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Original Article
Evaluation of tobacco use on Chinese population through ATTOC model: a cross-sectional survey on hospitalized psychiatric patients

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Abstract: Objectives: To evaluate the feasibility of Addressing Tobaccos through Organizational Change (ATTOC) intervention to Chinese psychiatric patients, and to better address tobacco use through the ATTOC intervention model in the context of China. Methods: The study was conducted in Mental Health Center of West China Hospital in 2010. A total of 100 hospitalized psychiatric patients were recruited to carry out ATTOC intervention. Subjects suffers from mental illness were diagnosed by professional psychiatrists according to the International Statistical Classification of Diseases (ICD-10) criteria. Results: The prevalence of tobacco use in hospitalized psychiatric patients were closely correlated with the type of mental illness, family smoking history, sex, age, marital status, education status, etc. However, most psychiatric patients knew little about these, and tended to ignore the importance of smoking cessation. Conclusions: The ATTOC intervention program of the U.S. may be suitable for hospitalized Chinese psychiatric patients, and it could be applied for the tobacco smoking treatment in China. However, the health effects of tobacco use still did not draw amount attentions from both the clinicians and general public. It is urgently needed to raise people's awareness and carry out ATTOC intervention to control tobacco use, and ultimately terminate tobacco use.

Keywords: Tobacco use, ATTOC intervention, tobacco prevalence, hospitalized psychiatric patients

Introduction

Tobacco use is one of the major causes of death worldwide which is preventable. The emergence of tobacco-related diseases has become a burgeoning public health problem. According WHO report, there is over one billion persons smoke worldwide, and more than 5 million annual deaths are attributed to tobacco. This figure is expected to rise to 10 million in 2030, with 7 million of death occurring in developing countries, mainly in China and India [1]. Studies indicated that high tobacco-smoking rates existed in the patients with psychiatric disorders, such as schizophrenia, bipolar disorder, depression, and panic disorder [2, 3]. Nnicotine dependence, as a substance use disorder in tobacco user, was the most prevalent and deadly in all psychiatric disorders and was often overlooked [4, 5].

Despite smoking rate has reduced and social norms surrounding tobacco use have improved, smoking prevalence was still as high as 25% in the United States for people have a lifetime history of nicotine dependence [6], and tobacco use persisted as the leading cause of preventable illness and death [7]. As the world's largest tobacco producer and consumer, China home approximately one-third of the world's smokers [8]. Despite much progress have achieved in tobacco control, the prevalence of tobacco use is still high among the Chinese population [9]. Cigarette consumption has been reported to associate with elevated scores on suicidality in bipolar patients [10] and mental illness [11] significantly.

In view of tobacco use and related addiction hazards described above, an increasing amount of attentions has been focused on tobacco smoking and addiction treatment for tobacco users [12-14]. There were some specific recommendations provided by physicians and other health care professionals to help patients quit smoking [15]. As a specific addiction and men-

tal health treatment program developed by Douglas Ziedonis et al. [16], addressing Tobacco through Organizational Change (ATTOC) intervention model has been successfully implemented in the US to help many tobacco-addicts. The efficiency of ATTOC model on tobacco treatment has been extensively documented and evaluated by National Institute of Health [16].

So far, there was no mature intervention system available to effectively address tobacco use in China, it is important to get the estimated prevalence of tobacco use, and further develop an effective intervention system against tobacco use and addiction. In this study, to explore whether the ATTOC intervention is suitable for Chinese tobacco users, we evaluated the potential efficiency of ATTOC on hospitalized psychiatric patients.

Materials and methods

Patients

The study was designed as a cross-sectional survey, and it was carried out in the Mental Health Center of West China Hospital of Sichuan University. The coordinators of designated team did pre-intervention evaluations in late March to early April 2010, and they were responsible for providing questionnaires and explanation. In the first stage, the inpatients were assessed and diagnosed by senior psychiatrists according to International Statistical Classification of Disease system 10th Revision (ICD-10). In the second stage, questionnaires were distributed to each patient, and then reclaimed to conduct Statistics.

This study was supported by the University of Massachusetts Medical School Global Initiatives Program and the local ethical review board of our institution, and all patients and their family members gave their written informed consents. The hospitalized patients with psychiatric disorders were randomly selected from the Mental Health Center of West China Hospital of Sichuan University during late March to early April of 2010, they voluntarily consented to participate; These patients were selected from open area ward, they were mainly have mild schizophrenia, anxiety and depression.

Patients with unclear consciousness, language or hearing problem were excluded from this study; patients were excluded if they were in closed ward. After a thorough screening, a total of 100 psychiatric inpatients were eligible for this study, and their smoking status was assessed from questionnaires. Patients unable to complete the questionnaire independently were helped by the clinicians.

Evaluation methods

For the pre-intervention evaluations, ATTOC-patient questionnaires were administrated between late-March to early-April 2010. The mental disorders were assessed and diagnosed with ICD-10. The projects contain items primarily came from the Knowledge, Attitudes and Services Questionnaire (KAS) [17], Fagerstrom Test of Nicotine Dependence (FTND) [18], and other supplemented items, which including concern about tobacco use, reasons for tobacco use, symptoms related to tobacco use, encounters with a provider about the patient's tobacco use, interest in talking to a provider about tobacco use and quitting.

KAS assessed items such as the using of tobacco products, knowledge about the health effects of tobacco, interest and confidence in quitting, and the receipt of clinician services addressing patient tobacco use. The FTND consisting of 6 of the original items (nicotine rating and inhalation have been eliminated) with revised scoring for 2 of the items (TTF: time to the first cigarette of the day; CPD: number of cigarettes smoked per day) was measured to help refine our knowledge about the dependency on tobacco and the means of measuring it.

Data analysis

Data analysis and management were performed using SPSS 17 software (SPSS Inc., Chicago, IL, USA). The demographic data was described by frequency and percentage. The lack of data in one item such as age or the highest level of school education was treated as missing value. In the questionnaire, the item Twentieth (Have you ever smoked cigarettes or used another tobacco product daily or almost daily?), Twenty-fifth (If you do not currently use tobacco, when did you quit?), as well as the item Forty-eighth (Do you have any friends or family members who have quit smoking or other tobacco use?) may lead to the end of the questionnaire. Once the questionnaire was terminated, the remaining items in the question-
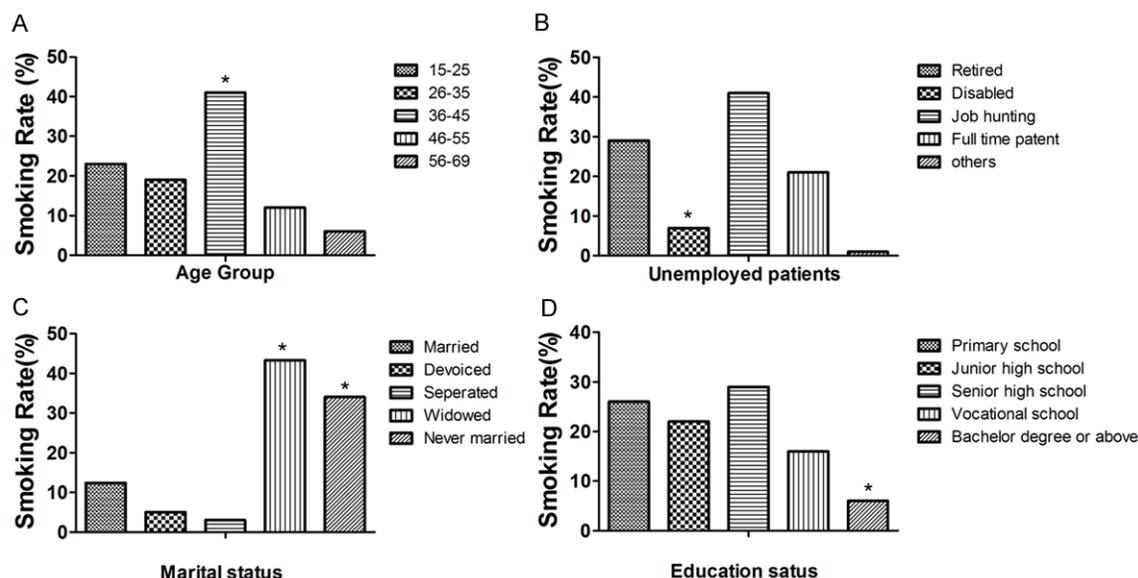
Figure 1. Prevalence of tobacco use among hospitalized psychiatric patients. Of the inpatients with mental illness, smoking rate (prevalence) in different: age groups (A); unemployed status (B); marital status (C); and education status (D).

Table 1. Demographic characteristics of tobacco use among the psychiatric patients

Diagnosis	Smoking (%)	Family smoking history (%)	Recurrences (n)
Schizophrenia	40	48	3
Depression	35	42	2
Anxiety disorders	10	25	3
Drug dependence	15	65	3

naire would be treated as missing values. Subjects did not complete the questionnaire would be eliminated from the analysis.

According to a previous publication [19], the prevalence of tobacco use in this study was described as the percentage of positive subjects among those who accomplished the trial, and adjusted prevalence was calculated according to the distribution of patients with smoking-related problems among all the subjects involved in these issues. Categorical data such as difference of prevalence between ages, genders, smoking-related conditions, and if currently employed, were compared using χ^2 test at the significant level of less than 0.05. Consecutive data with normal distribution such as age were expressed as mean ± SD and analyzed using the t-test. The multivariate logistic regression analysis was used to assess and analyze the relationship between attitude of

psychiatric patients toward tobacco use and their education status.

After clinicians finished diagnosis of psychotic disorder in patients, "recognized" or "detected" were defined according to ICD-10 criteria, referral including psychiatry or psychology departments, and prescription of antipsychotic drugs, as well as related diseases that can be explicitly excluded.

Results

Demographic characteristics

The study consisted of 100 hospitalized psychiatric patients; one was excluded due to the incompletely answered questionnaire. 57 of them were male and 36 were female patients. The ages range from 15 to 69 years (mean, 40.0 ± 11.5). The demographic characteristics of tobacco use among the study patients were presented in **Figure 1**. Among the inpatients with mental illnessess, there was a higher smoking rate between 36 and 45 years than other age groups, accounting for about 41.41% (**Figure 1A**), which was significantly higher than other groups (*p* < 0.05). The prevalence of smoking was significantly higher in male (40.4%) than female (23.9%). At the time of review, 45.5% of patients were unemployed. They were either looking for work, or already retired, for these unemployed patients, dis-

Table 2. Situation of daily tobacco smoking among the psychiatric patients

		n	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Number per day					
Valid	~10	9	9.1	34.6	34.6
	11~20	9	9.1	34.6	69.2
	21~30	5	5.1	19.2	88.5
	30~	3	3.0	11.5	100.0
Total*		26	26.3	100.0	
Daily cost (yuan)					
Valid	0~5	6	6.1	16.7	16.7
	6~10	11	11.1	30.6	47.2
	10~	11	11.1	30.6	77.8
	Uncertain	8	8.1	22.2	100.0
Total*		36	36.4	100.0	
Reasons for smoking					
Valid	Habit	17	17.2	53.1	53.1
	Enjoyment	1	1.0	3.1	56.2
	Sociality	3	3.0	9.4	65.6
	Relieving stress	8	8.1	25.0	90.6
	others	3	3.0	9.4	100.0
Total*		32	32.3	100.0	

Note: *-only the patients with valid records were included.

abled patients have the lowest smoking rate when compared with other groups (**Figure 1B**, $p < 0.05$). As shown in **Figure 1C**, Smoking prevalence was associated with marital status of patients, there was a higher proportion of smoker among never-married patients than those who were married (34.0% vs. 12.4%, $p < 0.05$), in addition, widowed patients have a higher percentage of smoking (43.3%, $p < 0.05$ when compared with married patients). Expectedly, patients with higher education exhibited a smaller proportion of smokers, we observed that patients have bachelor or above degree have the lowest smoking rate in each group ($p < 0.05$ when compared with other groups, **Figure 1D**).

Diagnosis of patients with mental illness

The mental diseases were diagnosed according to ICD-10 diagnostic criteria, and further conformation and classifications were carried out. The statistics shows that tobacco prevalence was pretty high among the inpatients suffering from mental illness, especially ones suffering from depression, anxiety disorders, and schizophrenia (**Table 1**). In addition, hospitalized psychiatric patients exhibited a family his-

tory of smoking, and were vulnerable to relapse after withdrawal.

Situation of tobacco products use

In the questionnaire, situation on the using of tobacco products was investigated in full detail, which including: the number of cigarettes smoking per day, the cost of tobacco products use per day; and others that were not analyzed statistically. The data show that most smokers consumed a pack of tobacco products (20 cigarettes) per day, and daily cost of tobacco use was estimated to be about 10 yuan (**Table 2**). Some patients, however, were not very certain about their daily consumption on tobacco products (22.2%), and data were not available in 63.6 % of patients.

Attitude toward tobacco use

Questions used for survey on the attitudes of smoking were summarized in **Table 3**. Participants were asked to rate their level of agreement to each item on a 5-point Likert scale (1 = strongly agree, 5 = strongly disagree). For presentation of the results, response "strongly agree" was collapsed into "agree" and "strongly disagree" was collapsed into "disagree". Survey results were presented in **Table 4**.

In addition, the relationship between attitude toward tobacco use and the level of education achieved was assessed and analyzed. Education status of the psychiatric patients was classified according to their highest level of education achieved, and was used as the dependent variable to carry out multivariate logistic regression analysis. The data showed that the level of education was partially correlated with patients' attitudes toward using of tobacco products (**Table 4**).

Relationship between the daily cigarettes smoked and other relevant factors

In hospitalized psychiatric patients, relationship between the number of cigarettes daily consumed and other relevant factors, such as sex, age, education status, if employed and marital status (as described in **Figure 1**) were investigated. The daily cigarettes consumption

Table 3. Questions used for survey on smoking-related issues

	Questions
	Survey on the attitudes of patients toward smoking
NO. 1.	The hazards of smoking have been clearly demonstrated.
NO. 2.	Smoking light cigarettes is safer than smoking regular cigarettes.
NO. 3.	The hazards of second-hand smoke have clearly demonstrated.
NO. 4.	If a person has smoked a pack of cigarettes a day for more than 20 years, there is little health benefit to quitting smoking
NO. 5.	Counseling for quitting smoking is an important part of this program's mission
NO. 6.	My clinician or counselor has the required skills to help people in this program quit smoking.
NO. 7.	Smoking is a personal decision which does not concern doctor or nurses.
NO. 8.	I am aware of community resources to help people quit smoking.
	Survey on smoking cessation-related activities
NO. I	Arrange for a follow-up appointment to discuss quitting smoking
NO. II	Encourage you to quit smoking completely
NO. III	Encourage you to use products to help you to quit smoking (nicotine patch, gum, Zyban or bupropion, etc.)
NO. IV	Encourage you to reduce smoking to five or fewer cigarettes per day if you have stated that you could not quit.

Table 4. Attitudes toward smoking and their relationship with education status

	Cigarette smoking attitudes (point)			Smoking attitudes and education status				
				Non-standardized		Standardized		
	5/4 (%)	3 (%)	2/1 (%)	RC	SD	RC	t value	p value
Constant				3.437	.773		4.446	.000
NO. 1.	11/12 (23%)	10 (10%)	35/31 (67%)	.214	.130	.209	-1.201	.043
NO. 2.	13/19 (34.4%)	38 (40.9%)	21/2 (24.7%)	.031	.162	.011	-1.158	.035
NO. 3.	12/7 (21.1%)	9 (10%)	31/31 (68.9%)	-.224	-.137	-.083	-3.201	.011
NO. 4.	26/17 (47.3%)	20 (22.0%)	20/8 (30.8%)	-.236	.217	-.055	-.2.106	.034
NO. 5.	7/6 (14.7%)	14 (15.7%)	44/18 (69.7%)	.251	.173	.088	-1.877	.047
NO. 6.	10/4 (15.2%)	16 (17.4%)	44/18 (67.4%)	.177	.230	.108	-1.003	.031
NO. 7.	18/16 (38.2%)	20 (22.5%)	28/7 (39.3%)	.167	.136	.103	-2.001	.347
NO. 8.	9/4 (14.4%)	32 (35.6%)	36/9 (50.0%)	-.355	.304	-.207	-2.011	.037

Note: Dependent variables: What is the highest level of school you have completed to date? (Education status). Only when $P < 0.05$, there is a significantly difference. 1, Strong agree; 2, Agree; 3, Unsure; 4, Disagree; 5, Strong disagree; Regression coefficient, RC; Standard deviation, SD.

was used as a target variable, the relevant factors mentioned-above were taken as independent variables to carry out χ^2 test. As shown in **Table 5**, there was certain relationship between the number of cigarettes daily consumed and other relevant factors.

The reasons to smoke tobacco

The reasons for tobacco smoking were investigated and summarized in **Table 2**. The most frequent answer was their daily habit in 53.1% of psychiatric patients, followed by relieving stress, accounting for about 25.0%.

Health care workers and smoking cessation activities

In smoking cessation activities, health care workers played crucial roles, only if the patients themselves thought of quitting. Evaluation of the smoking cessation-related activities was undertaken by clinicians. The activities were arranged according to the clinician services of S-KAS [20]. Response codes in health care workers services were Never (1), Occasionally (2), Often (3), Very Often (4), and Always (5). From the data we can see that it was rare case for most of the clinicians to arrange and participate in smoking cessation-related activities (**Table 6**).

Discussion

The association of tobacco use with mental illness patients has been reported previously, schizophrenia [21], depression [22], as well as otherwise alcohol and illicit drug use [23] were suggested to be more common risk factors for

Table 5. Relationship between the cigarettes smoked daily and some relevant factors

	sex	age	education status	if employed	marital status
χ^2	2.216[a]	18.602[b]	29.011[c]	1.372[d]	56.374[e]
P	.047	.001	.000	.000	.001

Note: a, b, c, d, e: All lattice theory frequency, T values are greater than 5 in four-fold tables. $P < 0.05$, there is a significantly difference.

Table 6. Answers given by the patients on the smoking cessation-related activities

	Never (1)	Occasionally (2)	Often (3)	Very Often (4)	Always (5)
NO. I	14	1	5	3	1
NO. II	4	9	5	2	3
NO. III	10	4	5	3	2
NO. IV	10	3	3	4	3

smokers than the non-smokers. To our knowledge, it was the first time that questionnaire investigation of the tobacco prevalence were carried out among Chinese psychiatric inpatients, and it was also the first time that the feasibility of ATTOC intervention was assessed among Chinese population to explore whether the intervention model is suitable for Chinese tobacco users.

Our survey found that patients with mental illness showed a high propensity for tobacco use, especially for patient with schizophrenic disorders, which account for 40% of all smoking patients, this is in consistent with the results previous report, that the proportion of schizophrenic smokers was between 40% and 90% [24, 25]. This finding also consistent with the meeting of Tobacco use and cessation in psychiatric disorders held in U. S. National Institute of Mental Health [26].

consistent with the previous survey [27], our research showed there were a larger percentage of male patient smokers than female counterparts, their peak age in smoking prevalence was concentrated in the range between 36 and 45 years. Besides, there was a higher prevalence of tobacco smoking among those who were unemployed, never-married, or less educated. Previous studies indicated that people with low education were more likely to smoke [28], in the United States, the unmarried, low-educated, and blue-collar were reported to have a high risk of smoking. However, there was no statistical significant in gender related differences [29].

Cigarette smoking was a complex behavior, both genetic and environmental components are involved and correlated [30]. Concerning the reasons for smoking, our study showed that most psychiatric patients ascribed their tobacco use to habits, others were enjoyment, sociality, relieving stress, or etc. However, tobacco smoking wasn't being reported to alleviate the symptoms of schizophrenia patients, this suggesting that it may serve as a form of self-medication [31, 32].

According to the World Health Organization, tobacco-related deaths could rise from approximately 5.0 million in 2004 to 8.0 million in 2030 [33]. In view of the hazards of tobacco products and higher prevalence of tobacco smoking among inpatients with mental illness, it is urgent to take effective interventions for controlling tobacco use. As an effective systems intervention, ATTOC has been developed and refined over years to achieve an effective addiction treatment program.

As the largest tobacco producer and consumer around the world, China yet not developed effective intervention systems to address tobacco use. With ATTOC intervention employed in Chinese population, we could explore an addiction treatment program that suitable for our Chinese population. Our results indicated that in Chinese psychiatric patients, smoking status of such as smoking age, work status, marital status, etc. were consistent with that was reported in US. Furthermore, previous study suggested that the pattern of smoking in China in the 1980s was similar to US. in the 1950s [34]. According to studies mentioned above, it can be postulated that ATTOC intervention program of the US. may be suitable for hospitalized Chinese psychiatric patients, and ultimately, it could be applied for the tobacco smoking treatment in Chinese population.

There were several limitations in this study. The relatively small sample size may be deviations to acceptability and comprehension of the questionnaire, furthermore, the inevitable cultural differences as well as the lack of knowl-

edge of tobacco products were also limited our research in this study.

In conclusion, the present study suggest that ATTOC intervention program might be suitable for hospitalized Chinese psychiatric patients, and it could be applied for the tobacco smoking treatment in China. However, the health effects of tobacco use still did not draw amount attentions from both the clinicians and general public. It is urgently needed to raise people's awareness and carry out ATTOC intervention to control tobacco use, and ultimately terminate tobacco use.

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Disclosure of conflict of interest

None.

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References

[1] Organization WH. The world health report 1999: making a difference. World Health Organization 1999.

[2] Breslau N and Klein DF. Smoking and panic attacks: an epidemiologic investigation. Arch Gen Psychiatry 1999; 56: 1141.

[3] Kelly C and McCreadie RG. Smoking habits, current symptoms, and premorbid characteristics of schizophrenic patients in Nithsdale, Scotland. Am J Psychiatry 1999; 156: 1751-1757.

[4] Hughes JR, Helzer JE and Lindberg SA. Prevalence of DSM/ICD-defined nicotine dependence. Drug Alcohol Depend 2006; 85: 91-102.

[5] Mokdad AH, Marks JS, Stroup DF and Gerberding JL. Actual causes of death in the United States, 2000. JAMA 2004; 291: 1238-1245.

[6] Hughes JR. Should criteria for drug dependence differ across drugs? Addiction 2006; 101: 134-141.

[7] McGinnis JM and Foege WH. Actual causes of death in the United States. JAMA 1993; 270: 2207-2212.

[8] Xie B, Palmer PH, Pang Z, Sun P, Duan H and Johnson CA. Environmental tobacco use and indicators of metabolic syndrome in Chinese adults. Nicotine Tob Res 2010; 12: 198-206.

[9] Zhang J, Ou JX and Bai CX. Tobacco smoking in China: prevalence, disease burden, challenges and future strategies. Respirology 2011; 16: 1165-1172.

[10] Ostacher MJ, LeBeau RT, Perlis RH, Nierenberg AA, Lund HG, Moshier SJ, Sachs GS and Simon NM. Cigarette smoking is associated with suicidality in bipolar disorder. Bipolar Disord 2009; 11: 766-771.

[11] Lawrence D, Mitrou F and Zubrick SR. Smoking and mental illness: results from population surveys in Australia and the United States. BMC Public Health 2009; 9: 285.

[12] Hoffman AL and Slade J. Following the pioneers: Addressing tobacco in chemical dependency treatment. J Subst Abuse Treat 1993; 10: 153-160.

[13] Kozlowski L, Jelinek L and Pope M. Cigarette smoking among alcohol abusers: a continuing and neglected problem. Can J Public Health 1986; 77: 205.

[14] Schroeder SA and Morris CD. Confronting a neglected epidemic: tobacco cessation for persons with mental illnesses and substance abuse problems. Annu Rev Public Health 2010; 31: 297-314.

[15] Kendrick JS and Merritt RK. Women and smoking: an update for the 1990s. Am J Obstet Gynecol 1996; 175: 528-535.

[16] Mezzich JE. International surveys on the use of ICD-10 and related diagnostic systems. Psychopathology 2002; 35: 72-75.

[17] Guydish J, Ziedonis D, Tajima B, Brigham G, Zammarelli L, Levy M, editors. Addressing nicotine dependence in drug treatment settings: Organizational change. Poster presented at the annual meeting of the College on Problems of Drug Dependence, in Reno Nevada; 2009.

[18] Heatherton TF, Kozlowski LT, Frecker RC and FAGERSTROM KO. The Fagerström test for nicotine dependence: a revision of the Fagerstrom Tolerance Questionnaire. Br J Addict 1991; 86: 1119-1127.

[19] He Y, Ma H, Zhang L, Liu Z, Jia F and Zhang M. A cross-sectional survey of the prevalence of depressive-anxiety disorders among general hospital outpatients in five cities in China. Zhonghua Nei Ke Za Zhi 2009; 48: 748-751.

[20] Guydish J, Tajima B, Chan M, Delucchi KL and Ziedonis D. Measuring smoking knowledge, attitudes and services (S-KAS) among clients in addiction treatment. Drug Alcohol Depend 2011; 114: 237-241.

[21] de Leon J, Dadvand M, Canuso C, White AO, Stanilla JK, Simpson GM. Schizophrenia and smoking: an epidemiological survey in a state hospital. Am J Psychiatry 1995; 152: 453-455.

[22] Kendler KS, Neale MC, MacLean CJ, Heath AC, Eaves LJ and Kessler RC. Smoking and major depression: a causal analysis. Arch Gen Psychiatry 1993; 50: 36-43.

[23] Istvan J and Matarazzo JD. Tobacco, alcohol, and caffeine use: a review of their interrelationships. Psychol Bull 1984; 95: 301.

[24] Kalman D, Morissette SB and George TP. Co-Morbidity of Smoking in Patients with Psychiatric and Substance Use Disorders. Am J Addict 2005; 14: 106-123.

[25] de Leon J and Diaz FJ. A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. Schizophr Res 2005; 76: 135-157.

[26] Ziedonis D, Hitsman B, Beckham JC, Zvolensky M, Adler LE, Audrain-McGovern J, Breslau N, Brown RA, George TP and Williams J. Tobacco use and cessation in psychiatric disorders: National Institute of Mental Halth report. Nicotine Tob Res 2008; 10: 1691-1715.

[27] Lee S, Guo WJ, Tsang A, Huang YQ, He YL, Kessler RC. Prevalence and correlates of active and ever-smokers in metropolitan China. Addict Behav 2009; 34: 969-972.

[28] Yang G, Ma J, Liu N and Zhou L. [Smoking and passive smoking in Chinese, 2002]. Zhonghua Liu Xing Bing Xue Za Zhi 2005; 26: 77-83.

[29] Ziedonis DM, Zammarelli L, Seward G, Oliver K, Guydish J, Hobart M and Meltzer B. Addressing tobacco use through organizational change: A case study of an addiction treatment organization. J Psychoactive Drugs 2007; 39: 451-459.

[30] Sullivan PF and Kendler KS. The genetic epidemiology of smoking. Nicotine Tob Res 1999; 1: S51-S57.

[31] Leonard S, Mexal S and Freedman R. Smoking, genetics and schizophrenia: evidence for self medication. J Dual Diagn 2007; 3: 43.

[32] Winterer G. Why do patients with schizophrenia smoke? Curr Opin Psychiatry 2010; 23: 112-119.

[33] Kaleta D, Kozieł A, Miśkiewicz P. [MPOWER-strategy for fighting the global tobacco epidemic]. Med Pr 2009; 60: 145-9.

[34] Yu JJ, Mattson ME, Boyd GM, Mueller MD, Shopland DR, Pechacek TF and Cullen JW. A comparison of smoking patterns in the People's Republic of China with the United States. JAMA 1990; 264: 1575-1579.