,-Gomez et al, 2017). The relevance of positive psychology to both psychiatric rehabilitation[3] (Moran et al, 2013) and mental health recovery (Slade, 2010) has become clearer. Specifically in relation to psychosis, theoretical studies have developed an understanding of how wellbeing is conceptualised (Schrank et al, 2013) and psychosis-specific mechanisms involved in changing wellbeing over time (Schrank et al 2014a). A number of pilot studies have been published (Meyer et al, 2012, Mankiewicz et al, 2013, Valiente et al, 2021), and a 2021 systematic review of positive psychology interventions for schizophrenia concluded that positive psychology improve wellbeing and as a promising adjunctive intervention (Pina et al, 2021). In Hong Kong, it was not a conventional practice to implement therapeutic programs of well-being in mental health service on top of symptom management. A well-being program in acute service was proven to be effective in promoting mental well-being and personal hope in a pilot study done in 2015. (Ng et al, 2015)

Positive Psychotherapy for Psychosis (PPP) is an intervention to improve well-being in people with psychosis. PPP was developed in the United Kingdom (UK) for use in psychosis by modifying an existing intervention called Positive Psychotherapy which targets depression (Seligman et al., 2006). The theoretical basis for PPP comprises a conceptual framework for understanding well-being in psychosis (Schrank et al., 2013) and a change model characterising how well-being improves in psychosis (Schrank et al., 2014a). The design of the intervention was informed by the expertise of mental health clinicians (Schrank et al., 2016) and service users (Riches et al., 2016).

The PPP intervention was evaluated in a pilot randomized controlled trial (n=94) in the UK (Schrank et al., 2014b). Result showed that there was improvement on the primary outcome of well-being as measured by the Warwick Edinburgh Mental Well-being Scale (WEMWBS) in the intervention (p=0.01) (Schrank, 2016) However, when comparing to the control group, it showed a non-significant positive association between the intervention and WEMWBS score at follow-up. The trial also found evidence for a beneficial effect on symptomatology assessed with the Brief Psychiatric Rating Scale (p=0.006, effect size 0.42), depression assessed with the Short Depression Happiness Scale (p=0.03, effect size 0.38) and well-being assessed using the Positive Psychotherapy Inventory (p=0.02, effect size 0.30). Process evaluation (n=37) was positive (Brownell et al., 2015), with participants indicating increased ability to savour experiences, identify and develop strengths, exercise forgiveness, experience gratitude, and therapist self-disclosure, a specific feature of the intervention (Riches et al., 2020). After refinement based on the process and outcome evaluation, the final version of the treatment manual was published (Slade et al., 2017a).

The aim of this study was to evaluate the Chinese version of PPP in a randomized controlled trial, in order to establish the effectiveness of PPP for improving the well-being of people with psychosis in Hong Kong.

2. Material and methods

2.1 Design

The study was a randomized controlled trial with two-arm parallel groups. The trial was registered at the Australian New Zealand Clinical Trials Registry (ANZCTR): ACTRN12620000464965. No change was made to the primary or secondary outcome after trial approval. All participants gave their written informed consent. The study was approved by the Research Ethics Committee of the Kowloon West Cluster, Hong Kong Hospital Authority (KWC REC no. 99-10). We strictly observed and followed the ethical requirement throughout the research in accordance with the World Medical Association Declaration of Helsinki.

2.2 Participants

Inclusion Criteria were: aged 18-65; clinical diagnosis of psychosis with ICD 10 codes between F20-F29 (affective and non-affective psychosis) as recorded in the electronic record in the Clinical Management System; currently using secondary mental health services; able to read written Chinese and speak Cantonese; willing to give written consent. Exclusion criteria were: cognitive impairment; active substance abuse; refused to give consent.

2.3 Setting

All participants were recruited from the ambulatory service of Occupational Therapy Department of Kwai Chung Hospital in Hong Kong.

2.4 *Treatments*

2.4.1 Control group

Standard care in the Occupational Therapy Department (Treatment as usual, TAU) includes prevocational training or interest group. After setting recovery goals together with occupational therapists, participants are invited to attend the prevocational training in simulated workshops, for example industrial, clerical, retailing and cleaning roles. Additionally, participants can attend social groups such as arts and crafts, cooking etc. based on their interest. All participants are also using mental health services, so receive regular out-patient follow-up from a psychiatrist including mental state assessment and medication monitoring.

2.4.2 Intervention group

Intervention group participants received standard care (TAU) plus access to the PPP intervention (Chu et al., 2015). PPP is a strengths-based intervention, differing from many traditional therapies which tend to be deficit-based or problem-based. It includes exercises which look at identifying and developing personal strengths, noticing and remembering positive experiences, and topics such as gratitude and forgiveness. It also contains practical tools to aid understanding of the different topics, and to support maintenance of gains when the

intervention has finished. PPP exercises focus on mindful savouring of enjoyable experiences, positive responding, identifying, developing and using character strengths, finding positives in negative events and also includes areas such as forgiveness and gratitude.

A group of Occupational Therapists working in mental health service in Kwai Chung Hospital in Hong Kong translated the Positive Psychotherapy for Psychosis (PPP) manual into Cantonese Chinese (Chu et al., 2015). The translated manual was then culturally adjusted by local therapists and peer support workers. The final intervention comprises a 13-session group-based intervention. Session topics are: Welcoming – introducing the group, group guidelines and rationale; Positive Experience – Positive responding; Savouring, mindful eating, drinking and listening exercises; Good Things – identify recent good things using the Good Things Box; Identifying a Personal Strength – Identify one character strength using Strengths Pictures; Personal Strengths – Plan and carry out an activity using your strength; At my best – How to carry out the activity based on individual strengths; One door closes another door opens – Identify positive conclusion from negative experiences; Forgiveness 1 – Focus on letting go of a grudge; Forgiveness 2 - Identify a person to forgive and write him / her a letter; Gratitude – Identify a person you have never properly thanked; Looking back Moving forward – Group discussion on personal strengths; and Celebration – Celebrate achievement in the group.

Table 1

Positive Psychotherapy for Psychosis sessions

Session	Ongoing Exercise	Content	Target area(s)
1. Welcome to WELLFOCUS PPP	Positive Introduction	Group guidelines, rationale, positive responding	Positive experiences,· strengths
2. Positive Experiences	Positive responding	Positive responding, At my best	Positive experiences
3. Savouring	Planned savouring activity	Mindful eating, drinking and listening exercises	Positive experiences
4. Good Things	Identify good things	Identify recent good things using the Good Things Box	Positive experiences
5. Identifying a Personal Strength	Identify a character strength	Identify one character strength using strengths pictures	Strengths
6. Personal Strengths Activity	Strength Activity	Plan and carry out an activity using your strength	Strengths
7. At my best	Strength Activity with Significant Other	Plan and carry out activity that uses strengths of individuals	Strengths, positive relationships
8. One door closes, another door opens	One Door Closes Another Door Opens	Identify positive conclusions from negative experiences	Meaningful self-narrative

9. Forgiveness 1	A Sea of Forgiveness	Focus on letting go of a grudge	Positive relationships, meaningful self-narrative
10. Forgiveness 2	Forgiveness letter	Identify a person to forgive and write them a letter	Positive relationships, meaningful self-narrative
11. Gratitude	Writing a gratitude letter	Identifying a person you have never properly thanked and write them a letter	Positive relationships
12. Looking back, moving forward	Self-review, positive experiences, Strengths	Personal Strengths, At my best, Group Discussion	Strengths, Positive relationships, meaningful self-narrative
13. Celebration	Positive responding	Celebrate achievements	Positive experiences

2.5 Procedures

Occupational therapists were informed about the trial in person and through posters, and asked to refer service users. Eligibility was established through an initial conversation in person or by phone with the potential participant and their clinician. After establishing eligibility, a meeting was arranged with a researcher. The study was explained and an opportunity given to answer questions, after which informed consent was requested. Baseline measures were then completed by the participants (CSWEMWBS, CHS, CGSS, SF-12), and the psychiatrist interviewed the participant to complete staff-rated measures (HoNOS, BPRS and CDSS-C). Participants were given an information card giving details of emergency contacts related to participation.

After completion of baseline measures, participants were randomly allocated to either the intervention or control group in a 1:1 ratio by random number generated by Microsoft Excel. Allocation was conducted using block randomisation, with blocks of size 16 allowing 8 participants per group. Researchers and clinical staff were blinded to allocation status. Participant blinding was not possible due to their group participation.

All participants continued to receive standard care. Additionally, intervention group participants attended the 13 PPP sessions with a closed group size of 6-8 participants held over 7 consecutive weeks (i.e. 2 sessions per week) by trained therapists and co-therapists. Therapists followed the Chinese PPP manual (Chu et al., 2015) in which the session outlines, activities, scripts and materials of each session were well documented and defined. Several approaches were used to maximize fidelity. A 3-day training for local clinicians on using the programme and its theoretical base was held by one of the English-language PPP experts (BS) in Hong Kong in January 2016. Peer supervision sessions were arranged among trained therapists to harmonize the implementation of each

session in advance of the study. Peer observation by impartial rater sitting in the group was arranged to make sure that the implementation was based on the rundown documented in the PPP manual. Consultation after sessions was available by email from BS to discuss and ensure the details of each session whenever necessary. Some sessions were randomly recorded by videotape to record implementation, and reviewed by the principal investigator (MHC) to monitor fidelity against the sessional contents documented in the PPP manual. Finally, staff who were independent of the research team attended some sessions to monitor implementation against the session contents of the manual.

Control and intervention group participants from the same randomization block were asked to rate all outcome measures two weeks after the intervention, i.e. two months after baseline assessments. Trial recruitment took place between August 2016 and November 2019, with data collection completed by January 2020.

2.6 Measures

2.6.1 Measurement of Primary outcome

The Chinese Short Warwick-Edinburgh Mental Well-being Scale (CSWEMWBS) (Ng et al., 2014) is a 7-item patient-rated measure of well-being. Each item is rated on a 5-point Likert scale from 1 to 5, and the score is the sum of these items, ranging from 7 (low well-being) to 35. The psychometric properties of CSWEMWBS (Slade et al., 2017a) are equivalent to the original English language version (Tennant et al., 2007), with internal consistency of 0.89 (Cronbach's alpha), a single factor structure similar to the original version by factor analysis, and concurrent validity (positively correlation with WHO-5 well-being index). C-SWEMBS was chosen as the primary outcome because it is short, acceptable and culturally meaningful to Chinese people with mental illness.

2.6.2 Measurement Secondary Outcomes

2.6.2.1 CHS. The Chinese Hope Scale (CHS) is a 12-item patient rated measure of hope (Sun et al., 2012). Each item is rated on an 8-point Likert scale from 1 (definitely false) to 8 (definitely true). The measure is a translation of the Snyder Hope Scale (Synder et al., 1991), has acceptable internal consistency of 0.7 and a two-factor solution corresponding to sub-scales of Agency (four items related to goal-directed determination) and Pathway (four items related to planning ways to meet goals). Both CHS Agency and CHS Pathway sub-scale sum scores range from 4 (low hope) to 32, and the CHS total sum score ranges from 8 (low hope) to 64.

2.6.2.2 CGSS. The Chinese General Self-efficacy Scale (CGSS) is a 10-item patient-rated measure of self-efficacy (Chiu and Tsang, 2004). Each item is rated on a 4-point Likert scale from 1 (definitely false) to 4 (definitely true), and the total score is the sum of these items, ranging from 10 (low self-efficacy) to 40 (high self-efficacy). The internal consistency of CGSS is 0.92 and test-retest reliability is 0.85.

2.6.2.3 SF-12. The Short Form-12 (SF-12) health survey was used to measure quality of life (Lam et al., 2005). The SF-12 consists of 12 items. It contains some Likert response formats in a 3-point scale e.g. limited a lot, limited a little or not limited at all, which assesses limitations in physical activity and physical role functioning. It

also contains another 5-point scale e.g. not at all, a little bit, moderately, quite a bit and extremely which assesses pain. The scores of Mental Health (6 items) and Physical Health (6 items) are calculated into a total score, ranging from 0 (more dysfunction) to 100. It is a valid tool to measure the health-related quality for the Chinese in Hong Kong (Lam et al., 2005).

2.6.2.4 HoNOS. The Health of the Nation Outcome Scale (HoNOS) is a 12-item staff-rated measure of social disability. Items covered a range of problem areas rated on a five-point scale from 0 (no problem) to 4 (serious problem), with a sum score ranging from 0 (no disability) to 48. Cronbach's alpha for the English-language scale varied between 0.59 and 0.76, with test-retest reliability ranging between r=0.65 and 0.40 for seven items, and 0.31 to 0.32 for three items (Wing et al., 1998; Brooks, 2000).

2.6.2.5 BPRS. The Brief Psychiatric Rating Scale (BPRS) is an 18-item staff-rated measure of psychiatric symptom severity over the past week prior to the assessment (Overall and Gorham, 1998). Each item is rated on a seven-point Likert scale from 1 (not present) to 7 (extremely severe). The overall sum score ranges from 18 (no symptoms) to 126. The internal consistency of the overall scale lies between 0.65 and 0.79, with sub-scales for withdrawal/retardation, thinking disorder, anxiety/depression, and activation varying between 0.77 and 0.88. Inter-rater reliability for the BPRS has been reported between 0.87 and 0.97.

2.6.2.6 CDSS-C. The Cantonese version of the Calgary Depression Rating Scale (CDSS-C) is a 9-item staff-rated measure of symptoms of depression. Each item is rated on a 4-point Likert scale from 0 (not at all) to 3 (severe). The sum scale ranges from 0 (no symptoms) to 27. Internal consistency was 0.80, intra-class correlation coefficient for test-retest reliability was 0.86, there were significant correlations between CDSS-C and Assessment of Positive Symptoms in delusion scale, and concurrent validity was demonstrated (Xiao et al., 2009).

2.7 Statistical analysis

2.7.1 Sample size

The sample size was estimated to detect the difference of a medium effect size (0.5) between the intervention group and the control group on the primary outcome (well-being assessed using the Chinese Short Warwick-Edinburgh Mental Well-being Scale CSWEMWBS). To detect this difference (alpha 0.05, 80% power), 63 participants need to be recruited to each arm (total n=126). Allowing for 20% attrition, 76 participants per arm (n=152 in total) are needed.

2.7.2 Data Analysis

SPSS Version 22 was used to conduct the quantitative analysis in the trial. To ensure there was no significant difference on their basic sociodemographic characteristics between the intervention group and control group prior to the intervention and to avoid possible confounders such as gender, age, educational level and employment status, baseline demographic data were compared between two groups using chi-square for categorical data and t-test for continuous data. Baseline assessments on outcome measures were compared by t-test. The outcome measures were compared pre and post for within patient differences and between groups intervention/control for

between patient differences using a two way repeated measures ANOVA.

Intention-to-treat analysis was conducted which was a strategy used to analyze the results of an RCT that considered the subjects in the way they were randomized at the beginning of the trial regardless of "lost to follow up", i.e. whether they completed the intervention given to their group or whether they withdrew from the treatment; or "Cross-over" i.e. what treatment they actually received. There are a number of approaches to handle the missing data when lost to follow up. The approach of dealing with the missing data in this RCT was an endpoint analysis, i.e. "last observation carried forward, LOCF" which included data for the last known state of the subjects in the analysis. (Armijo-Olivo et al, 2009)

2.7.3 Exploratory analysis

Baseline sociodemographic characteristics were tested as predictors of outcome using allocation status (control / intervention) as an interaction effect, with significant interaction effects reported.

3. Results

The participant flow throughout the trial is shown in the flow diagram in Figure 1.

*Insert **Figure 1** Consort flow chart here*

The individual who declined to participate gave no explanation. The attrition rate was 12% in the intervention group and 18% in the control group. For intervention group, median of sessions attended was 11 sessions out of 13 sessions.

There were no significant differences between participants in the intervention and control group at baseline except CGSS, as shown in Table 1.

Table 2

Sociodemographic characteristics of participants (n=154)

n (%)	**All**	**Control**	**Intervention**	**Chi²**
	154	76	78	
Gender				
Male	53 (34)	29 (38)	24 (31)	0.34
Female	101 (66)	47 (62)	54 (69)	
Age				
18-29	32 (21)	13 (17)	19 (24)	0.17
30-39	40 (26)	16 (21)	24 (32)	
40-49	38 (25)	20 (26)	18 (23)	
50+	44 (29)	27 (36)	17 (22)	
Education				
Primary	16 (10)	9 (12)	7 (9)	0.52

Secondary	115 (75)	58 (76)	57 (73)	
Tertiary	23 (15)	9 (12)	14 (18)	
Occupation				
Unemployed	138 (90)	69 (91)	69 (88)	0.64
Employed/Student	16 (10)	7 (9)	9 (12)	
Baseline comparison				**T-test p-value**
CSWEMWBS	20.73 (4.28)	21.39 (4.75)	20.09 (3.67)	0.06
CHS total	41.59 (12.31)	42.07 (12.48)	41.13 (12.21)	0.64
CHS Agency	20.77 (3.42)	21.14 (6.51)	20.41 (6.34)	0.48
CHS Pathway	20.91 (6.45)	21.12 (6.59)	20.72 (6.35)	0.70
CGSS	22.62 (7.05)	23.80 (7.59)	21.46 (6.33)	0.04
HoNOS	7.27 (4.38)	7.17 (4.60)	7.37 (4.18)	0.78
CDSS-C	2.84 (3.24)	2.63 (2.77)	3.04 (3.64)	0.44
BPRS	27.76 (6.29)	27.83 (6.18)	27.69 (6.43)	0.89
SF-12 Mental health	44.34 (8.36)	44.23 (8.50)	44.44 (8.27)	0.88
SF-12 Physical health	43.57 (10.50)	43.83 (9.53)	43.31 (11.42)	0.76

For the repeated measures two-way ANOVA, F-tests and p-values are in table 3 for the effect of time(pre and post), group (intervention/control), and the effect of group over time(interaction of group*time), graphs of estimated means can be seen in figure 2. Outcomes CSWEMBS, CHS Agency, CHS Pathway, CHS Total, CGSS, HoNOS and BPRS all significantly changed over time when adjusting for group and group interactions. Outcomes CSWEMBS, CHS Agency and CGSS change over time was significantly different between intervention and control. For people in the intervention CSWEMBS increased over time and people in the control this decreased over time. This was also the case for CSWEMBS agency. For the outcome CGSS people in the intervention showed an increase over time where as people in the control arm stayed more or less the same for CGSS.

Table 3

Two way repeated measures ANOVA estimates for time (pre and post) and group (control and intervention) and interaction (difference in group over time)

Variable	Time (Within subject)	Time (Within subject)	Group (Between subject)	Group (Between subject)	Time*Group (interaction)	Time*Group (interaction)
	F-test	p-value	F-test	p-value	F-test	p-value
CSWEMWBS	3.946	0.049*	0.031	0.860	12.183	0.001*
CHS Agency	6.343	0.013*	0.029	0.865	4.858	0.029*
CHS Pathway	6.408	0.012*	0.152	0.697	0.006	0.937
CHS Total	7.873	0.006*	0.008	0.929	1.830	0.178

CGSS	9.466	0.003*	0.462	0.498	11.807	0.001*
HoNOS	4.690	0.032*	0.829	0.364	1.410	0.237
CDSS-C	1.215	0.272	0.105	0.747	0.072	0.789
BPRS	6.918	0.009*	1.084	0.300	1.675	0.198
SF-12 Mental health	.109	0.742	0.282	0.596	0.232	0.631
SF-12 Physical health	2.003	0.159	0.140	0.708	0.535	0.466

Figure 2

Estimated marginal means for time pre and post and groups

*Insert **Figure 2** here*

Figure 2 show estimated marginal means for time pre and post and group(control/Intervention, see legend) for the 10 outcome variables CSWEMBS, CHS Agency, CHS Pathway, CHS Total, CGSS, HoNOS, CDSS-C, BPRS, SF12 Physical Health, SF12 Mental Health. Variables are * if the differences of group over time, the gradients of the lines, are significant.

3.1 Exploratory analysis

Interaction effects were explored for sociodemographic characteristic effect with intervention/control for all trial outcomes. The only interaction effects were seen for gender and for the CDSS-C outcome, which found a significant smaller intervention effect for female participants (Beta= -2.91, S.E.= 1.12, d.f.= 150, p= 0.01) i.e. women who were in the intervention arm had a 2.91 decrease in CDSS-C then men in the intervention arm.

4. Discussion

Our findings are in line with other empirical investigations of wellbeing in psychosis. For example, a study of subjective wellbeing involving 47 participants with a diagnosis of paranoid schizophrenia identified a complex relationship between positive affect and life satisfaction, and the presence of a number of adaptive mechanisms influencing well-being (Mankiewicz et al, 2013b). Similarly a pilot study involving 16 participants receiving a group psychotherapy for schizophrenia identified changes across a range of domains, including well-being, hope, recovery, self-esteem and symptomatology (Meyer et al, 2012). Overall the evidence indicates that positive psychology-based interventions in psychosis can positively impact well beyond the target outcome domain of wellbeing. There is also emerging evidence of a possible protective effect in building resilience and reducing likelihood of transition from at-risk to schizophrenia (Grant et al, 2018). The need for a new form of ‘positive psychiatry for schizophrenia’ has been put forward (Jeste et al, 2017).

This randomized controlled trial conducted in mental health service in Hong Kong found that PPP was more

effective than standard care in improving the participants' well-being and secondary outcomes of hope and self-efficacy. As well as opening up intervention options to promote well-being, this study serves as an important milestone for clinicians to use positive psychotherapy for people with psychosis in both their clinical practice and future research in Hong Kong. However, this was still a small scale trial. We do hope more robust and multi-centre studies would be done in future.

The UK PPP trial found no significant effect of intervention group on well-being after adjusting for baseline, with the observed effect size of 0.15 not reaching significance (Schrank et al., 2016). By contrast, our Chinese PPP trial had a larger sample size (n=154 versus n=94 in UK trial), and the primary outcome of well-being was significantly improved, possibly due to our larger sample size and more collectivist culture of Hong Kong supporting the use of group therapies. Another Hong Kong study evaluating the impact of a 'Five Ways to Well-being' program in acute psychiatric settings showed significant improvement of mental well-being and hope at follow-up (Ng et al., 2015). The study used a prospective cohort rather than a randomized controlled trial design, and also showed improvements in well-being and hope were also found to predict reduce clinic attendance and re-admission rates six months after discharge. Overall, there is a growing body of evidence that well-being-focused interventions are relevant and effective when used in Hong Kong mental health services.

4.1 Strengths and Limitations

The use of a randomized controlled trial design had several advantages. The intervention manual was modified by local experts to increase cross-cultural validity, trial procedures were followed with a focus on maximizing fidelity, the risk of selection bias was reduced through randomization, and both intention-to-treat analysis and per-protocol analysis were conducted.

One limitation is the necessary un-blinding of participants, which was partially addressed by efforts to blind outcome assessors. We may introduce placebo therapeutic group in future studies. However, response bias from participants cannot be excluded, and it is noteworthy that only patient-rated measures showed significant improvement in the intention-to-treat analysis. Another limitation was the absence of a quantitative fidelity assessment to formally asses the success of the various strategies used to maximize the adhere to the treatment manual. Finally, the measurement of outcome only at post-intervention means that long-term maintenance of well-being gains was not assessed. Future studies with measurement at post-intervention intervals such as 3-month or 6-month post-intervention would allow long-term effects to be investigated.

5. Conclusion

In conclusion, the results of this randomized controlled trial indicated a promising efficacy and acceptability of implementing a positive psychotherapy group in clinical practice in Hong Kong. The positive outcomes for people with psychosis indicate the need for clinicians in Hong Kong to develop more skills in supporting well-being, in order to promote positive identity change (Conneely et al., 2020).: There is an increasingly strong evidence base about the relevance of positive psychology-based interventions to mental health care (Bolier et al., 2013; Chakhssi et al., 2018) and specifically to services for people with psychosis (Mankiewicz et al., 2013). The next stage may

be the development of a focus specifically on well-being within mental health services. This will involve increasing the skills of mental health workers in providing interventions such as PPP and Well-being therapy (Fava, 2016), which is partly a training challenge (Daley et al., 2020) but also relates to organizational culture (Repper and Perkins, 2013). There may be parallels with efforts to integrate strengths-based approaches into mental health care. Strengths-based approaches have a strong evidence base (Tse et al., 2016) and are now being evaluated in Hong Kong (Tsoi et al., 2019; Tse et al., 2019). Another resource available in Hong Kong are peer support workers (Tse et al., 2017), and their role in supporting well-being merits future investigation. Finally, qualitative research about how people in Hong Kong understand recovery, and specifically the implications of a more collectivist culture, may inform new approaches to supporting well-being in people living with psychosis.

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Declaration of competing interest

The authors have no conflict of interest to declare.

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Figure 1

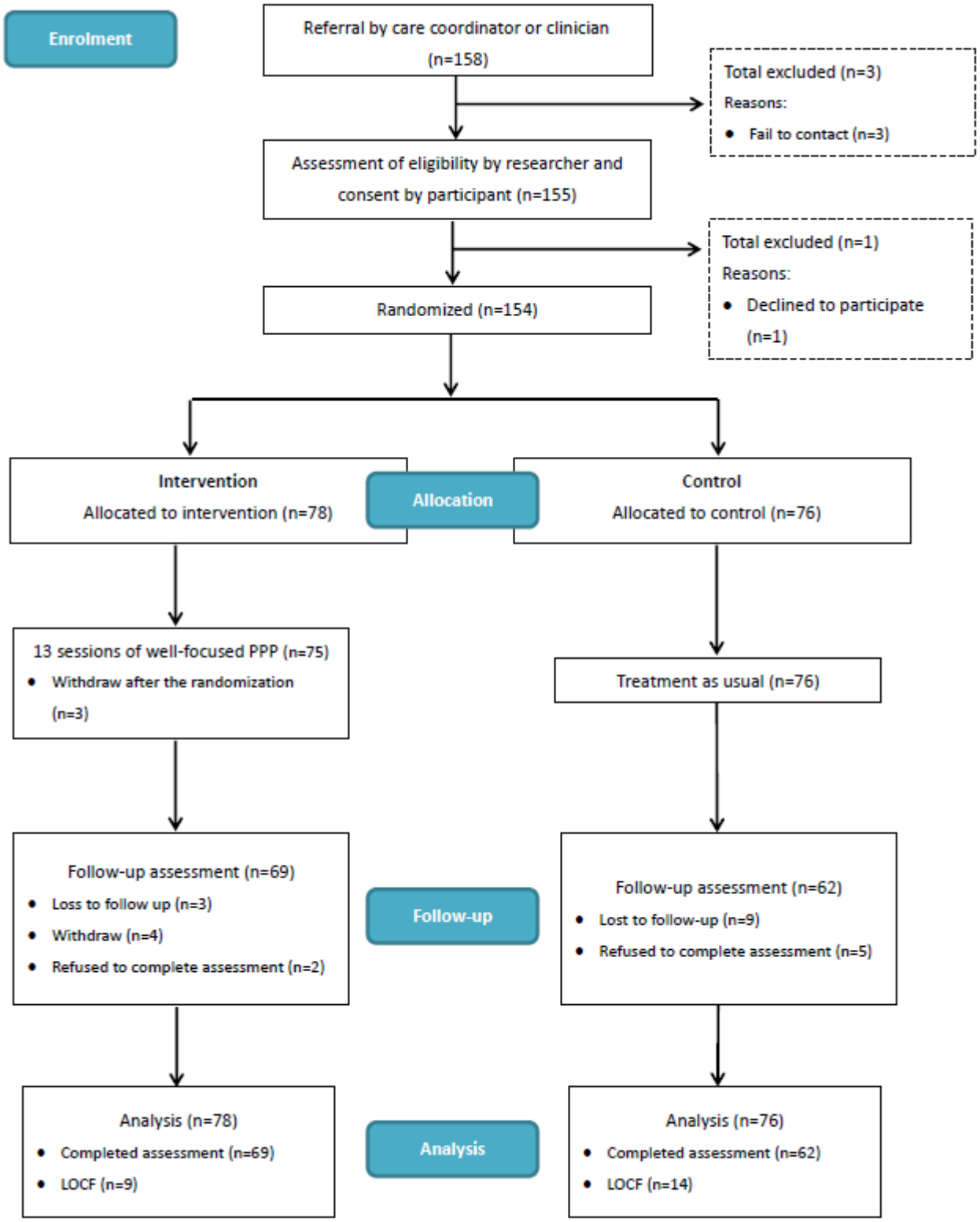
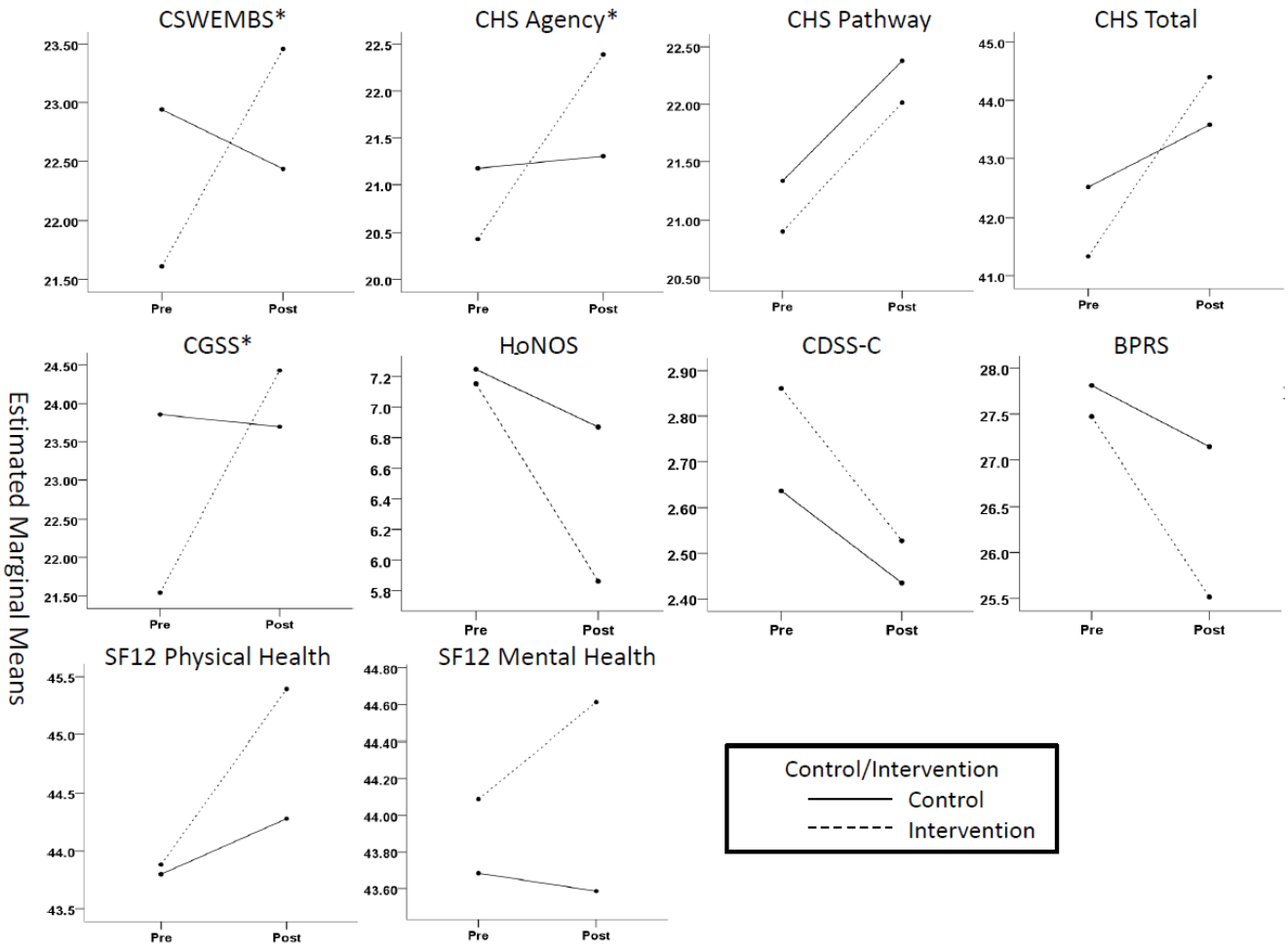

Enrolment
Referral by care coordinator or clinician (n=158)
Total excluded (n=3)
Reasons:
Fail to contact (n=3)
Assessment of eligibility by researcher and consent by participant (n=155)
Total excluded (n=1)
Reasons:
Declined to participate (n=1)
Randomized (n=154)
Intervention
Allocated to intervention (n=78)
Allocation
Control
Allocated to control (n=76)
13 sessions of well-focused PPP (n=75)
Withdraw after the randomization (n=3)
Treatment as usual (n=76)
Follow-up assessment (n=69)
Loss to follow up (n=3)
Withdraw (n=4)
Refused to complete assessment (n=2)
Follow-up
Follow-up assessment (n=62)
Lost to follow-up (n=9)
Refused to complete assessment (n=5)
Analysis (n=78)
Completed assessment (n=69)
LOCF (n=9)
Analysis
Analysis (n=76)
Completed assessment (n=62)
LOCF (n=14)

Figure 2


CSWEMBS*
CHS Agency*
CHS Pathway
CHS Total
CGSS*
HoNOS
CDSS-C
BPRS
SF12 Physical Health
SF12 Mental Health
Estimated Marginal Means
Pre
Post
Control/Intervention
Control
Intervention