การบำบัดทางความคิดและพฤติกรรมแบบกลุ่มในผู้ป่วยชาวไทยที่มีอาการปวดเรื้อรัง 3 ราย: การรายงานเบื้องต้น

Group Cognitive Behavioral Therapy for Thai Patients with Chronic Pain: A Preliminary Report

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บทคัดย่อ

วัตถุประสงค์ เพื่อรายงานเบื้องต้นถึงผลการบำบัดทางความคิดและพฤติกรรมแบบกลุ่มในผู้ป่วยชาวไทยที่มีอาการปวดเรื้อรัง 3 ราย

วิธีการศึกษา อาสาสมัครจำนวน 3 รายที่เข้าร่วมโปรแกรมการบำบัดทางความคิดและพฤติกรรมแบบกลุ่มเพื่อรักษาอาการปวดเรื้อรังจำนวน 2 วันต่อสัปดาห์เป็นเวลา 8 วันที่คณะแพทยศาสตร์ศิริราชพยาบาลระหว่างวันที่ 6-31 เดือน กรกฎาคม พ.ศ.2561 ตอบแบบสอบถามวัด ระดับความรุนแรงของอาการปวด ระดับความซึมเศร้า ความกังวล ความเครียด ค่าอรรถประโยชน์ ค่าสภาวะสุขภาพ ค่าความทุพพลภาพ และค่าความเชื่อมั่นในการรับมือกับความปวดของตนเอง ก่อนเข้าร่วมโปรแกรม หลังจบโปรแกรมทันที และในการตรวจติดตามที่ 1 และ 6 เดือนหลังจบโปรแกรม และให้สัมภาษณ์เกี่ยวกับความถี่และอุปสรรคในการใช้เทคนิครับมือกับอาการปวดเรื้อรัง

ผลการศึกษา อาสาสมัครทั้ง 3 รายมีสถานภาพสมรส ได้รับการวินิจฉัยเป็นโรคซึมเศร้า และมีอายุเฉลี่ย 46.33 ± 8.62 ปี (พิสัย 37-54 ปี) อาสาสมัครทุกคนมีแนวโน้มดีขึ้นที่ 6 เดือนหลังจบโปรแกรมในด้านระดับความซึมเศร้า ความเครียด ค่าอรรถประโยชน์และค่าทุพพลภาพ เทคนิครับมือกับอาการปวดเรื้อรังที่อาสาสมัครทั้ง 3 รายใช้ตลอด 6 เดือนหลังจบโปรแกรมคือ การออกกำลังกายยืดกล้ามเนื้อ เทคนิคการผ่อนคลาย และการจัดการความคิด

สรุป การบำบัดทางความคิดและพฤติกรรมแบบกลุ่มอาจมีประโยชน์ต่อเนื่องนาน 6 เดือนสำหรับผู้ป่วยชาวไทยที่มีอาการปวดเรื้อรัง การปรับปรุงตารางของโปรแกรมอาจช่วยเพิ่มความเป็นไปได้ของโปรแกรม การเน้นการสร้างแรงจูงใจและการติดตามอย่างใกล้ชิดอาจช่วยให้ผลลัพธ์ดีขึ้น ควรทำการศึกษาต่อไปในกลุ่มตัวอย่างขนาดใหญ่ขึ้นแบบมีกลุ่มควบคุม

คำสำคัญ การบำบัดทางความคิดและพฤติกรรม ปวดเรื้อรัง การรับรู้ความสามารถของตนเอง ซึมเศร้า

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ABSTRACT

Objective : To perform a preliminary study of the treatment effects of a group-based CBT for the first time in Thailand for Thai patients with chronic pain.

Methods : This is a preliminary report of the prospective pre-post treatment study in three participants who attended an 8-sessions, twice-weekly, "CBT for Chronic Pain" program at the Faculty of Medicine Siriraj Hospital between July 6 and 31, 2018. The outcome measures were the pain severity, depression, anxiety, stress, utility, overall health, disability, and pain self-efficacy. These participants were assessed before and immediately after the program, and again at the 1-, and 6-month follow-ups. They were then interviewed on treatment-strategies use.

Results : All three participants were married women with a mean age of 46.33 ± 8.62 (range, 37-54) years. They were all diagnosed with major depressive disorder. Six-month positive trends were observed in every participant for depression, stress, utility, and disability. All participants continuously used stretching exercises, relaxation technique, and thought management through a 6-month follow-up period.

Conclusion : Group-based CBT may have six-month benefits for Thai patients with chronic pain. Program schedule modification may improve the feasibility of the program. Focusing more on motivation enhancement and closed follow-up might improve the outcomes. Further study with a large sample size and a control group is required.

Keywords : cognitive behavioral therapy, chronic pain, self-efficacy, depression

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Introduction

Chronic pain is pain that lasts longer than three months.[1] It affects one-third of US adults[2] and substantially burdens individuals, employers, healthcare systems, and society.[3] Because of its chronicity, a multimodal approach including medications, surgery, physical rehabilitation, and cognitive behavioral therapy (CBT) is needed rather than medication use alone.[4] Both individual and group-based CBT can equally reduce pain interference, depression, and medication use. However, group-based CBT requires less staff use and staff's working hours and offer peer group support.[5] Group-based CBT is widely used to treat patients with chronic pain in Europe and the US as a part of multimodal approaches.[6-9] It positively impacts cognitive coping, mood and affects, pain experience, activity level, and social role functioning.[6] The intervention was also used to treat chronic pain successfully in patients with fibromyalgia and low back pain.[7,8] Furthermore, CBT changed the brain intrinsic functional connectivity correlated with pain self-efficacy and relieving pain symptoms.[9]

Despite the abundance of European and North American studies reported in the literature, East and Southeast Asian research on group-based CBT for patients with chronic pain is scarce[10], with no studies have been conducted in Thailand. An Indonesian study[11] on the effectiveness of short, group-based CBT (a total of 8 sessions held twice weekly) reported significant improvements in pain acceptance and depressive symptoms. However, there were no long-term follow-up assessments. Another study in Hong Kong[12] conducted three, 2-hour CBT sessions in a week revealed significant decreases in pain intensity and increases pain knowledge, but no significant changes in most of the coping strategies. The short time to learn and practice the coping strategies might have affected the results. The long-term impact of the treatment was also not investigated. A Malaysian study[13] on the effects of the 10-day CBT program for pain management showed significant improvements in pain scores, disability, depression, self-efficacy, and catastrophizing. The results remained positive at 1-year follow-up.

The current work aimed to perform a preliminary study on the treatment effects of a group-based CBT for Thai patients with chronic pain. To the best of our knowledge, this matter has not been previously investigated in Thailand, so the present research is the first to do so.

Material and Methods

The research was the prospective pre-post treatment study conducted at the Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, between April 1, 2018, and January 31, 2020, with prior approval from the Ethics committee, Siriraj Institutional Review Board (approval no. Si 850/2018).

The preliminary report was done by reviewed the participants' demographic data and medical histories through electronic medical records. Scores were collected from the questionnaires

completed by participants before and immediately after attending the group CBT course, and at their 1-month and 6-month follow-up. Written informed consent was obtained from each participant.

Participants

We identified chronic pain patients who follow-up with the only psychiatrist at the pain clinic from the electronic medical record during January 1 and June 15, 2018. We then included 18 or more year-old Thai patients with chronic pain who had given their consent to enroll in this study.

Participants were excluded from the study if they 1) had a critical medical illness or severe psychological problems that would interfere with their participation, 2) had an active psychosis, or 3) had a moderate to high risk of suicide. Participants were permitted to withdraw from the study at will.

Intervention

"CBT for Chronic Pain" was an 8-sessions, twice-weekly (Tuesday and Friday), 7-hours-a-day, group program. It was modified from the "Active Day Patient Treatment" (ADAPT) program of the Pain Management Research Centre, Royal North Shore Hospital, University of Sydney, Australia, which had been developed by Professor Michael Nicholas. The program for use in Thailand was collaboratively developed by Nicholas and Saisavoey. The program's activities used cognitive-behavioral methods as the main model to teach patients how to deal with their pain by developing essential pain management skills. The program facilitators comprised a psychiatrist, two psychologists, a pharmacist, a pain clinic nurse, and two physiotherapists. Participants were instructed in the model of chronic pain (therapists illustrated common problems experienced by people with chronic pain and then linked this model to participants' life experiences); goal setting (therapists assisted participants in determining goals that were specific, easily measured, achievable, meaningful, and had a time-frame for achieving them); stretching, strengthening, and aerobic exercise (therapists taught participants various kinds of exercises and encouraged them to exercise daily); pacing activities (therapists guided participants to increase their intensity of exercises and activities gradually each day without overdoing or underdoing), desensitization (therapists encouraged participants to gently stimulate their pain sites short-time each day in order to reduce hypersensitivity of that body areas), and relaxation techniques (therapists taught participants to reduce the stress of experiencing pain by using relaxation technique); thought management (therapists guided participants to aware of their unhelpful thoughts and choose alternative views that can reduce their stress); problem-solving skills (therapists taught participants to solve their problems systematically by identifying various alternative solutions for the problem and the advantages and disadvantages of each answer); sleep management (therapists had their participants record their sleep diaries to help them aware of their unhealthy sleep habits and corrected

their unhelpful behaviors); and flare-up planning (therapists assisted participants in making plan to cope with their flare-up pain) (Table 1). These represented the treatment strategies that would help them deal with pain and its consequences. The participants were encouraged to practice the treatment-strategies at home by themselves every day between the program sessions and continue with them once the program had finished. Moreover, their walking was also video recorded before and after the program to help them see their improvements.

Table 1 Contents in each session of the "CBT for Chronic Pain" program

Sessions	Contents
1	Model of chronic pain, Goal setting, Pre-intervention video record, Relaxation technique, Strengthening/Stretching/Aerobic exercises, Pacing activities, Homework
2	Review of homework, Relaxation technique, Pacing activities, Strengthening/Stretching/Aerobic exercises, Thought management, Homework
3	Review of homework, Relaxation technique, Pacing activities, Strengthening/Stretching/Aerobic exercises, Thought management, Homework
4	Review of homework, Desensitization, Relaxation technique, Strengthening/Stretching/Aerobic exercises, Thought management, Homework
5	Review of homework, Relaxation technique, Sleep management, Strengthening/Stretching/Aerobic exercises, Thought management, Homework
6	Review of homework, Relaxation technique, Problem-solving, Strengthening/Stretching/Aerobic exercises, Thought management, Homework
7	Review of homework, Relaxation technique, Problem-solving, Strengthening/Stretching/Aerobic exercise, Thought management, Flare-up planning, Homework
8	Review of homework, Relaxation technique, Strengthening/Stretching/Aerobic, Review of goal, Post-intervention video record, Review video

Measures

We used five tools and interview to evaluate the efficacy of the "CBT for Chronic Pain" program. They were:

1) The Numeric Pain Rating Scale, Thai Version (NPRS-Th). Here, patients self-report their pain intensity, with a score ranging from 0-10 (0 = no pain; 10 = worst pain imaginable).

2) The Depression Anxiety Stress Scales 21 (DASS-21), Thai version.[14] This 21-item, self-administered questionnaire measures the degree of depression, anxiety, and stress. Each item has 4 scales, with a 0-3 range (0 = never; 3 = almost always). Cronbach's alpha for the stress, anxiety, and depression aspects of the DASS-21, Thai version, were determined to be 0.92, 0.83, and 0.89, respectively.

3) The EuroQol group-5 dimensions-5 levels, Thai version.[15] This self-administered questionnaire consists of two parts: a descriptive system and a visual analog scale. The descriptive system measures a utility value for the patient's

current health status summarized in a EuroQol index (EQ index). Five health dimensions are assessed, including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has five levels of response (1-5 : 1 = no problems; 5 = unable/extreme problems). The scores from each dimension are then calculated into utility score (EQ index). In the second part, the visual analog scale measures the patient's current health state value through their self-reporting of a number from 0 to 100 (0 = the worst health state; 100 = the best health state) summarized as the EuroQol visual analog scale (EQ VAS). The intraclass correlation coefficient has been shown to be 0.89, with weighted kappa coefficients for its five dimensions ranging between 0.44 and 0.60.

4) The Roland-Morris disability questionnaire (RMDQ), Thai version.[16,17] This 24-item, self-administered questionnaire assesses the degree of functional disability in patients with pain, with the score ranging from 0-24. The internal consistency of the RMDQ, Thai version, has been determined to be 0.83.

5) The pain self-efficacy questionnaire (PSEQ), Thai version[23] This 10-item, self-administered questionnaire assesses the strengths of a patient's self-efficacy beliefs and their confidence to accomplish any activity despite the pain. Each question has 7 scales (0-6: 0 = not at all confident; 6 = completely confident). The PSEQ, Thai version, has high internal consistency (Cronbach's alpha = 0.92) and an intraclass correlation coefficient of 0.48.

6) Interview of the treatment-strategies use. Participants were asked whether they used and how often they used each treatment-strategy they had learned from the group CBT during the 6-month follow-up period. More, we asked them what were the obstacles to adhere to treatment-strategies.

Statistical analyses

The statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) for Windows, version 18.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to present each variable of the participants' characteristics and outcomes.

Results

We identified 22 patients who met inclusion criteria from hospital medical records of the Pain clinic between January 1 and June 15, 2018. Twelve patients were interested in the "CBT for chronic pain" program. However, one patient was excluded because his age was less than 18, and six patients could not participate in the program because they had to work on weekdays. Five patients gave consent to participate in the study. Nevertheless, one patient had to study abroad, and another one lost follow-up for an unknown reason before the beginning of the group CBT. Therefore, there were only three participants left in the group.

All three participants, who attended the group CBT simultaneously, participated in all eight sessions. They were married women with a mean (SD) age of 46.33 (8.62) years (range, 37-54). All of them had two or more pain sites. They were all diagnosed with major depressive disorder. Table 2 showed detailed demographic information of the participants.

Participant A had taken only Duloxetine 90 mg/d for her pain and depressive symptoms for more than a month before the beginning of the "CBT for Chronic Pain" program. There was no dose adjustment of Duloxetine during the 6-month follow-up period.

One month before the program's beginning, Participant B's medications for pain and depressive symptoms were Amitriptyline 25 mg/d, Pregabalin 300 mg/d, Sertraline 200 mg/d, and Celecoxib 200 mg/d. She could then stop taking Celecoxib since one week after the program because she could better manage her pain. There was no dose adjustment for the other medications through the 6-month follow-up period.

At one month before the program, Participant C was taking Ibuprofen 400 mg/d, Tramadol 200 mg/d, Nortriptyline 75 mg/d, Gabapentin 1,800 mg/d, and Sertraline 200 mg/d. There was no dose adjustment for Ibuprofen, Nortriptyline, and Sertraline during the 6-month follow-up period. Dosage of Tramadol was decreased to 100 mg/d at five months after the program. Dosage of Gabapentin was decreased to 900 mg/d and 300 mg/d at two months and five months after the program, respectively.

Table 2 Characteristics of the Thai participants in the "CBT for Chronic Pain" program

Characteristics	Participant A	Participant B	Participant C
Sex	Female	Female	Female
Age (years old)	50-54	45-49	35-39
Marital status	Married	Married	Married
Children (number)	1	0	1
Religion	Buddhism	Buddhism	Buddhism
Education	Graduate	Graduate	Secondary school graduate
Employment	Unemployed	Employed	Unemployed
Pain site	Two or more sites	Two or more sites	Two or more sites
BMI (kg/m^2)	15.0-19.9	25.0-29.9	25.0-29.9
Diagnosis	MDD	MDD	MDD
	FMS	Central pain syndrome	OA knee
		Fibromyalgia	Chronic pelvic pain
			Pelvic endometriosis
			Obesity

MDD = major depressive disorder; FMS = fibromyalgia syndrome; OA = osteoarthritis.

NPRS

Participants B and C showed long-term improvement in pain score while Participant A's pain severity roughly remained constant through the 6-month follow-up period (Table 3).

DASS-21-depression

All participants' depression levels were finally decreased at 6-month post-intervention with at least 44.44% reduction from the baseline score. Participant B had the most remarkable improvement in the score, 78.95% reduction from the pre-intervention score (Table 3).

DASS-21-anxiety

Participant B's anxiety level markedly decreased at 6-month follow-up, a 64.70% reduction from the baseline. The others' anxiety levels only slightly change (Table 3).

DASS-21-stress

The stress level of all participants eventually decreased at 6-month post-intervention. Participant B's stress score decreased the most, 80% reduction from the baseline (Table 3).

EQ index

Every participant has a long-term increment in utility value (EQ index), although Participant A's score did not show the improvement until at 6-month follow-up (Table 3).

EQ VAS

Both Participants A and B's self-reported current health state values (EQ VAS) were gradually increased over a 6-month follow-up period. Although participant C's score was decreased from baseline, her perceived health state was still high at the end (Table 3).

RMDQ

All participants showed a decrease in disability level. Participants A and C had a slight improvement in the score. Participant B had a 54.17% reduction in disability level at long-term follow-up (Table 3).

PSEQ

All participants had approximately 40 to 100 percent increments of self-efficacy level at immediate post-intervention. The benefits of the intervention to participants A and B on self-efficacy were observed through a 6-month follow-up period (Table 3).

Interview of the treatment-strategies use

Table 4 showed each participant's treatment-strategies use and how often they used each treatment-strategy through 6-month follow-up. All participants said that the most effective treatment-strategies were stretching exercises, relaxation technique, and thought management. They used these strategies continuously during the 6-month follow-up period. They noted that stretching exercises were the easiest type of activity to comply with. Relaxation technique and thought management helped them cope with difficult emotions when they experienced pain or difficulties in life. No participant continued to use desensitization, aerobic exercises, and flare-up planning. They said that they did not use desensitization because it had to aggravate pain, which all of them tried to avoid, did not do aerobic exercises because they had no time, and did not use flare-up planning because they could not remember how to do it.

Table 3 Each participant's score for each outcome at pre- and post-intervention, 1-, and 6-month follow-ups

Scores	Participant A	Participant B	Participant C
NPRS score (0-10)			
Pre-intervention	4	7	9
Post-intervention	5	7	7
1-month follow-up	5	4	7
6-month follow-up	4	4	7
DASS-21-depression (0-21)			
Pre-intervention	8	19	9
Post-intervention	7	5	4
1-month follow-up	5	7	4
6-month follow-up	3	4	5
DASS-21-anxiety (0-21)			
Pre-intervention	2	17	9
Post-intervention	4	4	7
1-month follow-up	3	13	6
6-month follow-up	3	6	7
DASS-21-stress (0-21)			
Pre-intervention	7	20	13
Post-intervention	8	6	7
1-month follow-up	8	10	8
6-month follow-up	4	4	8
EQ index score (0-1)			
Pre-intervention	0.53	0.38	0.25
Post-intervention	0.55	0.67	0.55
1-month follow-up	0.55	0.55	0.39
6-month follow-up	0.65	0.62	0.33
EQ VAS score (0-100)			
Pre-intervention	65	70	90
Post-intervention	67	75	70
1-month follow-up	70	80	70
6-month follow-up	80	85	70
RMDQ score (0-24)			
Pre-intervention	7	24	15
Post-intervention	4	11	12
1-month follow-up	3	14	15
6-month follow-up	5	11	13
PSEQ score (0-60)			
Pre-intervention	35	21	28
Post-intervention	50	43	41
1-month follow-up	47	40	24
6-month follow-up	55	46	30

Table 4 Usage of each treatment strategy and the frequency of use for each participant

Participant	A	B	C
Treatment strategies	Use or frequency of use 6-month follow-up	Use or frequency of use 6-month follow-up	Use or frequency of use 6-month follow-up
Strengthening exercises (times/week)	5	0	3
Stretching exercises (times/week)	5	1	4
Aerobic exercises (times/week)	0	0	0
Pacing activities (use)	Yes	No	Yes
Relaxation technique (times/day)	3	7	2
Desensitization (times/day)	0	0	0
Thought management (use)	Yes	Yes	Yes
Problem-solving (use)	Yes	Yes	No
Goal setting (use)	Yes	Yes	No
Sleep management (use)	Yes	No	Yes
Flare-up planning (use)	No	No	No

Discussion

The study results suggest that the group-based CBT for chronic pain may have long-term and positive effects on pain score, depression, anxiety, stress, health utility (EQ index), overall health state (EQ VAS), disability, and pain self-efficacy.

These results are in concordance with those of many earlier studies. One systematic review and network meta-analysis[18] established that CBT improves physical functioning, pain intensity, and depression. Randomized controlled trials[7,19] reported that group CBT improved depression, stress, pain scores, and functional limitations at the 6-month follow-up. A Singaporean study[20] also showed that group CBT positively impacted patients with chronic pain in pain self-efficacy, pain intensity, depression, anxiety, and stress. Additionally, the intervention improved quality of life, physical limitations, and general health in patients with chronic musculoskeletal pain.[21]

Although the group CBT seemed to offer positive outcomes for many measures, its effects on each participant were different. Participant B showed the most considerable improvements in every measure compared to participants A and C in both short-term and long-term. Participant B did not have any children and was employed, whereas the other two participants had one child and were unemployed. Whether these factors affect the efficacy of the intervention warrants attention and further study.

Evidence showed that depression and anxiety were associated with chronic pain.[22] Patients with depression were more likely to develop chronic pain, while chronic pain could cause depression. There was also a doubling prevalence of anxiety disorders in patients with

chronic pain than in the general population. Nevertheless, Participant A and B's pain scores did not correlate with depression; only participant C did. However, all participants' improvement in anxiety levels and pain scores were in a similar trend. More sample size is required to show the possible association.

There was no complication from the group intervention to the participants. However, some obstacles minimize the efficacy of the program. Based on participant interviews, the barriers to treatment-strategy adherence were: a lack of motivation (also reported as "laziness" or "a lack of continuity in strategy use"), medical illness, not understanding a treatment strategy, a lack of time, and high pain levels. These barriers could also be important factors influencing the results. Further investigation on their effects on study results is needed.

This study has some limitations. There was no comparative group. The number of participants was small to establish statistical significance for the group intervention's positive effects. The limited number of staff coupled with the high workloads at Siriraj Hospital means that group-based CBT programs for chronic pain can be delivered only twice yearly and only for a small number of participants. All questionnaires used in this study were self-reported because they consumed less staff employed to complete them. However, including objective measures in further research may improve the reliability of the results.

It is the first study on the effectiveness of group CBT for patients with chronic pain in Thailand. This study collected qualitative data through the participant interviews enabling us to understand the results and be an informative resource for further investigation. Participants' feedback helped us to know where to focus more on the program to improve the outcomes. For example, focusing more on motivation building and more frequent group follow-up may increase treatment-strategy adherence. Treatment-strategies that they practiced more in sessions were more likely to be used in the long-term.

Further investigation with a larger sample size and control group is necessary to test the program's efficacy and whether the participants' improvements were because of the group effect. Increasing the number of participants per group, including participants from multiple sites, and extending the data collection duration may increase the chance of gaining more sample size. Additionally, instead of weekdays, giving intervention on weekends might be a considerable option to earn more available participants. Comparing the efficacies of group-based CBT for chronic pain with group pain-education only or with a combination of CBT with other treatments for Thai patients could be another research option. Studies on the cost-effectiveness and adverse effects of group-based CBT for chronic pain in Thai patients are essential before implementing the treatment intervention in more expansive areas in the long term.

Delivering the "Group CBT for Chronic Pain" program at Siriraj hospital is feasible. We might improve the program by modifying the program schedule to be possible for patients to attend, focusing on motivation enhancement, and closely monitoring and follow-up to ensure that they understand treatment-strategies and practice them regularly.

Conclusion

Group-based CBT program may have six-month benefits for Thai patients with chronic pain in terms of depression, stress, utility, and disability. The program is feasible but requires schedule modification and focusing more on motivation enhancement. Further investigation with a large sample size and a control group is needed.

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