Mindfulness-Based Relapse Prevention Program for Alcoholism: A Case-Control Study

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ABSTRACT

Objective: To test the efficacy mindfulness-based relapse prevention program (MBRP) in alcohol dependent patients.
Methods: The experimental study was carried out from June 2012 to March 2013. The MBRP was conducted in five 90-minute sessions and one half- day session, following Buddhist concepts related to Sati development. The objectives of the program were to develop subject's awareness and acceptance of feeling and thought without identification with them. The program focuses on mindfulness practice in daily life. Subjects volunteered to participate in the study. The control group was matched selected and received treatments as usual. The number of cases who stopped drinking, dropped out and relapsed within 16 weeks were analyzed with Survival Analysis.
Results: There were 30 cases of alcohol dependent males equally entering to the study and the control groups. The median time to relapse of the study group was significantly longer than that of the control group (8 wks vs 2 wks, p=.04). At the end of the study, 8 cases in the study group compared with 3 cases in the control group were abstinent. No subject in the study group was readmitted while 8 cases in the control group did so.
Conclusion: The MBRP can help to prolong abstinent period and probably improve other clinical outcomes of the alcohol dependent subjects. However longer-term study in a larger sample should be carried out.

Keywords: Alcohol, mindfulness, relapse prevention

INTRODUCTION

Relapse is a common phenomenon for many drinkers who have undergone alcohol dependent treatment program. Traditionally, relapse is usually viewed as a failure outcome of treatment. This view is in contrast with the cognitive-behavioral model called relapse prevention model (RP) proposed by Marlatt which views relapse as a transitional process. The relapse prevention model is focused on identifying and avoiding high-risk situations, and increasing self-efficacy[1]. Research data have supported the effectiveness of the RP model[2]. However, learning to avoid triggering cues or to substitute other activities for drinking do not remove the core component of an addictive loop called craving and leaving patients vulnerable to relapse.[3] Craving has been identified as a strong predictor of relapse after treatment.[4] Most of current therapy programs do not deal with craving directly. However, it was found that mindfulness meditation can help clients to detach from the temptation of cravings.[5] Furthermore, regular mindfulness practice helps to develop coping mechanism and it becomes the core component of the relapse prevention.[6] With these evidences, the structured format of mindfulness stress reduction (MBSR) and mindfulness based

cognitive therapy (MBCT) were later integrated into relapse prevention program.[6,7] There were other kinds of mindfulness–based programs applied in relapse prevention with promising results such as dialectical behavior therapy (DBT) and acceptance and commitment therapy (ACT).[5,6] DBT and ACT applied mindfulness as an one element rather than the core process. However, all mindfulness programs can cultivate adaptive responses which relieve stress and improve quality of life.[8] In summary, mindfulness-based intervention is beneficial for relapse prevention in terms of stress reduction, promoting adaptive trigger responses and dealing with craving directly.

The mindfulness based relapse prevention (MBRP) originally consists of eight weekly sessions integrating cognitive – behavioral RP skills with mindfulness practices in order to increase awareness of triggers and auto reaction.[6] From a pilot study, the relapse rate and stress level of cases attending the mindfulness based program were less than those in cognitive behavior therapy (CBT).[9] From our experiences piloting formal mindfulness practice such as sitting meditation with a small group of volunteers, there was a strong concern that formal practices would be unavoidably perceived as a Buddhist religious tradition and not suitable for subjects with other religion. With this concern, we designed a new program which integrated mindfulness practice into daily life without any formal practice and tested its efficacy by adding the program into the existing alcohol treatment program.

MATERIALS AND METHODS

Mindfulness program

The mindfulness program was based on the concept of Theravada Buddhism including Satipathanna and the Three Characteristics or Tilakkhana: impermanence, suffering and not self. The program had 3 core components, first awareness of feeling and thought, second acceptance of feeling and thought without judgment or interaction and third frequent practice of awareness and acceptance in daily life.[10] Buddhist terminologies were avoided. Participants were trained to observe whatever happened in his mind including feeling and thought while performing daily activities such as brushing teeth, taking a shower, walking, drinking, eating, etcetera. Five 90- minute group sessions and one half-day session finished within 15 days. The outline of each session is as follow:

Session 1: Baseline assessment, group orientation, sharing about previous experiences in stop drinking and meditation practice.
Session 2: Concept of Buddhist mindfulness: awakening is the nature of human being.
Session 3: Mind and function, skillful mindfulness.
Session 4: Core concept of impermanent and internal triggers.
Session 5: Skillful mindfulness practice on short term goal (daily abstinence).
Session 6: Mindful walking, relapse prevention planning, wrap up (a half-day session). (The program detail is available at www.i-mapthailand.org)

Participants

Participants were psychiatric cases diagnosed of alcohol dependence or alcohol withdrawal admitted into an inpatient alcohol unit ward of Srithanya Hospital. They were recruited into the study after receiving acute treatment for alcohol withdrawal syndrome and the withdrawal symptoms score <= 10 assessed by the Clinical Institute Withdrawal Alcohol Assessment - revised (CIWA-Ar).[11] Those having co-morbidity of schizophrenia or severe depression assessed by PHQ9[12] or major depression, discharged from the hospital within three months or suicidal attempt within one year or electro-convulsive therapy were excluded. The control cases were matched by education level, age, diagnosis and alcohol related problem score. They had been admitted to the hospital at the same time as the study group. Both groups had received a standard psychosocial group therapy adapted from Matrix Model of Rawson et al[13], consisting of ten one-hour sessions to educate participants on trigger management, harmful effects of alcohol and brain changes. The study group received the mindfulness program. No other individual or group intervention was provided. Sample size was estimated by Cohen's d (effect size =0.8, power = 0.8 and α =0.05), and

there were 26 cases in each group[14]. For unexpected dropout cases, we recruited 30 cases for each group.

Instruments

The following self-rated questionnaires assessing alcoholic related problems, stress, depression and mindfulness level were applied at baseline and immediately after the forth, and sixth sessions as below.

The Thai version of alcohol use disorders identification test (AUDIT)[15], a 10-item scale of Likert type (0-4 score for items 1-8 and 0, 2 or 4 score for items 9-10) was self-rated in both groups. A total score of 0-7 means low risk drinker; 8-15 risk; 16-19 harmful and ≥ 20 addicted drinker who needed therapy.

Srithanya stress questionnaire (ST5)[16], a 4-point Likert (0-3 score) scale consists of 5 items. A total score of 0-4 means no stress, 5-7 has stress and ≥8 maybe sick from anxiety.

The Thai version of PHQ9[12], a 4-point Likert (0-3 score) scale, consists of 9 items. In this study, the item number 9 had to be equal to 0. (no suicidal idea or suicidal thought of own-self must die) and total score must be less than 20.

Spiritual well-being[17], a 4-point Likert (1-4) scale, contains 16 items. Higher score means more spiritual well-being.

The Thai version of Philadelphia Mindfulness Scale (PHLMS)[18], a 20-item 5-point Likert (1-5 score) scale, with two 10-item domains i.e., awareness (PHLMS_aw) and acceptance (PHLMS_ac). The higher score means the higher level of mindfulness. The mean score of each domain was used for the analysis.

In the study group, each patient was encouraged to record his practice on activity in daily life once a day in a provided calendar sheet. They were also encouraged to do a learning journal during the sessions in the provided notebook. The study was approved by the hospital ethical committee in April 2011.

Treatment outcomes

Primary outcome was relapse or readmission within 16 weeks. We defined any kind of drinking during the follow-up period as relapse. All cases were followed up at the hospital after discharge for 2 weeks and then by telephone at 4, 8, 12 and 16 weeks.

Statistic analysis

Descriptive analysis was applied for clinical data. Mean score of ST5 and PHLMS were analysed by Friedman test. The differences of time to events (including relapse, readmission and lost to follow-up) at 16 weeks between the two groups were determined by Kaplan Meier survival analysis.

RESULTS

The intervention program was applied to five closed groups between 6th June and 19th November 2012 and the follow up period was from 20th July to March 2013. The first group consisted of three newly discharged patients and six clinically stable in-patients. All participants of the other 4 groups were in-patients. There were 15 cases who completed the program. (Table 1) Those who dropped out were discharged before completing the program, although, they were contacted via phone to gather the outcomes at 2, 4, 8, 12, 16 weeks. Homework analysis was limited due to incomplete records. Subjects were unfamiliar with journaling, but they could openly reflect their experiences verbally.

Demographic characteristics

All were men with average age of 43 years. Most were married and had primary levle of education. The average AUDIT scores were 21.5. These parameters were not significantly different between 2 groups. (Table 1) Among completed cases, one case had severe level of stress according to ST5 score, four had moderate level of stress and ten did not have stress. The average scores of ST5, and spiritual well-being tended to decrease along the follow-up period. For mindfulness level, there was inconsistent pattern of change. The PHLMS_aw was increased in six cases, but decreased in the others while PHLMS_ac was increased in six cases and decreased in eight cases but one was persisted. Only one case had improved scores of PHLMS in both domains. (Table 2)

Outcomes assessed by Kaplan Meier survival analysis

In our study group, eight remained abstinent at 16th week, eight were lost to follow-up and fourteen relapsed, compared to the control group, three abstinent, ten lost to follow-up, nine relapsed and eight readmitted. With intention to treat analysis at 16th week, events were defined as relapsed, readmitted and lost to follow-up. Median times to events were significantly different between 2 groups as Fig 1. (8 SE=3.0 and 2 SE = 0 respectively, Log Rank χ^2=3.95, df = 1, p=0.04)

TABLE 1. Characteristics of participants.

Data	Study	Control	p-value
Age (SD)	43.2 (8.8)	41.6 (9.6)	0.52[a]
Education			0.69[b]
Primary	11	8	
Secondary	16	18	
Bachelor	3	4	
Marital status			0.92[b]
Single	8	9	
Married	17	17	
Widow/separate	5	4	
Drinking duration (SD)	15.2 (4.2)	15.5 (6.0)	0.81[a]
Admission no.			.09[b]
1	21	13	
2	3	8	
≥3	6	9	
Diagnosis (ICD-10)*			.06[b]
F10.3	1	2	
F10.4	8	16	
F10.5	21	12	
AUDIT score	21.1 (8.2)	26.7 (4.2)	0.20[a]
Session			
1	4	-	
2	3	-	
3	4	-	
4	3	-	
5	1	-	
Completed 6	15	-	

a= t-test, b = χ^2

*F10.3 - Alcohol withdrawal, F10.4 – Alcohol withdrawal delirium, F10.5 – Alcoholic psychosis

TABLE 2. Comparing average scores of stress (ST-5), mindfulness (PHLMS_aw, PHLMS_ac), spiritual wellbeing in completed cases (n=15).

Instruments	Mean (SD)			p-value
	Based line	4th session	6th session	
ST5	4.4(3.4)	4.5(4.1)	3.8(2.6)	0.92
PHLMS_aw	27.3(8.9)	31.2(6.7)	30.6(9.6)	0.48
PHLMS_ac	33.5(8.4)	31.3(8.1)	33.3(8.2)	0.74
Spiritual wellbeing	53.1(10.3)	49.7(7.7)	48.7(9.2)	0.08

Considering the number of previous admissions, median times to events of patients who had been admitted to the hospital for the first time tended to be longer than those admitted for the second time and beyond. This pattern was found in both groups.

DISCUSSION

This is the first attempt to test the efficacy of a short mindfulness-based intervention for relapse prevention in alcohol dependence. The main activity in this study was different from those of MBRP[6] which contains formal meditations such as sitting meditation for 45 minutes, yoga and body scan. As mentioned earlier, formal meditation in Thai culture is strongly linked with Buddhist tradition. We tried to make the program free from religious barriers and designed it to be able to practice informally in daily life with minimal extra formal practice. The activities related to clear comprehension and *Sati* were based on those in daily life.[19] Group reflection and deep listening promoted participants to observe body or feeling or thought moment by moment.

The number of abstinence in the study group was more than that of the control group. (Fig 1) Completed cases were more likely to be abstinent for a longer period than those who did not completed the program, and this result is similar to previous reported.[20] Relapse rate at week 12 was similar between the 2 groups, therefore, the refresh program should be boosted at week 8. Dropout rate was high especially for participants who had been discharged before the program finished. Once the patients were discharged, they were unlikely to come back for follow-up. To increase the attention rate, booster sessions should be held in a community setting rather than in a hospital setting. Even though dropout rate was high, this

was a common outcome in addicted patients.

Some cases had been followed up longer than 16 weeks till 8 months after the enrollment. Their relatives reported that drinking pattern was changed to the low risk level according to the AUDIT score, and they felt less burden than before entering the program. Harm reduction and burdens of family should be considered as outcome indicators for the future research.

The study group did not have significant changes of the mean score of stress and *Sati* questionnaires because this study completed within 15 days. The positive changes of mindfulness, stress and spiritual well-being needed cultivation in a longer period of time and consistency of pratice.[21] PHLMS and spiritual well-being questionnaires might not be appropriate for alcoholic cases without mindfulness experience. The means stress score tended to decrease which could not be explained by the effect of the program or from the arrival of discharge day.

Limitation

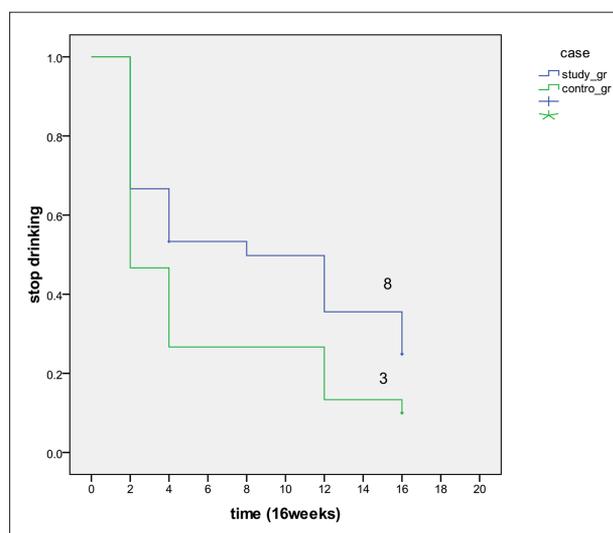This study was not a random sampling design and limited to male alcoholic cases without

Fig 1. Intention to treat analysis.

TABLE 3. Median time (week) to events comparing between number of admission and groups.

No Adm	Study group			Control group			
	Case	No. of event	Median (SE)	Case	No. event	Median (SE)	p value
1	21	14	10(4.3)	13	11	4(2.2)	0.22
2	3	2	2	8	7	2	0.62
3	6	6	2	9	9	2	0.11

No. Adm= number of admission, no. = number

depression or suicidal attempt. Even though case and control were matched by education level, age, diagnosis and severity of alcohol related problem, other personal characteristics that might affect the outcomes such as background religious belief, underlying personality were not taken into account. Time to events was estimated by his relative, therefore, it might not be the real time of event. Participants might not be practicing mindfulness during follow up time. In positive way, during the study period, therapists simultaneously practiced mindfulness along with participants moment by moment. Therapists had to cultivate their experiences which differed from other techniques of therapy in which they did not necessarily have direct experience to share among participants.

CONCLUSION

Given some limitations of this study such as high dropout rate and short follow-up period, we found that the program could prolong abstinent period and improve some clinical outcome measures. This suggested that the short mindfulness-based program might be helpful for improving clinical outcome for a certain group of patients at least for 16 weeks. To establish these findings, a long-term study with a larger sample size should be carried out.

ACKNOWLEDGMENTS

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