COGNITIVE BEHAVIORAL TREATMENT GROUPS FOR
PEOPLE WITH CHRONIC DEPRESSION IN HONG KONG:
A RANDOMIZED WAIT-LIST CONTROL DESIGN

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This study examined the effectiveness of a cognitive-behavioral treatment (CBT) group for Chinese people with depression in Hong Kong. Ninety-six subjects with depression were randomly assigned to CBT and control groups. After 10 weeks of treatment, participants in the CBT group had significantly fewer symptoms of depression, dysfunctional rules, and negative emotions, and significantly more adaptive coping skills when compared to the participants in the control group. Effect size statistics showed medium to large differences in symptoms of depression, coping skills, dysfunctional rules, and assumptions and negative emotions between the participants of the two groups (Cohen's d, between 0.50 and 0.88, except for positive emotions). Forty percent of the participants in the experimental group achieved a clinically significant level [reliable change index (RC) > 1.96] of improvement. Lastly, the results of a multiple regression analysis provided some evidence of a linkage between cognition and depression among the participants in the experimental group. The design and content of the CBT groups, which aimed at facilitating the understanding and modification of automatic thoughts and dysfunctional rules, and of negative and positive coping skills among the participants, might have contributed to the initial positive results. Depression and Anxiety 25:142–148, 2008. © 2008 Wiley-Liss, Inc.

Key words: cognitive behavioral treatment; groups; depression; Hong Kong Chinese; automatic thoughts; dysfunctional rules; maladaptive coping skills

INTRODUCTION

Major depression is a common psychiatric illness that can affect one in four women and one in 10 men during their lifetime [Rupke et al., 2006]. People with depression suffer from an array of symptoms such as pervasive feelings of sadness, helplessness, hopelessness, irritability, and an increase in suicidal risk. Without proper treatment, people with depression will experience serious disruptions in their social and occupational functioning. In Hong Kong, the prevalence rates of depression among males and females in the age group of 18–64 years are 1.44 and 2.60%, respectively [Chen et al., 1993]. Due to the various economic, social and political changes, these percentages are expected to increase [Wong, 2000]. In fact, it is estimated that 12–15% of people suffering from depression will require some kind of rehabilitation [Hong Kong Government, 1998/1999]. This increase in the number of people with depression has put enormous strains on psychiatric services in Hong Kong—there is a long waiting period of 6–8 months.
for an initial psychiatric consultation. Moreover, there are very few alternative treatments available for people with depression in the community, and the waiting list for psychotherapy and counseling services is also very long. Given these circumstances, there is an urgent need to explore alternative treatments for people with depression in Hong Kong.

RESEARCH EVIDENCE

Overseas studies have produced convincing evidence to suggest that cognitive-behavioral treatment (CBT) is effective for people with mild and moderate major depression. One meta-analysis found that cognitive therapy (CT) produced a greater degree of change of clinical depression compared with a waiting list or no-treatment control, pharmacotherapy, behavior therapy, or other psychotherapies [Dobson, 1989]. Another meta-analysis of 78 controlled clinical trials on the efficacy of CT for depression by Gloaguen et al. [1998] revealed that CT appeared to be significantly better than the waiting-list, antidepressants, or a group of miscellaneous therapists. A most recent review of 40 years of studies on CT for different types of psychiatric disorders suggests that CT is effective for people with major depression [Beck, 2005]. Another review, which summarizes the current meta-analyses on treatment outcomes of CBT, suggests that the largest effect sizes were found when using CBT for major depression, and further that CBT was somewhat superior to antidepressants and equally effective as behavior therapy in the treatment of adult depression [Bulter et al., 2006]. Some studies have also revealed the longer-term effect of CBT for people with depression. For example, Hollon et al. [2005] found that clients withdrawn from CT were significantly less likely to relapse during continuation than clients withdrawn from medications (30.8 versus 76.2%).

Given the strong evidence of the effectiveness of CBT for treating people with depression, various overseas medical and psychological associations have made the following recommendations for the treatment of depression: for some people with a mild form of depression, psychotherapy alone may be indicated. Others with moderate to severe depression most often benefit from antidepressants. However, most people do best with combined treatments [e.g. American Psychiatric Association, 2006].

RELATIONSHIPS BETWEEN COGNITIONS AND DEPRESSION

The cognitive model of depression postulates that people with depression have a stable cognitive structure characterized by biased interpretations (i.e. cognitive distortions) of life events; the existence of rigid dysfunctional assumptions, rules and values (i.e. negative schemas); and a “global negative view of self, the world and the future” (i.e. cognitive triad) [Beck et al., 1979]. It is suggested that both negative schemas and cognitive distortions contribute to depression. Although cognitive distortions lead to negative interpretations of events, negative schemas in the forms of rigid dysfunctional assumptions, rules, and values create a certain distorted worldview and pose unrealistic expectations on self and/or others. This latent dysfunctional cognitive structure is relatively stable and serves as a vulnerability factor in the development of depression when it interacts with environmental stressors such as negative life events [Clark and Beck, 1999]. However, there is still little consensus on the etiological role of negative cognitions in depression [Kwon and Oei, 1994]. Although several studies have suggested a positive relationship between cognitive variables and depressive symptoms [e.g. Kwon and Oei, 2003], others have failed to find such a relationship [e.g. Barnett and Gotlib, 1988].

In contrast, the behavioral components of the cognitive-behavioral formulation of depression center on the issues of a decreased level of activity and maladaptive coping skills as factors contributing to depression. Whereas a lack of activity is considered a symptom as well as a perpetuating factor that maintains a person in a depressive state, maladaptive coping skills for dealing with stressful life events can produce negative experiences that reinforce the negative perceptions of self, world, and future.

APPLICATIONS OF THE COGNITIVE MODEL OF DEPRESSION FOR CHINESE

The prevalence of mood disorder has been rising in Hong Kong [Hong Kong Government, 1998/1999], and there is a need to develop and employ treatment options other than drug treatments. We tested the applicability of CBT for Chinese people with depression in Hong Kong. Indeed, Lin [2001] argues that cognitive behavioral therapy is highly compatible with Chinese culture because the therapy is structured and solution-focused. Wong et al. [in press] and Wong and Sun [in press] further suggest that there is a need to modify CBT when applying it to Chinese with emotional problems. This suggestion is based on the understanding that Asians (including Chinese) tend to have less tolerance for ambiguity and prefer structured counseling sessions with practical and immediate solutions to their problems [Leong, 1986]. Also, Chinese people prefer therapists to employ a directive rather than a non-directive approach, and expect the therapists to play an active role in providing suggestions and advice in the counseling process [Lin, 2001].

On the basis of the above information, we designed and implemented a CBT group for treating Chinese people with depression in Hong Kong. Each group contained 10 sessions, with each session lasting 2.5 hr. On the whole, we followed the contents of other CBT group manuals for depression [Greenberger and Padesky, 1995] and focused on helping participants (1) understand and modify their patterns of automatic
thoughts and dysfunctional rules, (2) gradually build up pleasurable activities, and (3) identify negative coping skills and enhance positive ones. To adjust to the cultural characteristics of Chinese people, all technical terms were translated into colloquial expressions. For example, “automatic thoughts” was renamed “thought traps” and the cognitive distortion of “personalization” was rephrased as “put all the blame and responsibilities onto oneself.” Second, we designed a number of worksheets and exercises in Chinese to facilitate the understanding of the cognitive and behavioral processes, and the learning of cognitive and behavioral skills. Third, we emphasized the exploration and modification of dysfunctional rules relating to family and interpersonal relationships. Clinical experience and a review of the literature both lead to the conclusion that Chinese people have many family and interpersonal relationship rules that may become a potential source of stress for Chinese people [Goodwin and Tang, 1996]. Fourth, the group leaders were actively involved in structuring and facilitating the group processes, particularly in the initial stage of the group development. Last, the group leaders delivered mini-lectures and provided a detailed explanation of the exercises and worksheets to the participants.

In this study, the researcher attempted to test the effectiveness of a CBT group for people with mild and moderate depression in Hong Kong. The two hypotheses were:

1. The members in the experimental groups would have fewer depressive symptoms, fewer dysfunctional thoughts, more adaptive coping skills, more positive emotions and fewer negative emotions than members in the control groups at the end of the group intervention.
2. Changes in cognition and coping behaviors would be linked to a change in depressive symptoms.

**METHODS**

**PARTICIPANTS**
A total of 101 potential participants were recruited, either from referrals or advertisements posted at the hospitals and psychiatric clinics. The inclusion criteria included: (a) aged 18–60 years; (b) suffered from major depression as stated in the DSM-IV, and (c) had mild to severe depressive symptoms as indicated by the Chinese version of the Beck Depression Inventory (C-BDI). The psychiatric statuses of the participants were confirmed through the referrers who were psychiatric nurses, social workers, and clinical psychologists of the respective clinics and hospitals. Individuals who had psychosis, severely acute depressive symptoms at the time of the interview or suicidal attempt/ideation in the 3 months before the interview were excluded from the study and were referred elsewhere for psychiatric assessment and intervention. At the telephone screening, three potential participants with severely acute depressive symptoms and recent suicidal attempts were not offered a pre-group interview and were referred back to psychiatric services for follow-up ($n=3$). Two potential participants who were offered the services refused to join the groups because they preferred individual counseling to group counseling after receiving further information about the group processes at the pre-group interview ($n=2$). Finally, 96 individuals elected to participate in the study after the pre-group interview. A colleague who worked in the same department as the author but had no affiliation with the research team was invited to randomly select participants for the experimental group and the waitlist control group. Each group had 48 clients.

In this study, the mean age of the participants was 37.4 years ($SD=9.4$). About 22% of the participants were males (21 clients) and the remaining participants were females. Almost 40% were unmarried (38 clients), 50% were married (48 clients), and the rest were separated or divorced. More than half had completed their secondary education (50 clients, 52.1%) and 34.4% had received tertiary education (33 clients). Most of the participants were employed full-time (52 clients, 54.2%) and 12.5% were unemployed (12 clients). The mean duration of illness was 5.5 years ($SD=4.8$) and the average number of relapses was 2.6. All participants were taking medication at the time of the study. Almost all were taking tricyclic antidepressants or selective serotonin reuptake inhibitors, and there was no statistical significant difference in the classes of medications taken by the participants in the two groups.

**PROCEDURE**
Each participant was asked to fill out the questionnaire at the beginning and the end of the treatment. A structured CBT group was designed and run for the participants in the experimental group between the times of measurement, whereas no treatment was given to the participants in the control group. The individuals in the control group were given group treatment after the control group study was finished.

The three group leaders were experienced mental health social workers. Two were teaching staff at universities; one of them was a qualified cognitive therapist trained at the Beck Institute in the US; and the third one was a social worker with postgraduate training in mental health. There were eight or nine members in each treatment group. Two independent observers reviewed the videotapes of sessions 1, 4, and 8 of each experimental group. The contents of the three sessions revolved around “understanding the relationships among cognitive, behavioral, physiological, and emotional responses,” “identifying automatic thought patterns and developing healthy cognitive and behavioral responses” and “identifying and modifying dysfunctional rules.” Since the group contents were

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manualized, it was easier for the research team to develop a checklist of the tasks to be completed in the three sessions. The two reviewers were asked to check each item on the checklist to verify if the group leaders had completed the prescribed tasks. The two reviewers agreed on the tasks to be completed by the group leaders.

INSTRUMENTS

The Beck Depression Inventory (BDI) is a 21-item self-report inventory originally developed to measure depression [Beck et al., 1961]. Previous studies have shown that the BDI was a reliable and valid measure of severity of depression in clinical settings [Beck et al., 1988]. In this study, the C-BDI was used as the primary outcome measure. The reliability and validity of the C-BDI were confirmed in previous local studies [Shek, 1988]. In this study, the C-BDI achieved high internal consistency in this study (Cronbach's $\alpha = 0.92$). Although the C-BDI was considered the primary outcome measure, the Emotions Checklist, COPE and DAS were used as secondary outcome measures.

All data analyses were primarily conducted for the participants who completed the treatment or the waiting period. For the post-group data, an intention-to-treat analysis, in which the scores at pre-test were entered for subjects who dropped out of the study before the post-group assessment, was also conducted. Differences between the treatment and control groups were examined by employing analysis of covariance (ANCOVA), with the pre-test score of each outcome measure treated as the covariate, so that the post-group outcome could be adjusted with respect to baseline severity. Effect sizes were calculated using Cohen's $d$ (the difference between adjusted means divided by the pooled standard deviation) to examine the size of the differences between the experimental and control groups at post-test [Cohen, 1988]. To ascertain the clinical significance achieved by a participant in the experimental group, a statistical approach to clinical significance suggested by Jacobson and Truax [1991] was adopted. Essentially, a participant who had achieved a reliable change index (RC) score greater than 1.96 in the C-BDI at post-test would be considered as having improvement that reached a clinically significant level. This method was preferred because there is no clinical cut-off score for the C-BDI in the Chinese population in Hong Kong. Lastly, a multiple linear regression analysis was performed to examine the effects of COPE, DAS, positive emotions, and negative emotions on the C-BDI in the experimental group.

RESULTS

Demographic data between the experimental and the control groups were compared using analysis of variances (ANOVAs) for continuous variables and $\chi^2$ tests for categorical variables. The analysis found no significant differences between experimental and control groups on all demographic variables (all $P > .2$), indicating that the experimental group and the control group shared similar characteristics before treatment began for the experimental group. ANOVAs were also used to compare the pre-test scores of all dependent variables between the experimental and control groups. No significant differences were found between the two groups as well (all $P > .3$).

Eight participants from the control group (16.6%) failed to finish the wait-list period, but none dropped out of the experimental group. There were, therefore, 88 participants who completed the post-test, 48 of whom were in the experimental groups and 40 of whom were in the control group. The attrition rate differed across the group conditions (as revealed by the Fisher's exact test, $P = .01$). Among the eight who...
dropped out of the control group, five decided to seek help from other services after waiting for a period of time, one was hospitalized when he was called to receive group treatment and two had recently attempted suicide. There was no significant difference in the patterns or mean scores in all demographic and baseline measures between the waiting-period completer and the non-completer. Of the 48 participants in the experimental group, about 85% (n = 43) completed at least eight group sessions.

Table 1 presents the pre-test and post-test results of both the experimental and control groups. The ANCOVAs show that there were significant between-group differences in the C-BDI \(F(1, 85) = 15.05, P = .00\), COPE \(F(1, 85) = 15.41, P = .00\), negative emotions \(F(1, 85) = 6.11, P = .02\), and DAS \(F(1, 85) = 31.37, P = .00\), but not in positive emotions \(F(1, 85) = 0.22, P = .64\). Thus, when compared with the control group, the experimental group members showed a reduction in the severity of depression, more adaptive coping skills, fewer negative emotions, and fewer dysfunctional attitudes. Effect size analyses using Cohen's \(d\) (Cohen, 1988) revealed medium to large differences in the C-BDI (Cohen’s \(d = .76\)), COPE (Cohen’s \(d = .57\)), DAS (Cohen’s \(d = .88\)), and negative emotions (Cohen’s \(d = .59\)) between the participants of the experimental and control groups at post-test, but not positive emotions (Cohen’s \(d = .13\)) (Table 2).

Table 3 shows that about 40% of the participants in the experimental group had achieved improvement that could be classified as reaching a clinically significant level, with a RC score greater than 1.96 in the C-BDI at post-test. Whereas 50% of the participants had made some improvement at post-test (i.e. the C-BDI showing positive change at post-test but whose RC scores did not reach 1.96), about 10% showed a deterioration (i.e. the C-BDI showing negative change at post-test). Table 4 shows the results of a multiple regression analysis, which indicated that COPE, DAS, positive emotions, and negative emotions together explained 62% of the variance in the C-BDI among participants in the experimental group \(F(4, 43) = 17.63, P < .01\). DAS was found to be the only significant predictor of the C-BDI.

**DISCUSSION**

Hypothesis 1 was largely confirmed, indicating that the participants from the experimental group showed a substantial decrease in depressive symptoms, more adaptive coping skills, fewer negative emotions, and fewer dysfunctional beliefs, when compared with the members of the control group at the end of treatment. It was also impressive that as many as 40% of the participants in the experimental group showed an improvement in depressive symptoms that reached a clinically significant level. The results of this study...
TABLE 3. Percentages of improved and recovered participants in the experimental groups on the C-BDI

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>N</th>
<th>% reliable improvement with RC &gt; 1.96</th>
<th>% improved</th>
<th>% deteriorated</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-BDI</td>
<td>48</td>
<td>39.6% (n = 19)</td>
<td>50% (n = 24)</td>
<td>10.4% (n = 5)</td>
</tr>
</tbody>
</table>

C-BDI, Chinese version of the Beck Depression Inventory.

TABLE 4. Predictors of the C-BDI for the experimental group

<table>
<thead>
<tr>
<th>Predictors</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPE</td>
<td>−0.13</td>
<td>0.53</td>
<td>−0.11</td>
<td>0.91</td>
</tr>
<tr>
<td>DAS</td>
<td>0.25</td>
<td>0.14</td>
<td>2.457</td>
<td>0.01**</td>
</tr>
<tr>
<td>Positive emotions</td>
<td>−0.11</td>
<td>0.07</td>
<td>−0.918</td>
<td>0.364</td>
</tr>
<tr>
<td>Negative emotions</td>
<td>0.26</td>
<td>0.04</td>
<td>1.95</td>
<td>0.07</td>
</tr>
</tbody>
</table>

**P < 0.01.
C-BDI, Chinese version of the Beck Depression Inventory; DAS, Dysfunctional Attitude Scale.

provide preliminary support for the effectiveness of our CBT group for Chinese people suffering from mild to moderate depression in Hong Kong. With the increase in the number of people suffering from depression, this type of CBT group can serve as a possible treatment alternative for people with depression in the territory. However, since participants were all put on medica-
tions, it was impossible to examine the independent and combined effects of different treatment modalities
for people with depression. Moreover, this study did not have a follow-up research procedure to test the
longer-term effect of CBT for this group of depressed clients. Further research is needed to collect evidence
to support a more definite application and specification of the use of CBT for treating people with depression
in Hong Kong.

Hypothesis 2 of this study was partially supported. Among all predictor variables, the change in dysfunc-
tional attitudes was the only significant predictor of change in depressive symptoms. This result echoes
the findings of the clinical outcome studies conducted by DeRubeis et al. [1990] and Kwon and Oei [2003],
which showed that a change in cognition led to improvement in depression. Such an encouraging
finding may be explained in terms of the content and the design of our CBT groups. In our treatment
groups, a substantial proportion of the group content focused on helping participants identify, challenge, and
modify their negative automatic thoughts and dysfunctional rules and assumptions. We also designed a
Chinese group manual that contained group exercise worksheets, homework worksheets, and easy reading
material that helped members understand and modify their own patterns of negative automatic thoughts and
dysfunctional attitudes. As mentioned before, we translated all technical terms into colloquial expres-
sions. The use of these colloquial expressions helped the group members understand and remember the

concepts of automatic thoughts quickly and identify their own thought patterns. However, future research
should address the causal relationship between the change in dysfunctional rules and assumptions, and the
change in depression among CBT participants. Indeed, other factors such as antidepressants have been found
to produce positive change in dysfunctional rules and assumptions [e.g. Simons et al., 1984], thus suggesting
that factors other than CBT could potentially produce change in dysfunctional rules and assumptions and
consequently lead to improvement in depression.

Our study found a significant difference in the acquisition of adaptive coping skills between particip-
ants in the experimental and control groups. This can be explained in terms of the opportunities afforded
to the participants in the experimental group to examine their maladaptive coping skills, and to develop
and attempt positive and adaptive coping skills in and outside of the group sessions (i.e. roughly about two
out of the 10 sessions were devoted to these behavioral activities). However, this study did not provide support
for the linkage between the acquisition of adaptive coping skills and the reduction in depressive symptoms.
One possible explanation is that although participants in the experimental group had gained a substantial
increase in adaptive coping, the time spent on practicing the newly acquired coping skills was insufficient to produce a strong and direct therapeutic effect on depression. Indeed, behavioral rehearsal and
homework are considered important ingredients for fostering therapeutic changes in CBT for people with
mental health problems [Blagys and Hilsenroth, 2002]. Thus, future clinical trials may need to increase the
number of sessions for rehearsing, re-evaluating and refining the coping skills that are generated in the
group sessions.

This study has several major limitations. First, since depression is a recurrent illness, there is a need to
examine the long-term effect of CBT for depressed Chinese people in Hong Kong. This would provide
stronger evidence for the efficacy of CBT for Chinese people with depression. Second, we used the C-BDI
as both a screening and an outcome measure. Another instrument on depression and other outcome variables,
such as quality of life, could have been used to strengthen the validity of the findings. Third, this study
cannot rule out the fact that positive changes in the C-BDI, DAS, COPE, and negative emotions
might have been due to group effects such as emotional support and advice provided by others. To ascertain the
therapeutic value of the cognitive and behavioral skills.

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taught in a CBT group, it would be useful to introduce a social group as a comparison group in the study design.

CONCLUSION

With the increase in the number of people suffering from depression and the lack of alternative treatments available for people with depression Hong Kong, this study endeavored to examine the effectiveness of CBT groups for Chinese people with depressive symptoms in the territory. Initial findings suggest that after 10 weeks of treatment, the participants in our structured CBT groups had significantly greater improvement and fewer symptoms of depression, dysfunctional rules and negative emotions, and significantly more adaptive coping skills compared with the control group. Initial analyses suggest that the success of these CBT groups might be related to improvements in cognitive and behavioral skills acquired by participants during the group processes.

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