

Efficacy of Group Motivational Interviewing Plus Brief Cognitive Behavior Therapy for Relapse in Amphetamine Users with Co-Occurring Psychological Problems at Southern Psychiatric Hospital in Thailand

K.Sinsak Suvanchot PhD*,
Ratana Somrongthong PhD**, Daranee Phukhao PhD***

* Graduate School, Chulalongkorn University, Bangkok, Thailand

** College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand

*** Faculty of Social Sciences and Humanity, Mahidol University, Nakhornpathom, Thailand

Objective: To evaluate the efficacy of a Group Motivational Interviewing plus Brief Cognitive Behavior Therapy (GMI-BCBT) in reducing amphetamine dependency in drug abused patients with recurring psychological problems.

Material and Method: A quasi-experimental study was used with 200 patients from two psychiatric hospitals forming two groups of participants. The patients reported amphetamine use at least once in the past month prior to the present study. They were all assessed at baseline with three follow-up sessions. Patients in one psychiatric hospital were assigned to usual care and were the study group (n = 100) and patients at the other psychiatric hospital, the intervention group, were assigned to four sessions of GMI-BCBT plus usual care (n = 100). Regarding the follow-up outcomes, comparison of GMI-BCBT plus usual care and usual care only was analyzed by survival analysis since stopping amphetamine use.

Results: Most (59.5%) patients suffered from major depression. The intervention group had significantly more survival rate within three months (p-value < 0.001). Both groups had a similar pattern of drug use in quantity and frequency. Their mean score of anxiety and depression were also reducing at baseline, three, and seven months (p-value < 0.001).

Conclusion: The present result suggested that the combined therapy GMI-BCBT is more effectively reduced the rate of amphetamine use for out-patient at psychiatric hospital than usual care only.

Keywords: Amphetamine intervention, Comorbidity of addiction, Outpatient psychiatric department

J Med Assoc Thai 2012; 95 (8): 1075-80

Full text. e-Journal: <http://jmat.mat.or.th>

There has been a worldwide increase in the use of amphetamine⁽¹⁾, and in South- East Asia, the problem has worsened. Nearly 55% of the world's amphetamines users (14 million) are estimated to be in Asia. Most of them are methamphetamine users⁽²⁾. Thailand has reported a decrease use of drug tablets but an increase in crystalline form. Since 2005, there has been a significant increase in amphetamine stimulant-related arrests⁽³⁾. In the south region, the highest prevalence of amphetamine cases was found in Surat Thani and Songkhla provinces⁽⁴⁾. A previous study noted that almost half (49.1%) of the current amphetamine users reported that they had been diagnosed or treated for mental health problems

and these problems occurred commonly after the commencement of regular amphetamine use⁽⁵⁾. Regular amphetamine use can be associated with a range of adverse outcomes, including psychological problems such as depression, anxiety, irritability, paranoia, difficulty concentrating, aggression, hallucinations, and psychosis⁽⁶⁾. Nowadays, there are several kinds of psychosocial therapies to help patients reduce amphetamine use. However, many experts suggested that those treatments and therapies should have coverage assessments, motivate patients to participate in the program, and encourage the patients to set priority of the problems by themselves⁽⁷⁾. The previous study showed that Single Group Motivational Interviewing can motivate patients to participate in the therapy and Brief Cognitive Behavior Therapy can help with amphetamine users^(8,9). To date, there is no research on combined therapies, using Group Motivational Interviewing (GMI) and Brief Cognitive

Correspondence to:

Suvanchot K.S, Suansaranrom Hospital, Surat Thani 84130, Thailand.

Phone: 077-916-517, Fax: 077-240-565

E-mail: ksinsak@gmail.com

Behavior Therapy (BCBT) to deal with drug addiction problems. Previous studies did not consistently show an improvement when combined therapy plus usual care among amphetamine users with co-occurring psychological problems was used. The researcher designed a new brief therapy, combined with GMI and BCBT for reducing amphetamine dependency and psychological problems in the out-patient department.

Material and Method

Participant

Two hundred participants were recruited from two psychiatric hospitals in southern Thailand between April 1, 2010 and February 24, 2011. The participants were diagnosed for amphetamine use disorders and co-occurring psychological problems, assessed by the Mini International Neuropsychiatric Interview (M.I.N.I.), Time Line Follow Back (TLFB), and Thai version of Hospital Anxiety and Depression Scales (Thai HADS). Prior to administering the M.I.N.I., TLFB, The Motivation for Change Ladder (MCL), The Self-Efficacy Ruler (SR) and Thai HADS, patients in one hospital were assigned to the intervention group and patients from another hospital to the control group.

Data collection and procedure

Patients gave informed consent to be interviewed by a trained psychiatric nurse. The four sessions of Group Motivational Interviewing plus Brief Cognitive Behavior Therapy (GMI-BCBT) was administered to patients assigned to the intervention group. The main goal of the intervention was to minimize the level of drug use and reduce the risk of mental, physical, financial, social, and occupational health associated with regular amphetamine use. Patients were assisted to identify their own specific goals. The other patients assigned to the control group (non-intervention group) were advised that personnel from the present study would contact them after two, four, and six months for follow-up data collection efforts. Patients were required to use the succession card on which they wrote their goal of stop using amphetamine, daily life positive thinking, related activities, and supportive factors.

Statistical analysis

The sample size is approximated based on statistical power analysis, at a significance level of 0.05, and a desired power of 0.80. With adjustments for a withdrawal rate of 10%, a minimum of 100 patients in each group were required. Descriptive

statistics including means, standard deviations, frequencies, and percentages, were computed to summarize demographic variables. Differences between the intervention group and the control group were evaluated using independent t-tests for continuous variables and Chi-square analyses for categorical variables. Survival analysis (Kaplan Meier survival plot) was used to study survival function of median survival time for the patients who get the event (urine positive for amphetamine use) to analyze survival rate by time. SPSS for windows version 17 was used for all analysis. A p-value of less than 0.05 was considered as statistical significant.

Results

The mean age of the 200 participants was 24.98 years (SD = 5.18, min = 16, max = 40). The majority of participants were single (55%) (n = 110). Most of them were poly drug users. The most common methods of using amphetamine was transnasal inhalation passing water (n = 197). Patients in the intervention and control groups were similar with regards to age, marital status, educational level, occupation, history of psychological illness problems, history of illegal drug use, history of amphetamine cessation, amphetamine using pattern, requested for medication and counseling, concomitant treatment, and period of time for amphetamine cessation (all p's > 0.05) (Table 1). Most of them had psychological problems at baseline such as 59.5% had a mood disorder and 40.5% had anxiety disorder. Influences of the GMI-BCBT plus usual care on process measures within the intervention group were represented by mean SR scores. Pre intervention were also lower than post intervention (mean \pm SD: 6.71 \pm 1.02 vs. 7.72 \pm 0.71, t = -10.90, 99 df, p < 0.001). Most patients in the intervention group had urine test positive three times lower than those in the control group (26.0% and 74.0%, respectively). The main finding of TLFB in the present study was the pattern of amphetamine use (Table 2). It was found that 42% of the intervention group and 53% of the control group reported quantity of amphetamine use 1 to 2 tablets amphetamine each time with a few patients that used 5 to 10 tablets at baseline. At follow-up 1 to 3, both groups showed decreasing amphetamine quantity to 0 to 4 tablets. Both groups had the same frequency of amphetamine use at baseline within two weeks (0 to 14 days). In all follow-up sessions, both groups reduced frequency of amphetamine use (0 to 5 days). At baseline, the other drug types most commonly used with amphetamine

Table 1. Baseline characteristic of the intervention group and the control group

Variables	Numbers (%)			p-value
	Total (n = 200)	Intervention group (n = 100)	Control group (n = 10)	
Age: mean (SD)	25.0 (5.18)	25.6 (4.96)	24.4 (5.36)	0.11
Marital status				
Single	110 (55.0)	53 (53.0)	57 (57.0)	0.76
Married	79 (39.5)	42 (42.0)	37 (37.0)	
Others	11 (5.5)	5 (5.0)	6 (6.0)	
Educational level				
Primary & secondary education	149 (74.5)	71 (71.0)	78 (78.0)	0.15
Occupational degree	34 (17.0)	22 (22.0)	12 (12.0)	
Bachelor and higher degree	17 (8.5)	7 (7.0)	10 (10.0)	
Occupation				
Unemployed	41 (20.5)	20 (20.0)	21 (21.0)	0.86
Employed	159 (79.5)	80 (80.0)	79 (79.0)	
Psychological illness problems				
Yes	57 (28.5)	24 (24.0)	33 (33.0)	0.10
No	143 (71.5)	76 (76.0)	67 (67.0)	
Amphetamine using pattern				
Continuous using	8 (4.0)	6 (6.0)	2 (2.0)	0.28
Intermittent using	192 (96.0)	94 (94.0)	98 (98.0)	

Data was presented as mean and comparison by independent t-tests for continuous variables and Chi-square test for categorical variables

Table 2. Patterns of amphetamine use

Patterns of use	Min-Max							
	Intervention group				Control group			
	Baseline	FU1	FU2	FU3	Baseline	FU1	FU2	FU3
Quantity (tablets)	1-10	0-3	0-2	0-2	1-10	0-4	0-2	0-2
Frequency (days)	2-14	0-5	0-5	0-5	1-14	0-10	0-5	0-5
Other drugs used		FU1 n (%)	FU2 n (%)	FU3 n (%)		FU1 n (%)	FU2 n (%)	FU3 n (%)
Cannabis		4 (4.0)	6 (6.4)	6 (6.8)		17 (17.0)	8 (8.5)	7 (7.5)
4 x 100		2 (2.0)	4 (4.3)	4 (4.5)		35 (35.0)	28 (29.8)	29 (31.2)
Alcohol		28 (28.0)	22 (23.4)	20 (22.5)		49 (49.0)	44 (46.3)	44 (46.8)
Cigarette		91 (96.0)	85 (90.4)	76 (85.4)		92 (92.0)	88 (92.6)	85 (90.4)

FU1 = 1st follow-up, FU2 = 2nd follow-up, FU3 = 3rd follow-up

are cigarette and alcohol consumption. In all follow-up sessions, both groups reduced and abandoned cigarettes and alcohol consumption. However, the control group increased more illegal drug use such as 4 x 100 and cannabis. However, patients in the control

group had also a significant reduction of 36.55% in their mean depression scores at three months and the moderate effect was found (baseline mean 9.22 ± 4.45 vs. 3 months follow-up mean 5.85 ± 3.61 , $t = 7.74$, 88 df, $p < 0.001$, $d = 0.77$). By the seventh months period

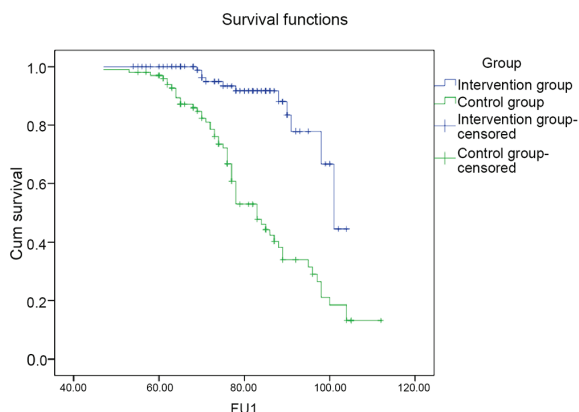


Fig. 1 Survival function between time (days) and urine test positive at follow-up 1 Kaplan-Meier survival estimates, by urine test

of follow-up, the depression scores among patients were 53.47% lower than the values noted at baseline (baseline mean 9.22 ± 4.45 vs. 7 months follow-up mean 4.29 ± 3.77 , $t = 10.06$, 89 df, $p < 0.001$, $d = 1.06$). The Kaplan-Meier curve showed that patients in the control group had lower survival rates than those in the intervention group at the first follow-up (Fig. 1). Table 3 shows that the median survival time of the intervention group was longer than the control group at phase 1 and 2 follow-up. The log rank test at the first urine test follow-up only gave significant value ($p < 0.001$). Moreover, the effect sizes were found for motivation change and self-efficacy, which presented by MCL scores ($d = 0.84$) and SR scores ($d = 1.09$) increasing. The patients in the intervention group also had MCL scores in each five times higher than those in the control group (all p 's < 0.001).

Discussion

The present study showed that GMI-BCBT could significantly reduce amphetamine use during six

months follow-up when compared with usual care only. The present study provides a new way to deal with co-occurring psychological problems that are common in amphetamine users⁽¹⁰⁻¹⁴⁾. The intervention group has higher survival rate than the control group within two months because the therapy is in brief format, which has only four sessions. The present study shows that mean SR and MCL scores pre intervention were also lower than post intervention within the intervention group. The present result shows that GMI session can build up motivation of the patient to comply with therapy more than usual care only as evidenced by the transtheoretical model (TTM)^(8,15). Both groups show a similar pattern of drug use within two weeks follow-up. The intervention group used other illegal and legal drug accompanied with amphetamine less than the control group. The intervention group had more awareness of risk prevention and concern about harm reduction concept of drug use. Based on cognitive model and brief therapy technique, therapist focus on cognitive model to enhance patients to recognize their high-risk situation, through emotion, and explicit behavior. Then, the therapist let patients realize their dysfunctional thought. They are able to think more clearly, feel better, and make better decisions, similar to results of previous studies^(9,16). The results showed that mean baseline Thai HADS scores were lower for patients in the intervention group compared with those in the control group. This result means that usual care (brief advice, brief intervention, and medication) have a good effect to reduce anxiety and depression rate of amphetamine use. That was confirmed by some systemic review that explored RCT study from 14 trials meeting in their inclusion criteria⁽¹⁷⁾. Most patients perceived that they were satisfied with the GMI-BCBT sessions. They gave many reasons regarding their satisfaction. First, this intervention is a new technique where all group members are given space to share knowledge, experiences, and feelings. Second, it does

Table 3. Survival analysis comparison between the intervention and the control group

FU	Intervention group				Control group				Log rank test
	n	Survival rate (%)	Median survival time	95% CI	n	Survival rate (%)	Median survival time	95% CI	
2 months	100	44.5	101	95.7-106.3	100	13.2	83	77.3-88.7	33.8 ⁺
4 months	94	37.0	160	150.0-170.0	92	16.2	155	152.8-157.2	1.7 ^{ns}
6 months	88	40.3	211	207.3-214.7	90	20.0	211	209.9-212.1	0.6 ^{ns}

FU = follow-up, ns = non-significant

⁺ $p < 0.001$

not look down on patients who have drug addiction problems. Third, patients are the ones who create the stages for changing their drug use behavior. Fourth, they weigh the advantages/benefits and disadvantages/costs concerning their amphetamine use and its adverse effect by themselves. Finally, this therapy is not time consuming and is only 30 to 40 minutes per session. In addition, patients also perceived that their personal card of succeeding was useful in curbing their amphetamine use. This card was created carefully by themselves and was composed of goal setting, positive thinking, accomplishment task, and social support. This card can help them to recall their self-commitment and help them to make suitable discussion about high-risk situations and drug use^(18,19).

Conclusion

This study indicated that new therapy combined with Group Motivational Interviewing plus Brief Cognitive Behavior Therapy (GMI-BCBT) was effective in reducing amphetamine dependence and psychological problems within three months. These results provide preliminary evidence of the effective intervention for reducing amphetamine use among drug-addicted patients at the out-patient department in a psychiatric hospital.

Acknowledgement

I gratefully acknowledge the scholarship awarded to me. My dissertation was supported by Thesis Scholarship for Students from Graduate School, Chulalongkorn University. I gratefully acknowledge all of professors, family, friends, and all patients in my study.

Potential conflicts of interest

None.

Ethical review

The present study was approved by the Ethical Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, COA No. 085.1/09.

References

1. United Nations Office on Drugs and Crime. Global illicit drug trends 2003 [Internet]. 2003 [cited 2011 Mar 11]. Available from: http://www.unodc.org/pdf/trends2003_www_E.pdf
2. United Nations Office on Drugs and Crime. Amphetamine and ecstasy global ATS assessment

- [Internet]. 2008 [cited 2008 Apr 8]. Available from: <http://www.unodc.org/documents/scientific/ATS/Global-ATS-Assessment-2008-Web.pdf>
3. United Nations Office on Drugs and Crime. World drug report [Internet]. 2008 [cited 2008 Apr 8]. Available from: http://www.unodc.org/documents/wdr/WDR_2008/WDR_2008_eng_web.pdf
4. Office of the Narcotics Control Board. Statistic information [Internet]. 2009 [cited 2009 May 3]. Available from: http://en.oncb.go.th/file/information_statistics.html
5. Baker A, Lee NK, Claire M, Lewin TJ, Grant T, Pohlman S, et al. Drug use patterns and mental health of regular amphetamine users during a reported 'heroin drought'. *Addiction* 2004; 99: 875-84.
6. Topp L, Day C, Degenhardt L. Changes in patterns of drug injection concurrent with a sustained reduction in the availability of heroin in Australia. *Drug Alcohol Depend* 2003; 70: 275-86.
7. Ministry of Public Health, Somdet Chaopraya Institute of Psychiatry. Seminar session for clinical practice guideline for substance abuse with dual diagnosis. Bangkok: Somdet Chaopraya Institute of Psychiatry; 2009.
8. Santa Ana EJ, Wulfert E, Nietert PJ. Efficacy of group motivational interviewing (GMI) for psychiatric inpatients with chemical dependence. *J Consult Clin Psychol* 2007; 75: 816-22.
9. Baker A, Lee NK, Claire M, Lewin TJ, Grant T, Pohlman S, et al. Brief cognitive behavioural interventions for regular amphetamine users: a step in the right direction. *Addiction* 2005; 100: 367-78.
10. Suvanchot KS. Psycho-social factors of new patients with amphetamine use disorder and heroin use disorder in Thayarak Hospital [thesis]. Bangkok: Chulalongkorn University; 1999.
11. Swendsen J, Conway KP, Degenhardt L, Glantz M, Jin R, Merikangas KR, et al. Mental disorders as risk factors for substance use, abuse and dependence: results from the 10-year follow-up of the National Comorbidity Survey. *Addiction* 2010; 105: 1117-28.
12. Pennay AE, Lee NK. Putting the call out for more research: the poor evidence base for treating methamphetamine withdrawal. *Drug Alcohol Rev* 2011; 30: 216-22.
13. Marshall BD, Werb D. Health outcomes associated with methamphetamine use among young people: a systematic review. *Addiction* 2010; 105: 991-1002.

14. Salo R, Flower K, Kielstein A, Leamon MH, Nordahl TE, Galloway GP. Psychiatric comorbidity in methamphetamine dependence. *Psychiatry Res* 2011; 186: 356-61.
15. Miller WR, Rollnick S. Motivational interviewing: preparing people for change. 2nd ed. New York: Guilford Publications; 2002.
16. Baker A, Bucci S, Lewin TJ, Kay-Lambkin F, Constable PM, Carr VJ. Cognitive-behavioural therapy for substance use disorders in people with psychotic disorders: Randomised controlled trial. *Br J Psychiatry* 2006; 188: 439-48.
17. Kaner E, Brown N, Jackson K. A systematic review of impact of brief intervention on substance use and co-morbid physical and mental health conditions. *Ment Health Subst Use* 2011; 4: 38-61.
18. Pensuksan WC, Taneepanichskul S, Williams MA. A peer-drinking group motivational intervention among Thai male undergraduate students. *Int J Drug Policy* 2010; 21: 432-6.
19. Baker A, Dawe S. Amphetamine use and co-occurring psychological problems: review of the literature and implications for treatment. *Aust Psychologist* 2005; 40: 87-94.

**ประสิทธิผลของกลุ่มเสริมสร้างแรงจูงใจและบำบัดทางความคิดอย่างย่อต่อภาวะการเสพติดของผู้ป่วย
เสพยาบ้าที่มีโรคร่วมทางจิตเวช ณ โรงพยาบาลจิตเวชภาคใต้ ประเทศไทย**

ก.สินศักดิ์ สุวรรณโชติ, รัตนา สำโรงทอง, ครุณี ภูขาว

วัตถุประสงค์: เพื่อศึกษาประสิทธิผลของกลุ่มเสริมสร้างแรงจูงใจ และการบำบัดทางความคิดอย่างย่อร่วมกับการบำบัดขั้นพื้นฐาน เพื่อลดการใช้น้ำยาในกลุ่มผู้ป่วยที่เสพยาบ้าที่มีโรคร่วมทางจิตเวช

วัสดุและวิธีการ: เป็นการศึกษาแบบกึ่งทดลอง ในผู้ป่วยจำนวน 200 คน จากโรงพยาบาลจิตเวชในภาคใต้ ซึ่งมีประวัติใช้น้ำยาอย่างน้อย 1 ครั้ง ในเดือนที่ผ่านมาก่อนรับการบำบัดโดยแบ่งเป็น 2 กลุ่ม คือกลุ่มควบคุม ได้รับการบำบัดตามปกติ และกลุ่มบำบัด ซึ่งเข้าร่วมการบำบัดตามปกติเสริมกับกลุ่มเสริมสร้างแรงจูงใจและบำบัดทางความคิดอย่างย่อ จำนวน 4 ครั้ง ทั้งสองกลุ่มได้รับการติดตามผลการบำบัด 3 ครั้ง โดยประเมินข้อมูลพื้นฐานก่อนเข้าร่วมวิจัย และเทียบเคียงผลการบำบัดในการเลิกยาบ้าโดยใช้การวิเคราะห์การอยู่รอด

ผลการศึกษา: พบว่าร้อยละ 59.5 ของกลุ่มตัวอย่างมีโรคร่วม คือโรคซึมเศร้า ผู้ป่วยกลุ่มทดลองมีอัตราการรอดจากผลปัสสาวะเป็นบวกมากกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติในช่วงแรก จนถึง 3 เดือน (p -value < 0.001) ซึ่งทั้งสองกลุ่มมีรูปแบบการใช้น้ำยาเสพติดที่คล้ายคลึงกันค่าเฉลี่ยแบบวัดความวิตกกังวลและซึมเศร้าภายในกลุ่มเดียวกันมีความแตกต่างอย่างมีนัยสำคัญทางสถิติ (p -value < 0.001)

สรุป: กลุ่มเสริมสร้างแรงจูงใจและการบำบัดทางความคิดอย่างย่อสามารถลดการใช้น้ำยาในผู้ป่วยที่รับการบำบัดแบบผู้ป่วยนอกในโรงพยาบาลจิตเวชได้มากกว่าผู้ป่วยที่รับการบำบัดขั้นพื้นฐานเพียงอย่างเดียว
