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BRIEF CLINICAL REPORT

A pilot study on the effectiveness of low-intensity cognitive behavioural therapy (LiCBT) for common mental disorders in Hong Kong

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Abstract

Background: To cope with the rising demand for psychological treatment, evidence-based low-intensity cognitive behavioural therapy (LiCBT) delivered by trained para-professionals was introduced internationally.

Aims: This pilot study aimed at examining the effectiveness of LiCBT in Hong Kong.

Method: This study was of an uncontrolled pre- and post-treatment design, testing LiCBT at a local community mental health centre in Hong Kong. Two hundred and eighty-five Chinese adult help-seekers to the centre attended two or more sessions of LiCBT delivered by trained para-professionals. These participants also rated their depression and anxiety on the Patient Health Questionnaire-9 (PHQ-9) and Generalised Anxiety Disorder Scale-7 (GAD-7), respectively, at pre- and post-treatment.

Results: Comparison of the pre- and post-treatment PHQ-9 and GAD-7 scores of 285 participants indicated significant improvements in depression and anxiety with large effect sizes (depression: $d = 0.87$; anxiety: $d = 0.95$). For those participants reaching the clinical level of either depression and/or anxiety at pre-treatment ($n = 229$, 80.4%), they reported even larger effect sizes (depression: $d = 1.00$; anxiety: $d = 1.15$). The recovery rate was 55.9% with a reliable improvement rate of 63.9%. An average of 5.6 sessions was offered to the participants with each session spanning a mean of 42 minutes. The baseline clinical conditions and participants' educational level were predictive of post-treatment recovery.

Conclusions: The results supported the effectiveness and cost-efficiency of LiCBT for depression and anxiety at a Hong Kong community mental health centre. The effect sizes and the recovery and reliable improvement rates achieved were comparable to those reported from countries such as the UK and Australia.

Keywords: anxiety; Chinese; depression; Hong Kong; IAPT; low-intensity CBT (LiCBT)

Introduction

Mental disorders are found to severely impair quality of life and productivity. Unfortunately, despite the availability of evidence-based psychological treatment for these disorders, e.g. cognitive behavioural therapy (CBT), only 20–30% of those with mental disorders had access to any forms of treatment (Andrade *et al.*, 2014). Such a huge supply-and-demand gap

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is most troubling. One main reason is a lack of mental health professionals. However, a drastic increase in their number in a short period of time is hardly feasible and, even if this were, it would not be a sustainable or cost-efficient solution.

A paradigm shift in favour of a stepped care service delivery model is advocated. Individuals with mild-to-moderate common mental disorders (CMD), including depression and anxiety, are first triaged to low-intensity CBT (LiCBT). It denotes a simpler and briefer form of CBT whose contents and administration are well structured by carefully written protocols to allow it to be task-shifted to trained para-professionals with mostly a Bachelor's degree in order to achieve cost-saving and improved service accessibility. Evaluation studies in the UK and Australia had demonstrated promising results with recovery rates reaching 51–68% with large effect sizes ($d = 0.98$–1.25), whilst the UK study reported additionally reliable improvement and deterioration rates as respectively 66% and 6% (Baigent *et al.*, 2020; Clark, 2018).

This manuscript represents the first evaluation study of LiCBT for CMD at a community mental health centre in Hong Kong.

Method

This study was of an uncontrolled pre- and post-treatment design. It was approved by the Joint Chinese University of Hong Kong–New Territories East Cluster Clinical Research Ethics Committee (CRE-2016.014) and was registered in an international trial registry (DRKS00016513). Informed written consent was obtained from each participant.

Inclusion and exclusion criteria

Participants were help-seekers to a local community mental health centre in Hong Kong. They either self-referred to the service or were referred by social workers from various community centres. The inclusion criteria were aged above 17 and self-identifying as having emotional disturbances. No formal psychiatric diagnosis was required. The exclusion criteria included having active psychotic symptoms, suicidal risks, intellectual disabilities or autistic spectrum disorder, or currently receiving psychological intervention. A self-report screening form was used to assess the eligibility of help-seekers in terms of the inclusion/exclusion criteria. The information was cross-checked in the first treatment session.

Intervention

LiCBT treats CMD of mild-to-moderate severity, including major depressive disorder, generalized anxiety disorder, panic disorder and specific phobia, with corresponding disorder-specific LiCBT protocols that are simpler and briefer. These protocols were developed in-house with reference to self-help workbooks published by the University of Exeter and Flinders University. We wrote localized recovery stories and used more bullet-points/shorter paragraphs to accommodate to the packed working life of Hong Kong people who had less time or were less motivated for complex details. The intervention was time limited to four to eight sessions either face-to-face or by telephone. Each session lasted about 35 minutes.

Practitioners

The practitioners, or Psychological Wellbeing Officers (PWOs), all had a Bachelor's degree in psychology or equivalent. They received 21-day intensive in-service training on LiCBT and subsequent weekly supervision by clinical psychologists who themselves had completed a year-long training on LiCBT. Six PWOs conducted the LiCBT for this study.

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Measures

The Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder Scale (GAD-7) were used to assess depression and anxiety, respectively, pre- and post-treatment. The clinical cut-offs for PHQ-9 and GAD-7 were above 9 and 7, respectively (Clark *et al.*, 2009).

Statistical analysis

Self-ratings on GAD-7 and PHQ-9 were compared between pre- and post-treatment assessments using the paired-sample *t*-test. Hierarchical logistic regression was used to identify predictors for recovery.

Results

In a 2-year period, 360 help-seekers to a local community mental health centre were recruited according to the inclusion and exclusion criteria. However, 74 of them attended no more than one session and one of them had missing data at post-treatment. They were then excluded from data analysis, with 285 participants remaining (79.2%). Of these 285 individuals who attended at least two sessions, 57 dropped out of treatment unscheduled (20.0%).

Demographics and pre-treatment clinical conditions

The mean age of participants was 38.3 years ($SD = 13.0$); 73.7% were females, 88.7% had at least senior secondary education, 62.7% had either full-time or part-time employment, and 80.4% reported clinical levels of depression and/or anxiety at pre-treatment according to respective cut-offs of PHQ-9 and GAD-7 (Clark *et al.*, 2009) (see details in Table 1). These demographics and clinical conditions were characteristic of help-seekers at community mental health centres in Hong Kong.

Duration and intensity of treatment

The waiting time from service registration to the first treatment session was about a month (mean = 30.5 days, $SD = 16.7$). An average of 5.6 sessions was offered to the participants ($SD = 2.5$), spanning about three months (mean = 85.6 days, $SD = 56.7$). On average, each session lasted for about 42.3 minutes ($SD = 8.7$).

Clinical outcomes

Significant pre- and post-treatment improvement with large effect sizes was found on both depression and anxiety (depression: $\text{mean}_{\text{pre}} = 11.4$ ($SD = 5.1$), $\text{mean}_{\text{post}} = 6.8$ ($SD = 5.1$), $t_{284} = 14.63$, $p < .001$, $d = 0.87$; anxiety: $\text{mean}_{\text{pre}} = 11.4$ ($SD = 4.7$), $\text{mean}_{\text{post}} = 6.4$ ($SD = 4.7$), $t_{284} = 15.99$, $p < .001$, $d = 0.95$). For those participants reaching the clinical level of either depression and/or anxiety at pre-treatment ($n = 229$, 80.4%), they reported even greater improvement with larger effect sizes (depression: $\text{mean}_{\text{pre}} = 12.9$ ($SD = 4.5$), $\text{mean}_{\text{post}} = 7.5$ ($SD = 5.3$), $t_{228} = 15.07$, $p < .001$, $d = 1.00$; anxiety: $\text{mean}_{\text{pre}} = 13.0$ ($SD = 3.7$), $\text{mean}_{\text{post}} = 7.0$ ($SD = 4.9$), $t_{228} = 17.35$, $p < .001$, $d = 1.15$). Among these 229 participants, the recovery rate (defined categorically as both depression and anxiety scores dropping to the non-clinical level at post-treatment) was 55.9% ($n = 128$). As LiCBT was originally intended for CMD of mild-to-moderate severity, we subdivided these 229 participants into two groups in terms of their severity on depression and anxiety, respectively (i.e. mild-to-moderate *versus* severe) (see details in Table 1). Among participants with a mild-to-moderate level of depression pre-treatment ($n = 182$), the recovery rate was 63.4%, significantly higher than that (40.2%) of

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Table 1. Demographic and clinical profiles of participants attending two or more LiCBT sessions

	n	Percentage
Gender		
Male	75	26.3
Female	210	73.7
Age		
18–27	80	28.2
28–37	66	23.2
38–47	60	21.1
48–57	56	19.7
58–71	22	7.7
Educational level		
Primary school	7	2.5
Secondary school	78	27.7
Diploma or associate	53	18.8
Undergraduate	108	38.3
Postgraduate or above	34	12.1
Other	2	0.7
Occupational status		
Full-time	150	52.8
Part-time	28	9.9
Student	27	9.5
Homemaker or caregiver	26	9.2
Between jobs	24	8.5
Retired	19	6.7
Other	10	3.5
Depressive symptom severity		
Asymptomatic (0–4)	22	7.7
Mild (5–9)	84	29.5
Moderate (10–14)	97	34.0
Moderately severely (15–19)	60	21.1
Severe (20–27)	22	7.7
Anxiety symptom severity		
Asymptomatic (0–4)	24	8.4
Mild (5–9)	75	26.3
Moderate (10–14)	109	38.3
Severe (15–21)	77	27.0

Depression and anxiety were assessed by Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder Scale (GAD-7), respectively. Only those participants who attended at least two sessions without missing data at post-treatment were analysed and reported ($n = 285$). Missing data were found for age ($n = 1$), educational level ($n = 3$) and occupational status ($n = 1$).

the participants with a moderately severe-to-severe level of depression ($n = 82$) ($\chi^2(1) = 11.24$, $p < .001$). Similarly, the recovery rate of participants with a mild-to-moderate level of anxiety pre-treatment ($n = 185$) was 62.9%, significantly higher than that (41.6%) of participants with a severe level of anxiety pre-treatment ($n = 77$) ($\chi^2(1) = 9.43$, $p < .01$). Recovery rate was not calculated for the non-clinical participants due to their initial non-clinical status in depression and anxiety.

Taking the measurement errors of PHQ-9 and GAD-7 into consideration, a change was considered reliable when the difference between pre- and post-treatment assessments went above 5 points in PHQ-9 or 3 points in GAD-7 (Clark, 2018). The reliable improvement rate was found to be 63.9%, whereas the reliable deterioration rate was 5.3%.

Hierarchical logistic regression analysis was conducted to identify predictors for recovery, which was defined categorically as having both PHQ-9 and GAD-7 scored below cut-off post-treatment. Pre-treatment depression and educational levels significantly predicted recovery status, respectively ($p < .001$, OR = 0.86, 95% CI [0.79, 0.93] and $p < .01$, OR = 2.63, 95% CI [1.36, 5.06]), indicating that a milder pre-treatment depression and a university-level education were predictive of recovery. Yet, pre-treatment anxiety, age, gender, occupational

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status, number of sessions, waiting time and treatment duration were not found to be predictors. The lack of prediction from pre-treatment anxiety was probably related to its correlation with pre-treatment depression (Pearson's $r = .70$, $p < .001$). When it was entered into the regression model without depression, it similarly predicted recovery significantly as depression ($p < .01$, OR = 0.89, 95% CI [0.83, 0.96]).

Discussion

This is the first LiCBT evaluation study in Hong Kong with Chinese adults. Treatment effect sizes in depression and anxiety were large (0.87–0.95). For those participants reaching the clinical level of depression and/or anxiety at pre-treatment ($n = 229$, 80.4%), they reported even larger effect sizes (1.00–1.15) with a recovery rate of 55.9%. The reliable improvement and deterioration rates were 63.9% and 5.3%, respectively. These figures are close to those of existing studies, i.e. recovery rates of 51–69%, effect sizes of 0.98–1.26, and reliable improvement and deterioration rates of 66% and 6%, respectively (Baigent *et al.*, 2020; Clark, 2018). A deterioration rate of 6% is less than one may expect in participants in a waitlist group (Clark, 2018). An average waiting time of 30 days with the mean number of sessions 5.6 is comparable to those of the UK study (29 days and 6.4 sessions, respectively) (Clark, 2018). The drop-out rate (20%) is similar to the 18–23% found in comparable studies (Baigent *et al.*, 2020; Chan and Adams, 2014). The results of this study will be readily generalizable to the community, as it was conducted at a local community mental health centre.

The severity of pre-treatment depression or anxiety predicts recovery. Participants having mild-to-moderate degree of depression or anxiety achieve a recovery rate of 63.4% or 62.9%, respectively, significantly higher than the 40.2% or 41.6% recovery rate of those with more severe conditions. These outcomes echo the original design of LiCBT to target CMD of mild-to-moderate severity. However, a recovery rate of 40–41% for more severe conditions is not low at all, compared with the 30–34% achieved in a comparable UK study (Griffiths and Griffiths, 2015).

Furthermore, more educated participants have a higher likelihood of recovery. This is probably related to the guided self-help nature of the LiCBT, relying more on well-structured written materials than highly trained professionals. On the other hand, LiCBT seems equally applicable across age, gender and occupational status, given their lack of prediction for recovery. The number of sessions and treatment duration are also not related to recovery; perhaps their variation may in fact be partially reflective of or accommodative to the individual needs of the participants. Waiting time was found to be a predictor in the UK (Clark, 2018), but in this study, it narrowly misses statistical significance ($p = .06$). A future study is required to test again whether a longer waiting time hinders recovery.

In addition to its effectiveness, LiCBT also poses considerable cost-efficiency. There is substantial saving in terms of the lower qualification of the practitioners (Bachelor's degree). The average number of treatment sessions was only 5.6, with each lasting about 42 minutes. This relatively short time commitment is affordable to many help-seekers. It also enhances the turnaround rate.

This study has several limitations. First, it is not a randomized controlled trial (RCT). However, the spontaneous recovery rate of depression and anxiety was only estimated to be around 5–20% (Clark, 2018). Thus, spontaneous recovery cannot be a full account of the outcomes of this study. Nonetheless, a RCT should be planned in the future. Second, there is no follow-up evaluation to assess the maintenance of the benefits. Third, no formal psychiatric diagnosis is made in this study. The clinical status of the participants is based on the cut-off of PHQ-9/GAD-7. Fourth, the sample size of this study is relatively small. This study should be replicated with a larger sample in order to provide the greater statistical power to examine the predictors or moderators for recovery.

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Conflicts of interest. None.

Ethical statement. The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. Approval to conduct this study was obtained from the Joint Chinese University of Hong Kong–New Territories East Cluster Clinical Research Ethics Committee (CRE-2016.014).

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