Effects of a mindfulness-based psychoeducation programme for Chinese patients with schizophrenia: 2-year follow-up

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Background
Psychoeducation programmes for people with schizophrenia are shown to reduce relapses but few studies have indicated significant improvements in patients’ illness awareness and insight, functioning, symptom severity or rates of readmission to hospital.

Aims
To examine the effects of a mindfulness-based psychoeducation programme for Chinese people with schizophrenia.

Method
A multisite randomised controlled trial was conducted with 107 out-patients with schizophrenia: 36 and 35 received a 6-month mindfulness-based psychoeducation and a conventional psychoeducation programme, respectively, and 35 received routine care alone. Patient outcome measures were psychiatric symptom severity, psychosocial functioning, social support, insight into illness/treatment, and frequency and duration of readmissions to hospital (ClinicalTrials.gov: trial registration NCT01667601).

Results
The mindfulness-based psychoeducation group reported significantly greater improvements in psychiatric symptoms, psychosocial functioning, insight into illness/treatment and duration of readmissions to hospital over 24 months when compared with the other two groups.

Conclusions
Mindfulness-based psychoeducation appears to be a promising approach to treatment for Chinese patients with schizophrenia.

Declaration of interest
None.


Many people with schizophrenia continue to experience disabling residual and remitted symptoms, impaired functioning and high relapse rates in community care. Practice guidelines and systematic reviews recommend that psychoeducation in either an individual or group format, on a fortnightly to monthly basis, should be offered to patients with schizophrenia as it is consistently effective in reducing relapse and encouraging adherence to medication. However, as with other models of psychosocial intervention, the effects of psychoeducation on patients’ awareness of and insight into their schizophrenia and other functional outcomes over the longer term are inconclusive. This may be because these interventions focused less attention on awareness of and insight into mental illness or its symptoms, and offer limited strategies for motivating and self-empowering patients in their illness management. Other methodological limitations of studies of psychosocial interventions include few multisite trials with diverse health outcomes, small sample sizes and high attrition rates. Mindfulness-based stress reduction programmes aim, through meditation and discussion, to change patients’ relationships with thoughts and negative feelings – they can experience how mindful observation and acceptance of their illness such as affective and organic brain disorders. From each clinic, those eligible patients who agreed to participate were listed in alphabetical order and then selected randomly from the list (n = 35–36 per clinic), using a computer-generated random numbers table.

Sample size was estimated on the basis of previous clinical trials of psychoeducation for Chinese patients with schizophrenia, when compared with those receiving either conventional psychoeducation or usual care.

The study was a multicentre randomised controlled trial with a repeated-measures design to compare the intervention outcomes in three groups of patients with schizophrenia (ClinicalTrials.gov: trial registration NCT01667601). The study was undertaken in Hong Kong between August 2010 and March 2013. Analysis of data was on an intention-to-treat basis and all participants were followed up over 24 months, irrespective of whether the intervention was completed or not.

Participants and study settings
Of approximately 1085 eligible patients with schizophrenia (15% of this patient population) attending three out-patient clinics in the largest geographical region (New Territories) of Hong Kong, 515 (48%) were successfully contacted. Of these, 450 (87%) agreed to participate and 107 (24%) were then randomly selected. Chinese out-patients with schizophrenia from the three clinics were eligible to participate if they: (a) had a diagnosis of schizophrenia according to DSM-IV criteria; (b) had a history of ≤5 years of illness at recruitment; (c) were aged 18 years or over; and (d) were able to understand Chinese/Mandarin. Patients were excluded if there was comorbidity with another mental illness such as affective and organic brain disorders. From each clinic, those eligible patients who agreed to participate were listed in alphabetical order and then selected randomly from the list (n = 35–36 per clinic), using a computer-generated random numbers table.

Method
in which symptom severity and relapse rate were the main outcomes.\textsuperscript{11,12} Sample size calculation indicated that 108 participants ($n = 36$ per group) were required to detect any statistically significant differences in psychiatric symptom severity and rates of readmission to hospital between three groups with effect sizes of 0.50 and 0.48 respectively, an alpha of 0.05 and a power of 0.80, allowing for 20\% potential attrition.\textsuperscript{13} With informed written consent and baseline measurement taken at recruitment, 107 patients were randomly assigned to either mindfulness-based psychoeducation ($n = 36$), conventional psychoeducation ($n = 36$) or usual care ($n = 35$, 1 withdrew before the intervention). Another 65 patients were approached but refused because of a lack of interest in participating ($n = 28$), an unwillingness to be known as having a mental illness ($n = 20$) and/or an inconvenient time for group meetings ($n = 17$).

**Procedure**

This trial was approved by the Human Subject Research Ethics Committee of the university and the study clinics and a flow diagram summarises the study procedures according to the revised version of the CONSORT statement (Fig. 1).\textsuperscript{14} After giving their written consent, patients were asked to draw a sealed opaque envelope, in which a labelled number card indicated the group to which they were assigned. An independent trained research nurse performed the outcome measurements using a set of questionnaires before treatment allocation (Time 1), at 1 week (Time 2), 12 months (Time 3) and 24 months (Time 4) following the 6-month interventions. Both the assessor and clinic staff were masked to treatment allocation.

**Measures**

At Times 1–4, the research nurse asked the participants to complete four questionnaires: the Brief Psychiatric Rating Scale (BPRS).\textsuperscript{15} Specific Levels of Functioning Scale (SLOF).\textsuperscript{16} 6-item Social Support Questionnaire (SSQ6)\textsuperscript{17} and Insight and Treatment Attitudes Questionnaire (ITAQ).\textsuperscript{18} Frequency and duration of readmissions to psychiatric hospital over the previous 6 or 12 months at Times 1–4 were collected from clinic records.

The 18-item BPRS has been used globally in clinical assessment and research to assess the severity of psychiatric symptoms.\textsuperscript{15} Items were rated on a seven-point Likert scale (0, not assessed; 1, not present; 6, extremely severe). The BPRS indicated satisfactory content validity, interrater reliability (intraclass correlation (ICC) = 0.89), and internal consistency (Cronbach’s $\alpha = 0.85$) in Chinese patients with psychosis.\textsuperscript{19}

The 43-item SLOF measures the levels of patients’ psycho-social functioning and comprises three functional domains for patients with schizophrenia: self-maintenance (12 items); social functioning (14 items); and community living skills (17 items).\textsuperscript{16} The Chinese version used in this study showed satisfactory content validity, test–retest reliability (Pearson’s $r = 0.79$), and internal consistency (Cronbach’s $\alpha = 0.90$–0.96 for subscales) in Chinese patients with schizophrenia.\textsuperscript{12,19}

The SSQ6 was used to measure each patient’s satisfaction with the social support available in his/her immediate social environment.\textsuperscript{17} The items are rated on a six-point Likert scale, with a higher total score (range 0–6) indicating more satisfaction with the available social support. The translated Chinese version indicated satisfactory content validity and internal consistency (Cronbach’s $\alpha = 0.89$–0.93) in Chinese patients with psychosis.\textsuperscript{11,19}

The 11-item ITAQ\textsuperscript{18} measures patients’ awareness of and insight into illness and need for treatment in schizophrenia. Its items are rated on a three-point Likert scale (0, no insight; 1, partial insight; and 2, good insight). The higher the score, the better is the patient’s insight regarding recognition of illness-related problems and willingness to receive treatment. The Chinese version indicated satisfactory internal consistency (Cronbach’s $\alpha = 0.82$), interrater reliability (ICC = 0.82) and correlation (Pearson’s $r = 0.56$ and 0.60, $P < 0.001$) for symptom severity and psychopathology.\textsuperscript{20}

Patients’ demographic and clinical data (for example age, gender, education and duration of illness) were also collected at baseline. Dosages of antipsychotic medication examined from patients’ out-patient progress sheets were converted into haloperidol equivalents for comparison.\textsuperscript{21}

**Mindfulness-based psychoeducation programme**

Participants ($n = 36$) received 12 fortnightly, 2h sessions of the mindfulness-based psychoeducation programme (MBPP group) (i.e. over 24 weeks), with 11–13 patients per group, in addition to usual psychiatric out-patient care (as described below). The programme was developed in accordance with recent psychoeducation programmes.\textsuperscript{11,22} as well as a mindfulness-based stress reduction programme tested in Chinese patients with depression.\textsuperscript{8} One nurse therapist led and facilitated patients to become more aware of and relate differently to their thoughts, feelings and sensations such as hallucinations and delusions, rather than identifying with them as accurate readouts on reality. The programme consisted of seven components in three phases (see online supplement):

(a) phase 1: orientation and engagement, empowerment and focused awareness of experiences, bodily sensations/thoughts and guided awareness exercises and homework practices;

(b) phase 2: education about schizophrenia care, intentionally exploring and dealing with difficulties regarding symptoms and problem-solving practices; and

(c) phase 3: behavioural rehearsals of relapse prevention strategies, accessible community support resources and future plans.

Individual participants were requested to regularly (daily) practice intentional and focused awareness of body sensations, thoughts and feelings and mindful walking in the early phases, and in later stages, select self-empowering and constructive perspectives for working with negative/distressing thoughts and feelings.

As mindfulness training served to increase patients’ acceptance and management of their individual thoughts and emotional responses within their cultural context, the programme adopted a few strategies to address traditional Chinese cultural tenets. For instance, the first phase focused on understanding strong interdependence and inviting more mutual support and problem-solving among group members. In the second/third phases, patients were encouraged to cultivate an open, accepting mode of their responses to problems/stimuli and develop a ‘decentred’ attitude (recognising that the established beliefs and practices constitute only one of several possible interpretations) on their thoughts/feelings.\textsuperscript{8} Resolution around strong self-centeredness (for example, saving face and reconstruction of self-image) was reinforced.

**Conventional psychoeducation programme**

In addition to usual out-patient care, participants in the conventional psychoeducation programme group (CPEP group, $n = 36$) received a 6-month programme of conventional psychological support and education conducted by a trained psychiatric nurse experienced in leading psychiatric rehabilitation and education groups. Similar to the mindfulness-based psychoeducation
programme, this group programme consisted of 12 fortnightly, 2 h sessions (11–13 participants per group). Its content was modified from other similar programmes20,23 and comprised four stages: engaging and empowering individual patients (two sessions on orientation and engagement of participants and discussion about goals); education and survival skills workshop (four sessions covering basic facts on schizophrenia and stressful life situations and coping strategies); preventing relapse through problem-solving training (four sessions); and evaluation of knowledge and skills learnt, and preparation for the future (two sessions).

The psychiatric nurses in both the psychoeducation programmes were trained by the research team and a psychotherapist with a 3-day workshop and supervised practice within all group sessions. Progress monitoring of the two programmes was conducted between group sessions and consisted of regular reviews of audiotapes of each session by the research team, together with the nurse therapists, and clarification of any problems encountered.

Usual out-patient care
Participants in the usual care group (n = 35) received usual psychiatric out-patient services, which were similar across the three clinics. These services included monthly medical consultation and treatment by psychiatrists, advice and brief education on medication and community care services by psychiatric nurses, social welfare and financial assistance by medical social workers, and individual and family counselling by clinical psychologists whenever necessary.

Data analyses
All quantitative data collected were analysed on an intention-to-treat basis using SPSS version 19.0 for Windows. Differences in demographic characteristics and the outcome measures (BPRS, SLOF, SSQ6, ITAQ and readmission to hospital rates) at Time 1 between the three study groups and between the three clinics under study within each of the three groups were assessed by

Fig. 1 Flow diagram of clinical trial for psychoeducation and usual care groups.
BPRS, Brief Psychiatric Rating Scale; SLOF, Specific Levels of Functioning Scale; SSQ6, 6-item Social Support Questionnaire; ITAQ, Insight and Treatment Attitudes Questionnaire.
analysis of variance (ANOVA) or the Kruskal–Wallis test (H-statistic) as appropriate. Without any violation of assumptions of normality, linearity and homogeneity of variance-covariance and multicollinearity,13 multivariate analysis of variance (MANOVA) was performed for the dependent (outcome) variables to determine the treatment effects over time (group × time interactive effects), followed by univariate analyses (repeated-measures ANOVA) of the variables if the MANOVA test results were significant. Bonferroni’s multistage procedure was used to adjust the significance level for the multiple ANOVA analyses (adjusted \( P = 0.01 \)).24 The Helmert contrast codes were set to test any significant differences between groups on those measures that indicated a significant interactive effect of time × group in the repeated-measures ANOVA tests.13 Except for the repeated-measures ANOVA test, the level of statistical significance was set at 0.05.

### Results

#### Sample characteristics

Demographic and clinical characteristics of the three study groups and non-participants were similar (Table 1, see online Table DS1 for a more detailed version of this table), with no statistically significant differences (\( P > 0.15 \)). More than half of the patients (56–60%) were taking medium dosages of oral or intramuscular antipsychotics (haloperidol equivalent mean values were between 8.5 mg/day (s.d. = 5.1) and 11.3 mg/day (s.d. = 6.3)). The mean duration of the illness was 2.6 years (range 3–60 months).

Three participants (8.3%) in each of the MBPP and CPEP groups and one (2.9%) in the usual care group either dropped out or were absent for more than 4 of the 12 group sessions. Reasons were similar, including lack of time/interest to attend, unstable mental state, and/or limited family encouragement and support. One CPEP participant died before the intervention and their data were excluded from the outcome analysis.

#### Homogeneity of study groups

There were no statistically significant differences in the amount and types of atypical v. conventional antipsychotics at Times 1–4 (ANOVA or \( \chi^2 \) tests, \( P > 0.10 \)) between the three groups (Table 1) nor in the baseline mean scores of the outcome measures (\( F(5,104) = 1.35, \ P > 0.20 \)) and between the three clinics within each of the study groups (\( H \) statistic: 1.2–1.8, \( P > 0.1 \)), or significant correlations (\( r < 0.20 \)) between demographic characteristics and all of the outcome measures (BPRS, SLOF, SSQ6, ITAQ and frequency and duration of readmissions to hospital), indicating no covariate effects.

#### Effects of interventions

The multivariate analysis of the dependent variables (group × time) indicated a statistically significant difference between the three groups, \( F(5,104) = 5.98, \ P = 0.001 \) (Wilks’ \( \lambda = 0.92 \), partial \( \eta^2 = 0.28 \)). With this significant multivariate test result, repeated-measures ANOVAs of each of the outcome variables were performed. Results (Table 2 and Fig. 2) indicated that there were statistically significant differences between the three groups: a reduction in the BPRS score (\( F(2,104) = 4.36, \ P < 0.005 \)) and duration of readmissions to hospital (\( F(2,104) = 4.80, \ P < 0.004 \)), and an increase in the SLOF (\( F(2,104) = 4.98, \ P < 0.004 \)) and ITAQ scores (\( F(2,104) = 6.52, \ P = 0.002 \)).

### Table 1  Sociodemographic characteristics of patients receiving the mindfulness-based psychoeducation programme (MBPP), the conventional psychoeducation programme (CPEP) or usual care and non-participants at baseline measurement

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Group</th>
<th>( n )</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, ( n ) (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>20 (55.6)</td>
<td>21 (58.3)</td>
<td>1.21</td>
</tr>
<tr>
<td>Female</td>
<td>16 (44.4)</td>
<td>15 (41.7)</td>
<td>15 (42.9)</td>
</tr>
<tr>
<td>Age, mean (s.d.)</td>
<td>25.1 (6.8)</td>
<td>25.8 (7.9)</td>
<td>26.0 (8.5)</td>
</tr>
<tr>
<td>Education level, ( n ) (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school or below</td>
<td>8 (22.2)</td>
<td>8 (22.2)</td>
<td>8 (22.9)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>20 (55.6)</td>
<td>19 (52.8)</td>
<td>19 (54.3)</td>
</tr>
<tr>
<td>University or above</td>
<td>8 (22.2)</td>
<td>7 (25.0)</td>
<td>8 (22.9)</td>
</tr>
<tr>
<td>Monthly household income, HK$ (mean)</td>
<td>13240 (1714)</td>
<td>13010 (1805)</td>
<td>12805 (1980)</td>
</tr>
<tr>
<td>Duration of illness, years: mean (s.d.)</td>
<td>2.6 (1.7)</td>
<td>2.5 (1.8)</td>
<td>2.7 (1.8)</td>
</tr>
<tr>
<td>Number of family members living with patient, ( n ) (%)</td>
<td>13 (36.1)</td>
<td>14 (38.9)</td>
<td>13 (37.1)</td>
</tr>
<tr>
<td>Type of medication, ( n ) (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional antipsychotics (e. g. haloperidol)</td>
<td>9 (25.0)</td>
<td>8 (22.2)</td>
<td>8 (22.9)</td>
</tr>
<tr>
<td>Atypical antipsychotics (e. g. risperidone)</td>
<td>17 (47.2)</td>
<td>18 (50.0)</td>
<td>16 (45.7)</td>
</tr>
<tr>
<td>Antidepressants (e. g. fluoxetine)</td>
<td>5 (13.8)</td>
<td>4 (11.1)</td>
<td>4 (11.4)</td>
</tr>
<tr>
<td>Blended mode</td>
<td>5 (13.8)</td>
<td>6 (16.7)</td>
<td>7 (20.0)</td>
</tr>
<tr>
<td>Dosage of medication, ( n ) (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>9 (25.0)</td>
<td>10 (27.8)</td>
<td>9 (25.7)</td>
</tr>
<tr>
<td>Medium</td>
<td>20 (55.6)</td>
<td>20 (55.6)</td>
<td>21 (60.0)</td>
</tr>
<tr>
<td>Low</td>
<td>7 (19.4)</td>
<td>6 (16.7)</td>
<td>5 (14.3)</td>
</tr>
</tbody>
</table>

a. See online Table DS1 for a more detailed version of this table.

b. Analysis of variance (F-test, d.f. = 448) or the Kruskal–Wallis test by ranks (\( \chi^2 \) statistic, d.f. = 3) was used to compare the sociodemographic variables of patients among the three study groups and the non-participants.

c. US$1 = HK$7.8.

d. Patients were taking more than one type of psychotropic medication such as the use of either conventional and atypical antipsychotic or atypical antipsychotic together with one antidepressant.

e. Dosage levels of antipsychotic medication were compared with the average dosage of medication taken by schizophrenic patients in haloperidol-equivalent mean values.
P < 0.001) using a Bonferroni adjusted alpha level of 0.01. An examination of the adjusted mean scores at Times 1–4 (Fig. 2) indicated that the MBPP group reported more consistently positive improvements in ITAQ, SLOF and BPRS scores and duration of readmissions to hospital than the CPEP group. The usual care group reported mainly progressive mild negative changes of scores in all outcomes over the 2-year follow-up and a significant reduction in the SLOF and BPRS scores at Time 3.

There were also significant statistical differences on the mean scores of the three SLOF subscales between the three groups at Times 2–4. (Fig. 3). The MBPP group reported significantly greater improvements in self-maintenance (F(2,104) = 4.83), social functioning, (F(2,104) = 4.28) and community living skills (F(2,104) = 4.32) and all of their P-values were < 0.005 and with effect sizes (ν²) of 0.17 to 0.20 (large effects).24 Helmer’s contrasts indicated that the mean differences between groups at two time-points on the following outcomes were significant at 0.05, and contributed to the overall multivariate significance.

(a) The ITAQ score of the MBPP group increased more significantly from Times 1 to 4 than in the other two groups (MBPP v. CPEP group, mean differences were 0.7, 3.0 and 5.0 (s.e. = 0.3–1.9) and MBPP v. usual care group, mean differences were 1.7, 4.9 and 6.5 (s.e. = 0.6–2.4) at Times 2–4, respectively), whereas for the CPEP group it increased slightly over time.

(b) The SLOF score of the MBPP group increased more significantly from Times 1 to 4 (MBPP v. CPEP group, mean differences were 12.0, 22.7 and 30.8 (s.e. = 3.0–4.9) and MBPP v. usual care group, mean differences were 26.2, 47.3 and 57.8 (s.e. = 4.8–7.6) at Times 2–4, respectively). For the CPEP group it also increased and differed significantly from the usual care group, which showed a consistent reduction over time.

(c) The BPRS score of the MBPP group increased more significantly from Times 1 to 4 (MBPP v. CPEP group, mean differences were 4.1, 6.7 and 11.1 (s.e. = 0.9–3.0) and MBPP v. usual care group, mean differences were 6.1, 13.9 and 18.8 (s.e. = 1.9–4.5) at Times 2–4, respectively). For the CPEP group it also increased and differed significantly from the usual care group at Times 2 to 3.

(d) The duration of readmissions to hospital in the MBPP group were significantly reduced from Times 1 to 4 (MBPP v. CPEP group, mean differences (days) were 0.5, 3.5 and 5.1 (s.e. = 0.2–1.8) and MBPP v. usual care group, mean differences were 4.1, 7.2 and 10.0 (s.e. = 1.2–4.9) at Times 2–4, respectively). For the CPEP group it was slightly reduced and for the usual care group it consistently increased.

There were progressive mild but non-significant reductions in medication scores among the three groups based on the converted haloperidol equivalents,25 from a mean of 11.8–12.1 mg/day (s.d. = 3.8–4.2) at Time 1, a mean of 10.8–11.9 mg/day...
Mindfulness-based programme for schizophrenia

Discussion

Benefits of mindfulness-based psychoeducation

The findings from this study strongly suggest that mindfulness-based psychoeducation for schizophrenia appears to be a promising approach to the treatment of this condition. A 6-month programme of this intervention, when compared with conventional psychoeducation or usual care, resulted in better patient outcomes (severity of psychiatric symptoms, level of psychosocial functioning, awareness of and insight into illness and need for treatment and duration of readmissions to hospital) at 2-year follow-up. Interestingly, there were no statistically significant differences between the three groups in terms of satisfaction with social support or frequency of readmissions to hospital. With a paucity of clinical trials reported, these findings suggest that mindfulness-based psychoeducation can be effective not only in patients with recurrent depression, but also in people with schizophrenia and probably other psychotic disorders.5

This mindfulness-based psychoeducation programme is one of very few that has attempted to enhance awareness and acceptance among Chinese people with schizophrenia and that addresses their specific cultural needs (such as self-blame about having mental illness and interdependence among co-patients).7 Similar to mindfulness-based interventions in other clinical trials for depression, anxiety, and psychotic disorders, this programme can enhance psychotic patients’ positive thoughts and relieve their guilty feeling towards the illness and its symptoms. Recent literature on psychiatric treatments cautions against the use of mindfulness meditation training for people with psychosis because of concerns about the potential for exacerbating psychotic symptoms during meditation practice.6,7 Nevertheless, this clinical trial provides evidence attesting to this model of intervention improving these patients’ awareness of and insight into their illness, treatment needs and clinical functioning, supporting the findings of a feasibility trial in the UK of mindfulness groups for patients with distressing voices and paranoia.5 This clinical trial also demonstrates the significant longer-term (2-year) beneficial effects of a mindfulness-based programme. Whether these improvements are a result of a combined effect of mindfulness training and psychoeducation, all of which are considered potential therapeutic factors in different current models of psychosocial intervention, remains to be answered. Thus, further research to explore the therapeutic effects of the individual active elements in the programme is recommended. In addition, there is a suggestion that it may be particularly suitable for Chinese people who are self-conscious and internalising their emotions and feelings.8 The mindfulness-based programmes adopted in this trial and a few recent studies are all highly structured and demanding for participants and include work on home assignments using practices such as self-awareness of their body, redirecting and increasing their focus on symptoms and behaviours.6,26 These extensive assignments may not be easily implemented by patients with florid psychotic symptoms and an unstable mental state, or with chronic illness and negative symptoms. Therefore, the flexibility of the approach used should be studied further.

Fig. 2 Mean scores of study outcomes at baseline (Time 1) to 24-month follow-up (Time 4).

<table>
<thead>
<tr>
<th>Time of measurement</th>
<th>ITAQ mean score</th>
<th>SLOF mean score</th>
<th>BPRS mean score</th>
<th>SSQ6 mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
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<td>Time 3</td>
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<tr>
<td>Time 4</td>
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</tbody>
</table>

- MBPP group (n = 36)
- CPEP group (n = 35)
- Routine care group (n = 35)

Mindfulness-based psychoeducation programme (MBPP) group (n = 36); conventional psychoeducation programme (CPEP) group (n = 35); routine care group (n = 35). Time 2, 1-week follow-up; Time 3, 12-month follow-up.
Why a mindfulness-based psychoeducation group?

Mindfulness meditation training has been found to be effective in empowering patients to manage their distressing and negative thoughts and beliefs across a range of mental and physical health conditions, as well as demonstrating an encouraging prophylactic effect on illness relapse or recurrence in depressive and anxiety disorders.8,25 However, there are few studies reporting the usefulness of mindfulness meditation (trained voluntary deployment attention) for people with schizophrenia or psychosis to increase patients’ awareness of, and change their relationship with, unwanted thoughts, sensations and negative feelings. Our study reports similar positive outcomes to those found in all 15 with, unwanted thoughts, sensations and negative feelings. Our study demonstrates that mindfulness meditation training may be a useful intervention for people with schizophrenia or psychosis.

Limitations of the study

Only Chinese patients were recruited from three psychiatric outpatient clinics in one geographical region in Hong Kong. Although the participants in this study were randomly selected in these three clinics, most were volunteers who may have been highly motivated to participate in the group interventions, thus resulting in very low drop-out rates. These patients, whose schizophrenia was of short duration (mean 2.6 years), might not be representative of those with long-term or chronic schizophrenia, or of those with comorbidities of other mental disorders receiving mental healthcare services. Therefore, such selective sampling should be taken into consideration when comparisons are made between this and other studies of psychoeducation programmes.

Unlike the samples in some studies on psychoeducation groups, it is also important to note that more than half of patients recruited in this study were male, taking low/medium dosages of antipsychotics, living with their family, and had a high level of education. In addition, the participants were not masked to the intervention undertaken and any Hawthorne effect among the participants could not be excluded. Also, the programme was time-limited to 6 months and used a less standardised format than other psychoeducation programmes; and no booster session was offered.

Implications for further research

As the first pragmatic trial designed to evaluate the effect of a mindfulness-based psychoeducation group for young Chinese people with schizophrenia, these results lend support for further evaluation of this intervention as a treatment in other populations and settings. This may necessitate tailoring the structure and content of the programme to, for example, the cultural tenets of specific patient populations and evaluating its medium- to long-term effect. An exploration of not only individual participants’ perceptions of and satisfaction with the intervention but also the group process, in terms of enablers and barriers and degree of involvement,16 is essential to better understand the active ingredients of a mindfulness-based psychoeducation group.

In this study, the mindfulness-based psychoeducation programme had substantial positive effects for patients with schizophrenia in terms of psychiatric symptom severity, psychosocial functioning, awareness of and insight into illness and need for treatment and duration of readmissions to hospital. However, there were no significant effects on patients’ dosage of medication, service utilisation or perceived social support. Other longer-term benefits/outcomes used in psychoeducation studies such as improvement in global functioning, satisfaction with mental health services and quality of life warrant further investigation.4

Finally, in view of this intervention being shown to be effective, it will be interesting to observe whether further studies will replicate these findings and whether the intervention will be adopted more widely. There is a suggestion that it may be particularly suitable for Chinese people and we await with interest to see whether it is found to be so for other populations. Further research is needed to examine issues such as the flexibility of the approach used and whether the duration of the intervention has an impact on medication use. Therefore, it is important to investigate long-term effects, cost-effectiveness, and/or comparative effectiveness with other psychosocial interventions for schizophrenia, in larger representative samples from different socioeconomic and ethnic/cultural backgrounds with different durations of illness and/or comorbidities of other mental disorders.
Clinical implications

This mindfulness-based psychoeducation programme, when compared with a conventional psychoeducation programme and usual psychiatric out-patient care, appeared to be an effective alternative community-based intervention for Chinese people with schizophrenia. It was found to enhance patients’ awareness of and insight into their illness and treatments and reduce the duration of their readmissions to hospitals and, similar to other psychoeducation groups, can improve patients’ symptoms and functioning. The programme can yield improvements without any increased demand for community mental health services or medication use.

Acknowledgements

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References

### Mindfulness-based psychoeducation programme for people with schizophrenia

<table>
<thead>
<tr>
<th>Phase</th>
<th>Component</th>
<th>Goals or rationale</th>
<th>Main topics/themes</th>
<th>Practice</th>
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</thead>
</table>
| 1     | (1) Orientation and engagement (2 sessions) | (a) Establishment of mutual trust and respect, treatment goals and objectives, and expected roles and responsibilities in the group, and (b) Understanding of the group programme and information about the illness and its symptoms | - Orientation to the programme and its functions  
- Establishing trust and respect among group members  
- Achieving agreed goals and objectives  
- Schizophrenia and its impact | (i) Self-introduction and game activities  
(ii) Group discussion about their roles and responsibilities in the group, and about schizophrenia and its impact on patients and their families |
|       | (2) Focused awareness of bodily sensations, thoughts, feelings and symptoms (3 sessions) | Session 1: Stepping out of automatic pilot and negative thoughts  
- Rationale: (a) Mindfulness starts when we recognise the tendency to be on automatic pilot  
- (b) Commitment to learning how to step out of it and being aware of each symptom and related experience, and  
- (c) Practice in purposefully directing attention to bodily sensations and movements | - Orientation to the programme and its functions  
- Establishing trust and respect among group members  
- Achieving agreed goals and objectives  
- Schizophrenia and its impact  
- Body scan, noticing sensations, feelings and thoughts  
- Dealing with barriers to focusing thoughts, emotions and events, particularly pleasurable events | (i) Body scan  
(ii) Breath and awareness and mindfulness thereof  
(iii) Focusing on both pleasant and annoying events  
(iv) Focused awareness of the body, thoughts and feelings (homework) |
|       |           | Session 2: Mindfulness of the breath and staying present  
- Rationale: (a) Becoming familiar with the behaviour of the mind (often being busy and scattered)  
- (b) The mind is most scattered when trying to cling to something and avoid others, and  
- (c) Mindfulness offers a means to stay present by providing another place from which to view things | - Orientation to the programme and its functions  
- Establishing trust and respect among group members  
- Achieving agreed goals and objectives  
- Schizophrenia and its impact  
- Body scan, noticing sensations, feelings and thoughts  
- Dealing with barriers to focusing thoughts, emotions and events, particularly pleasurable events | (i) Seeing/hearing and intentional awareness of breath, body, sounds, and thoughts  
(ii) Three-minute breathing space (awareness of body, redirecting and expanding attention), opening with out-breath  
(iii) Stretching and breathing (homework)  
(iv) Walking and focused sensation  
(v) Yoga (homework) |
|       |           | Session 3: Acceptance, holding, allowing and letting be  
- Rationale: (a) Relating differently involves bringing to the experience a sense of allowing it to be as it is, without judging it or trying to make it different, and  
- (b) An accepting attitude is a major part of taking care of oneself and seeing clearly what, if anything, needs to change | - Orientation to the programme and its functions  
- Establishing trust and respect among group members  
- Achieving agreed goals and objectives  
- Schizophrenia and its impact  
- Body scan, noticing sensations, feelings and thoughts  
- Dealing with barriers to focusing thoughts, emotions and events, particularly pleasurable events | (i) Exercise on awareness of breath, body, thoughts and emotions  
(ii) Recognising and discussing difficulties with such awareness  
(iii) Expanded breathing space – opening up troubles in the mind and settling down these troubles  
(iv) Mindful walking |
|       | (3) Empowerment of self-control of psychotic symptoms and negative thoughts (1 session) | (a) Negative thoughts and moods that accompany them colour or reduce our ability to relate to experience  
(b) Thoughts are merely thoughts, we can choose whether to engage with them or not, and  
(c) The same patterns of thoughts recur again and again, without necessarily having to question them and seek alternatives | - Orientation to the programme and its functions  
- Establishing trust and respect among group members  
- Achieving agreed goals and objectives  
- Schizophrenia and its impact  
- Body scan, noticing sensations, feelings and thoughts  
- Dealing with barriers to focusing thoughts, emotions and events, particularly pleasurable events | (i) Expanded breathing space  
(ii) Alternative perspectives and options for working with thoughts  
(iii) Diary writing and awareness of early warning signs of relapse  
(iv) Selection of practices (homework) |

(continued)
### Mindfulness-based psychoeducation programme for people with schizophrenia (continued)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Component</th>
<th>Goals or rationale</th>
<th>Main topics/themes</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>(1) Knowledge of schizophrenia and its care (2 sessions)</td>
<td>(a) Understanding psychotic symptoms and individual psychosocial health concerns (b) Understanding cultural issues within family and society, and (c) Identifying important needs for patients, self and family</td>
<td>Patients' individual health needs in relation to schizophrenia care Information sharing of schizophrenia and its treatment Sharing of behavioural and perceptual problems, intense emotions, and feelings about illness management Discussing ways to deal with negative thoughts and emotions, cultural issues and beliefs of mental illness, stigma and family Information about medication and its effects, self-care, daily activities and functioning, and illness and home management</td>
<td>(i) Group discussion and video watching (ii) Information search from internet and healthcare organisations (iii) Expert (both ex-patients and professionals) sharing (iv) Selection of mindfulness practices learnt (homework) (v) Communication and social skills training</td>
</tr>
<tr>
<td></td>
<td>(2) Illness management and problem-solving (1 session)</td>
<td>(a) Information about self-management of schizophrenia and its related behavioural problems, and (b) Learning effective coping and problem-solving skills</td>
<td>Enhancing social support, stress coping and problem-solving skills by working on each member's life situations Performing behavioural rehearsals of social interactions with co-patients (and invited family members) within groups Review of real-life practice of coping skills learnt in group sessions</td>
<td>(i) Group discussion and video watching (ii) Ex-patients' sharing of illness management experiences (iii) Role play on coping and problem-solving skills (iv) Practices of coping skills learnt (homework)</td>
</tr>
<tr>
<td>III</td>
<td>(1) Behavioural rehearsal of relapse prevention (2 sessions)</td>
<td>Session 1: How can I best take care of myself? Rationale: (a) Specific things can be done when psychotic symptoms threaten my living and functioning (b) Taking a breathing space first and then deciding what action to take (c) Each patient has his/her own unique patterns of symptoms and relapse and thus also his/her own prevention strategies, and (d) Group members can provide support and help each other to plan the best self-care</td>
<td>Identifying signs of relapse and associated factors Reflect on daily activities, stressors and accompanying emotions (i.e. nourishing v. depleting activities) Evaluation of self-care, illness management, coping skills and interpersonal relationships</td>
<td>(i) Group discussion (ii) Role play and behavioural rehearsals of coping skills and self-reflection (iii) Awareness of breath, body, sounds, thoughts, difficulty, and social support (iv) Breathing space and selecting forms of practice to continue (v) Continuous practice of coping skills learnt (homework)</td>
</tr>
<tr>
<td></td>
<td>(2) Community resources and future plans (1 session)</td>
<td>(a) Being familiar with community support services and resources for schizophrenia care (b) Review of main issues and those skills learnt and selected for practices, and (c) Planning for future independent living</td>
<td>Summary of the main issues and topics covered and knowledge and skills learnt Introduction of available community support resources Issues expected in future life and psychological and behavioural preparations for the future Action plans for illness management and the future Questions and comments from group members and specific requests for follow-up</td>
<td>(i) Body scan, sitting and walking mindfulness (ii) Best wishing and positive thinking (iii) Group discussion about future problems (iv) Continuous practice of selected mindfulness strategies (homework)</td>
</tr>
</tbody>
</table>
Table D51 Sociodemographic characteristics of patients receiving the mindfulness-based psychoeducation programme (MBPP), the conventional psychoeducation programme (CPEP) or usual care and non-participants at baseline measurement*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>MBPP (n = 36)</th>
<th>CPEP (n = 36)</th>
<th>Usual care (n = 35)</th>
<th>Non-participants (n = 343)</th>
<th>Test value&lt;sup&gt;b&lt;/sup&gt;</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>20 (55.6)</td>
<td>21 (58.3)</td>
<td>20 (57.1)</td>
<td>198 (57.7)</td>
<td>1.21</td>
<td>0.34</td>
</tr>
<tr>
<td>Female</td>
<td>16 (44.4)</td>
<td>15 (41.7)</td>
<td>15 (42.9)</td>
<td>145 (42.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean (s.d.)</td>
<td>25.1 (6.8)</td>
<td>25.8 (7.9)</td>
<td>26.0 (8.5)</td>
<td>25.9 (12.8)</td>
<td>1.58</td>
<td>0.16</td>
</tr>
<tr>
<td>18–29</td>
<td>18 (50.0)</td>
<td>17 (47.2)</td>
<td>16 (45.7)</td>
<td>156 (45.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30–39</td>
<td>11 (30.6)</td>
<td>11 (30.6)</td>
<td>11 (31.4)</td>
<td>106 (30.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40–49</td>
<td>7 (19.4)</td>
<td>8 (22.2)</td>
<td>8 (22.9)</td>
<td>81 (23.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education level, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school or below</td>
<td>8 (22.2)</td>
<td>8 (22.2)</td>
<td>8 (22.9)</td>
<td>75 (21.9)</td>
<td>1.38</td>
<td>0.19</td>
</tr>
<tr>
<td>Secondary school</td>
<td>20 (55.6)</td>
<td>19 (52.8)</td>
<td>19 (54.3)</td>
<td>185 (53.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University or above</td>
<td>8 (22.2)</td>
<td>9 (25.0)</td>
<td>8 (22.9)</td>
<td>83 (24.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly household income, HK$&lt;sup&gt;c&lt;/sup&gt;: mean (s.d.)</td>
<td>13,240 (1714)</td>
<td>13,010 (1805)</td>
<td>12,805 (1980)</td>
<td>13,345 (2965)</td>
<td>1.45</td>
<td>0.15</td>
</tr>
<tr>
<td>5000–10,000</td>
<td>6 (16.7)</td>
<td>6 (16.7)</td>
<td>7 (20.0)</td>
<td>68 (19.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10,001–15,000</td>
<td>16 (44.4)</td>
<td>15 (41.7)</td>
<td>15 (42.9)</td>
<td>141 (41.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15,001–25,000</td>
<td>10 (27.8)</td>
<td>11 (30.6)</td>
<td>10 (28.6)</td>
<td>99 (28.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25,001–35,000</td>
<td>4 (11.1)</td>
<td>4 (11.1)</td>
<td>4 (11.4)</td>
<td>35 (10.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of illness, years: mean (s.d.) range</td>
<td>2.6 (1.7)</td>
<td>2.5 (1.8)</td>
<td>2.7 (1.8)</td>
<td>2.5 (2.1)</td>
<td>1.32</td>
<td>0.26</td>
</tr>
<tr>
<td>to 5 years</td>
<td>9 (25.0)</td>
<td>10 (27.8)</td>
<td>9 (25.7)</td>
<td>92 (26.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1–2 years</td>
<td>19 (52.8)</td>
<td>18 (50.0)</td>
<td>18 (51.4)</td>
<td>174 (50.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–3 years</td>
<td>5 (13.9)</td>
<td>5 (13.9)</td>
<td>5 (14.3)</td>
<td>48 (14.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3–5 years</td>
<td>3 (8.3)</td>
<td>3 (8.3)</td>
<td>3 (8.6)</td>
<td>29 (8.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of family members living with patient, n (%)</td>
<td>13 (36.1)</td>
<td>14 (38.9)</td>
<td>13 (37.1)</td>
<td>130 (37.9)</td>
<td>1.10</td>
<td>0.38</td>
</tr>
<tr>
<td>0–1</td>
<td>13 (36.1)</td>
<td>14 (38.9)</td>
<td>13 (37.1)</td>
<td>130 (37.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–3</td>
<td>18 (50.0)</td>
<td>18 (50.0)</td>
<td>17 (48.6)</td>
<td>165 (48.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–5</td>
<td>5 (13.9)</td>
<td>4 (11.1)</td>
<td>5 (14.3)</td>
<td>48 (14.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of psychiatric services, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.85</td>
<td>0.15</td>
</tr>
<tr>
<td>Medical consultation and treatment planning</td>
<td>36 (100.0)</td>
<td>36 (100.0)</td>
<td>35 (100.0)</td>
<td>341 (99.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing advice on services and brief education</td>
<td>28 (77.8)</td>
<td>29 (80.6)</td>
<td>26 (74.3)</td>
<td>270 (78.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social welfare and financial advice</td>
<td>20 (55.6)</td>
<td>19 (52.8)</td>
<td>20 (57.1)</td>
<td>210 (61.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual/family counselling</td>
<td>10 (27.8)</td>
<td>8 (22.2)</td>
<td>10 (28.6)</td>
<td>66 (19.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of medication, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.32</td>
<td>0.24</td>
</tr>
<tr>
<td>Conventional antipsychotics (e.g. haloperidol)</td>
<td>9 (25.0)</td>
<td>8 (22.2)</td>
<td>8 (22.9)</td>
<td>76 (22.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atypical antipsychotics (e.g. risperidone)</td>
<td>17 (47.2)</td>
<td>18 (50.0)</td>
<td>16 (45.7)</td>
<td>170 (49.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressants (e.g. fluoxetine)</td>
<td>5 (13.8)</td>
<td>4 (11.1)</td>
<td>4 (11.4)</td>
<td>40 (11.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blended mode&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5 (13.8)</td>
<td>6 (16.7)</td>
<td>7 (20.0)</td>
<td>57 (16.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dosage of medication, n (%)</td>
<td>1.18</td>
<td>0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>9 (25.0)</td>
<td>10 (27.8)</td>
<td>9 (25.7)</td>
<td>83 (24.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>20 (55.6)</td>
<td>20 (55.6)</td>
<td>21 (60.3)</td>
<td>198 (57.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>7 (19.4)</td>
<td>6 (16.7)</td>
<td>5 (14.3)</td>
<td>62 (18.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. This is a more detailed version of Table 1.

b. Analysis of variance (F-test, d.f. = 448) or the Kruskal–Wallis test by ranks (H statistic, d.f. = 3) was used to compare the sociodemographic variables of patients among the three study groups and the non-participants.

c. US$1 = HK$7.8.

d. Patients were taking more than one type of psychotropic medication such as the use of either a conventional and an atypical antipsychotic or an atypical antipsychotic together with an antidepressant.
e. Dosage levels of antipsychotic medication were compared with the average dosage of medication taken by schizophrenic patients in haloperidol-equivalent mean values.19
Effects of a mindfulness-based psychoeducation programme for Chinese patients with schizophrenia: 2-year follow-up

Wai Tong Chien and David R. Thompson


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