



A Pilot Study of Group Cognitive Behavioural Therapy for Depression in a Japanese Community

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Authors' contributions

This work was carried out in collaboration between all authors. Author KA designed the study questions, conducted the intervention and statistical analyses of the data, and drafted the article. Author HI conducted intervention. Authors TI, KS and AA conducted the assessment. Author FO constructed the intervention contents. Authors MN, AN and ES designed the study questions and revised the article for important intellectual content. All authors read and approved the final manuscript.

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Short Communication

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ABSTRACT

Aims: This pilot study investigated the effect and feasibility of a group cognitive behavioural therapy program in a Japanese community setting.

Methodology: Participants were five patients with major depression. Ten weekly 1-hour sessions of group cognitive behavioural therapy was conducted in a Japanese community setting. Outcomes were assessed using the Beck Depression Inventory-II (BDI-II). Statistical comparison of means was performed using nonparametric Wilcoxon signed-rank test using normal approximation, and effect sizes (*d*) was used to compare depression scores before and after the

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intervention.

Results: Group cognitive behavioural therapy appears to be significantly efficacious in a Japanese community setting, with an effect size of .85. The present results are similar to those found in clinical settings.

Discussion: Adapting group cognitive behaviour programs to Japanese community settings can contribute to improved mental health in this country. The limitations of this study are the sample size was very small, measurement is self-reported questionnaire and conducted in a community setting as an uncontrolled, naturalistic pilot study. Controlled studies are needed and would provide a more convincing demonstration of the program's efficacy in Japanese community settings.

Keywords: Group cognitive behavioural therapy; depression; community; Japanese.

1. INTRODUCTION

Major depression is one of the most prevalent mental disorders worldwide. Lifetime prevalence rate estimates for major depression range from 10% to 15% [1]. On the basis of a cross-national epidemiologic study, the 12-month prevalence of major depression is 6.5% and the lifetime prevalence is 14.6% in the ten highest income countries. In Japan, the estimated 12-month prevalence of major depression is 2.2% and the lifetime prevalence is 6.6% [2]. This condition incurs a great socioeconomic burden and is associated with serious consequences such as suicide [3].

In Japan, 30,651 people committed suicide in 2011 [4]. Suicide is the most frequent cause of death in the age range from 20 to 39 years and the second most frequent in the 40 to 49 age range. For the age ranges of 10 to 14 and 50 to 54, suicide is the third most frequent cause of death [4]. It has been noted that depressive disorders are the most prevalent disorders in suicide victims [5]. It therefore follows that treatment of depression is a particularly important aspect of suicide prevention. In addition, the estimated economic burden associated with depression is approximately \$11 billion in Japan, with \$1,570 million relating to direct medical costs, \$2,542 million to depression-related suicide costs, and \$6,912 million to workplace costs [6]. Effective treatment of depression should work to alleviate this economic burden.

Cognitive behavioural therapy is a popular intervention shown to be effective for depression. The UK National Institute for Health and Clinical Excellence (NICE) guidelines recommend cognitive behavioural therapy for the treatment of mild to moderate depression [7].

Group cognitive behavioural therapy is as effective as individual cognitive behavioural therapy for the treatment of depression. In

addition, conducting group therapy is economical in terms of time spent and cost savings per patient. Therapists can treat a greater number of people and reducing patient wait times [8]. Group cognitive behavioural therapy can be effectively conducted by clinical psychologists in Japan, although there is a shortage of trained cognitive behavioural therapists in Japan [9,10]. To deliver cognitive behavioural therapy cost effectively and in a fashion that maximizes access for all, it is important to conduct group cognitive behavioural therapy in community settings. In Japan, Mental Health and Welfare Centers are located in each government-decreed city and prefecture. These centres are intended to help maintain and promote the mental health of the populations they serve. Increased access to cognitive behavioural therapy at these centres could have a substantial positive impact on depression and suicide rates in the community. However, most studies of group cognitive behavioural therapy have been conducted in medical or research settings, such that the effectiveness and feasibility of this intervention in community settings remains to be determined. The present pilot study estimated the effect size of a group cognitive behavioural therapy program for depression in a community setting as an alternative to conducting a randomized controlled trial.

2. METHODOLOGY

2.1 Study Design

The study was conducted at the Chiba city Center of Mental Health from September to December 2013. This endeavour was part of the Chiba prefecture project for suicide prevention. All procedures were performed in accordance with the Helsinki Declaration. Required ethical approval was obtained from the Ethics Committee of Chiba University (Reference number: 978). This study is reported according to the TREND statement [11].

2.2 Participants

Participants were recruited through leaflets placed at medical institutions in Chiba City and through web-based advertisements. As all participants continued to be treated by their physicians, the participants were required to obtain permission from their general practitioner prior to study enrolment.

The eligibility criteria for this study were a primary diagnosis of major depressive disorder according to DSM-IV criteria and age between 20 and 55 years. Comorbid diagnoses were permitted if clearly secondary to the depression, to better reflect the realities of routine clinical practice.

The exclusion criteria for potential participants were presence of psychosis, personality disorders, bipolar disorder, high risk of suicide, substance abuse or dependence in the past 6 months, unstable medical condition, pregnancy, or lactation.

All patients were asked to bring a referral form from their psychiatrist together with confirmation of their treatment history. All participants were then evaluated by a psychiatrist at the Mental and Emotional Health Centre for eligibility before the assessment of outcome.

Six patients initially enrolled in this study. One patient was excluded because of a primary diagnosis that was not major depression. The remaining five patients participated and finished the program without dropping out (Fig. 1).

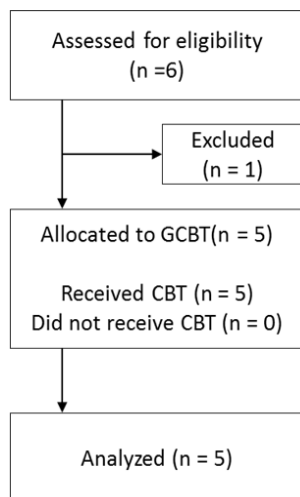


Fig. 1. Flow in this study

2.3 Outcome

The outcome measure used was the Beck Depression Inventory II (BDI-II), which assesses patients' subjective severity of depressive symptoms. The BDI-II was originally published in 1961 and has become the most widely used self-report measure of depression severity [12]. With the advent of the DSM-IV, the time frame and items have been updated to yield the 2nd edition of the BDI-II, and the reliability and validity of this instrument have been confirmed [13]. The Japanese version of the BDI-II shows excellent reliability and validity [14].

2.4 Interventions

Participants received 10 weekly 1-hour sessions of group cognitive behavioural therapy. Therapists were a clinical psychologist and a nurse who were trained in cognitive behavioural therapy via a course at Chiba University. Peer supervision was held weekly and included the group therapists, a psychologist and a psychiatric social worker working at the Mental and Emotional Health Centre in Chiba city.

The treatment program was based on a self-help book written in Japanese [15]. The ten sessions include content as follows: (Session 1) Introduction to group cognitive behavioural therapy and psycho-education about emotions, (Session 2) Instruction in self-monitoring of emotions when distressed; (Session 3) Trying self-monitoring for emotions, cognitions and behaviours; (Session 4) Understanding one's own vicious cycles of emotions, cognitions and behaviours; (Session 5) Identifying cognitions related to vicious cycles; (Session 6 and 7) Challenging one's own negative cognitions; (Session 8) Psycho-education around problem solving; (Session 9) Trying problem solving; (Session 10) Relapse prevention and thank you letters between participants. All sessions included agenda setting, homework review, new content and homework assignment.

2.5 Sample Size

Sample size in this study was not statistically determined due to limited resources to conduct group cognitive behavioural therapy in Chiba city

2.6 Statistical Methods

Descriptive statistics was calculated for the BDI-II outcome measure. Statistical comparisons of

means were performed using a nonparametric Wilcoxon signed-rank test with normal approximation, and effect size (d) were used to compare values before and after the intervention.

Statistical power calculations were performed via the Post Hoc Compute Achieved Power analysis using G* Power 3 [16]. Other statistical analyses were performed using EZR (Saitama Medical Center, Jichi Medical University, Saitama, Japan), which is a graphical user interface for R (The R Foundation for Statistical Computing, Vienna, Austria [17]). A significance level of $P < 0.05$ was adopted.

3. RESULTS AND DISCUSSION

The descriptive statistics for the demographic variables are presented in Table 1.

Table 1. Demographic variables

Demographic variables		Value
Gender	Female, n (%)	3 (60)
Age, years	Mean (SD)	45.8 (4.65)
	Median	48
	Quartile	43-49
	Range	39-50
Age of onset, years,	Mean (SD)	40.4 (7.23)
	Median	43
	Quartile	36-46
	Range	30-47
Duration of Major Depression, years	Mean (SD)	5.4 (3.2)
	Median	7
	Quartile	2-7
	Range	2-9
Employment status, N (%)	Employed full-time, suspended from work	3 (60)
	Unemployed	2 (40)
Marital status, N (%)	Single	1 (20)
	Married	4 (80)
Educational background, N (%)	High school	1 (20)
	≥ 3 years of college/university	4 (80)

The post hoc test to calculate sample power was conducted by adopting an error probability of 5% for the sample size used. The sample power ($1-\beta$ errprob) was 0.32.

The BDI-II scores indicated that the level of depression decreased for all of the participants. The average reduction in the BDI-II scores was 41%. In order to evaluate the effectiveness of group cognitive behavioural therapy, pre- and post-BDI-II scores were compared using a Wilcoxon signed rank test. There was a significant difference between pre and post assessment ($z = 2.02$, $P = .043$). The effect size (d) was .85 (95% CI = -.67 – 2.38).

Table 2. Pre- and post-assessment outcome scores

	Mean	SD	Median	quartile	range
Pre	18.2	9.36	18	13-19	8-33
Post	10.8	7.94	11	7-15	0-21

The present results showed significant reduction of depressive symptoms. Reviewing the previous study, the depression rate decreased for 84 % of the participants; the average reduction in depression was 38% [18]. In a meta-analysis, effect sizes of group cognitive behavioural therapy ranged from 0.16 to 2.15 in nonrandomized trials and demonstrated an effect size of $g = 0.40$ [19]. Another report found an effect size of group cognitive behavioural therapy in a nonrandomized trial of $d = 1.06$ [20]. The effect size and average reduction of depression scores in the present study were almost identical to those of previous studies. This suggests that our program may possess the possibility and feasibility to replicate the effectiveness of group cognitive behavioural therapy in a Japanese community setting. Incidentally, all participants in this study showed longer periods of depression [21], experienced relapses of depression and were not working, including being suspended from work. Although participants in this study might be affected by more chronic and repetitive depression, the results can be considered indicative of the effect size of our program.

There are some limitations of this study. First, because the sample size was very small and statistical power was correspondingly low, the confidence intervals were large. Even though the estimated effect size in this study was almost identical to that of a previous study, there is a possibility that deviation occurred in the effect size. Second, the present study relied only on patient self-report as an outcome measure and future studies should use structured interviews to assess treatment outcomes. Third, this study was conducted in a community setting as an uncontrolled, naturalistic pilot study and a

randomized controlled trial would provide a more convincing demonstration of the program's efficacy. Fourth, patients were permitted to take any prescribed medications during the group and information about medications being taken was not collected, such that the effect of medications on our group cognitive behavioural therapy program could not be evaluated. The information of medication must be collected in the future controlled study.

Despite these limitations, this study provides an estimation of the effect size of group cognitive behavioural therapy in a Japanese community setting. The effectiveness of this program should be verified and its provision should be made more widely available at mental health centres and other community locales in Japan.

4. CONCLUSION

In this study, we estimated the effect size of group cognitive behavioural therapy for depression in Japanese community setting. The result showed the significant reduction of depressive symptoms and the effect size which is almost identical. This result partly supports the effectiveness and feasibility of group cognitive behaviour therapy for depression in Japanese community setting. A randomized controlled study should be conducted to certain the effectiveness of program to deliver group cognitive behavioural therapy more widely available at mental health centres in community.

CONSENT

It is not applicable.

ETHICAL APPROVAL

All procedures were performed in accordance with the Helsinki Declaration. Required ethical approval was obtained from the Ethics Committee of the Chiba University Graduate School of Medicine (#978).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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