

Prevalence and Factor Related to Ritalin Abuse among Iranian Medical College Student: An Application of Theory of Planned Behavior

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ABSTRACT

Ritalin is a derivative structurally related to amphetamine and with known abuse potential; the aim of this study was determined of prevalence and factor related to Ritalin abuse among college students based on theory of planned behavior. This cross sectional study was carried out on 385 college students of Kermanshah University of medical sciences which recruited with a random sampling method. The data-gathering tool consisted of a questionnaire based on the TPB. Data analyze by SPSS-16. Almost 5.4% of the participants last one Ritalin abuse in lifetime. Able to concentrate better while studying most reason to Ritalin abuse. The TPB variable, accounted for 21% of the variation in the outcome measure of the intention to Ritalin abuse. The best predictor for Ritalin abuse was attitude with odds ratio estimate of 1.485 [95% CI: 1.304, 1.692]. Based on our result, it seems that designing and implementation of educational programs to increase negative attitude toward Ritalin abuse may be usefulness of the results in order to prevent of Ritalin abuse.

KEYWORDS: Ritalin abuse, Collage Student, Attitude.

1. Introduction

Ritalin (methylphenidate) is a central nervous system (CNS) stimulant; those are medicines that speed up physical and mental processes, similar to amphetamines in the nature and duration of its effects; it is believed that it works by activating the brain stem arousal system and cortex [1]. Ritalin, the trade name for methylphenidate, is a medication prescribed for children with an abnormally high level of activity or with attention-deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD) and is also occasionally prescribed for treating narcolepsy; It stimulates the central nervous system, with effects similar to but less potent than amphetamines and more potent than caffeine; Ritalin has a notably calming effect on hyperactive children and a "focusing" effect on those with ADHD; When taken as prescribed, Ritalin is a valuable medicine [2]. Beginning in the 1960s, it was used to treat children with ADHD or ADD, known at the time as hyperactivity or minimal brain dysfunction (MBD). Production and prescription of methylphenidate rose significantly in the 1990s, especially in the United States, as the ADHD diagnosis came to be better understood and more generally accepted within the medical and mental health communities [3]. Research funded people with ADHD do not get addicted to their stimulant medications at treatment dosages, because of its stimulant properties [4] in recent years there have been reports of its abuse by people for whom it is not a medication [5]. Methylphenidate is very similar to other amphetamines structurally. It appears to increase extracellular dopamine. This action is likely achieved through inhibition of dopamine transporter protein; some research also shows that methylphenidate inhibits serotonin transporter protein; this action may partially explain its

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antidepressant effects; Methylphenidate also increases nor epinephrine (noradrenalin). Methylphenidate also affects regional cerebral blood flow in the cerebellar vermis [6]. Ritalin abuse can create powerful stimulant effects and serious health risks [7]. Because the availability is an often an integral part of a drug abuse potential, and availability of Ritalin is increasing that this situation may lead to dependence [8].

In this regard, the studies showed prevalence of Ritalin abuse among the college students [9-12]. For example, 34% (DeSantis [9], 2010), 16% (Babcock [10], 2000); and additionally, 3% (Teter [11], 2003) of the students had at least used the Ritalin one time in their life. Among Iranian college students Habibzadeh (2011) reported that 8.7% of the students in Tabriz University of medical sciences the northeastern of Iran, had a history of Ritalin abuse [12]. For reducing and change these behavior or enhancing protective behaviors is necessary to understand the factors that cause them [13].

In drug abuse prevention research, it would be useful to know how cognitive related factors, such as knowledge, social norms or beliefs are responsible to predict intention and consequently behavior [14]. Theories explain behavior and suggest ways to achieve behavior change, helps describe and identify why a problem exists also predict behaviors under dened conditions and guide the search for modifiable factors like knowledge, attitudes [15]. In relation to the illicit use of prescription drug, the theory of planned behavior (TPB) postulates hat cognitions such as attitude, social norm and perceived behavior may predict the intention to begin using the drug. There are published studies to support the predictive validity of the TPB with respect to the substance and prescription medications abuse [16-18].

TPB states that people's health-related behavior is based on their intention to perform that behavior, and behavioral intention is in itself influenced by attitudes (the positive and negative evaluation of the expected outcome of a certain behavior), subjective norms (the belief about what others think of the behavior, as derived from the behavior and/or direct feedback of significant others), and perceived behavioral control (the degree to which an individual believes that the behavior is under his or her control). Intention is thus considered as a mediating factor in the association between attitude, subjective norm, and perceived behavioral control on the one hand and behavior on the other hand [19].

Regarding the increasing Ritalin abuse among the college student and also absence of theory based studies in Iran, our TPB based study focused on exploring cognitive factors related to Ritalin abuse among college student in Kermanshah University of medical sciences, the west of Iran.

2. Procedure and Methods

This cross-sectional study was conducted on 385 college students aged 18 to 30 years old in Kermanshah University of Medical Sciences, the west of Iran, during 2012. The sample size was calculated at 95% significant level according to the results of a pilot study and a sample of 385 was estimated. Of the population of 385, 316 (82%) signed the consent form and voluntarily agreed to participate in the study, which has been approved by substance abuse prevention research center at the Kermanshah University of medical sciences, the west of Iran. Data collection conducted after receiving approval from the relevant university ethics committee, this project was carried out and the volunteers were given the self-questionnaire.

The variables assessed in this study included three section. Prior to conducting the main project, a pilot study was carried out. Initially the relevant questionnaires were administered to 30 students who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability of the questionnaire.

A: Background questions were: age (years), marital status (single or married), live in dormitory (yes or no), filed of education (medical, dentist, pharmacology, nursing, paramedical, and health), alcohol use (yes or no), smoking (yes or no) and drug abuse (yes or no).

B: Ritalin abuse: To assess whether or not the student had experimented with Ritalin use, we used their responses to 3 questions which included "1. Have you ever used Ritalin?", "2. Have you ever Ritalin use at during last year?", "3. Have you ever Ritalin use at during last month?." For which the response category was yes or no.

B: TPB Variables: TPB items were designed based on standard questionnaires applied to substance abuse [17-18]. Eight items were designed to measure attitude toward Ritalin use (e.g, I If Ritalin use, it would help me to better concentrate in studying; $\alpha=0.86$). Six items were designed to measure subjective norms toward Ritalin use (e.g, my friends think Ritalin use for better concentrate in studying is acceptable; $\alpha = 0.72$). Four items were designed to perceived behavioral control toward to not Ritalin use (e.g, I believe that I can manage myself against pressure of my friends to Ritalin use; $\alpha = 0.70$). Three items were designed to evaluate intention toward Ritalin use (e.g, I intend to Ritalin use in the during exams times; $\alpha = 0.70$). In order to

facilitate participants' responses to the items, all items were standardized to a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Data were analyzed by SPSS version 16 using appropriate statistical tests including correlation, linear and logistic regression at 95% significant level.

3. Results

The mean age of respondents was 22.68 years [SD: 2.92], ranged from 18 to 30 years. More details of demographic characteristics of the participants are shown in Table 1.

Table 1: Distribution of the demographic characteristics among the participants

Variables	Number	Percent
Age group (year)		
18-20	88	27.8
21-23	121	38.3
24-26	65	20.6
27-30	42	13.3
Sex		
Male	144	45.6
Female	172	54.4
Living in Dormitory		
Yes	191	60.4
No	125	39.6
Faculty		
Medical	105	33.2
Dentist	15	4.7
Pharmacology	25	7.9
Nursing	45	14.2
Paramedical	79	25
Health	47	14.9
Marital Status		
Single	288	91.1
Married	28	8.9

From 316 respondents, 5.4% (17/316), 4.1% (13/316), and 2.5% (8/316) respectively were reported history of Ritalin use in life, during at last year, and during at last month. Also our result showed that 14.5% (47/316) had history of cigarette smoking, 15.2% (48/316) reported alcohol use, and 2.5% (8/316) had history of opium use, and 0.6% (2/316) had history of methamphetamine use.

Our result showed that able to better concentrate in study (15/17 user) was reported the main motivation factor for Ritalin abuse among student who had a history of Ritalin abuse.

Table 2 shows correlation between different TPB variable. Based on our findings, perceived behavioral control was not significant correlation with other TPB components.

Linear regression analysis was performed to explain the variation of Ritalin use intention. As can be seen in Table 3, Collectively, TPB variable were accounted for 21% of the variation of Ritalin use intention.

Table 2: Correlation between different components of theory of planned behavior

Component	Mean (SD)	X1	X2	X3
X1. Attitude	18.16 (5.60)	1		
X2. Subjective norms	13.01 (3.37)	0.609*	1	
X3. Perceived behavioural control	14.94 (2.89)	-0.044	-0.010	1
X4. Intention	6.67 (1.96)	0.461*	0.295*	-0.052

Table 3: Predictors of the Intention to Ritalin Abuse

Variable	B	SE B	B	T	p-value
Step 1					
Constant	3.992	0.661		6.041	0.000
Attitude	0.156	0.022	0.445	7.023	0.000
Subjective Norms	0.014	0.037	0.024	0.378	0.706
Perceived behavioral control	-0.022	0.034	-0.033	-0.649	0.517
Step 2					
Constant	4.077	0.621		6.567	0.000
Attitude	0.161	0.018	0.459	9.157	0.000
Perceived behavioral control	-0.022	0.034	-0.032	-0.643	0.521
Step 3					
Constant	3.741	0.334		11.203	0.000
Attitude	0.162	0.018	0.461	9.203	0.000

Adjusted R squared = 0.21, P <.000

Finally, application of the logistic regression analysis and backward stepwise method was to assess relation of TPB variables on Ritalin use. The best model was selected on 4rd step and among the TPB variables: attitude toward Ritalin use with odds ratio estimate of 1.485 [95% CI: 1.304, 1.692], more influential predictor on Ritalin use (Table 4).

Table 4: The correlation between different components of theory of planned behavior and Ritalin Abuse

Variables	Odds Ratio	95.0% CI		P value
		Lower	Upper	
Step 1				
Attitude	1.416	1.216	1.648	0.000
Subjective norm	0.975	0.782	1.214	0.818
PBC	0.924	0.730	1.170	0.511
Intention	1.317	0.833	2.081	0.238
Step 2				
Attitude	1.407	1.221	1.621	0.000
PBC	0.924	0.731	1.169	0.510
Intention	1.298	0.840	2.006	0.240
Step 3				
Attitude	1.429	1.240	1.645	0.000
Intention	1.277	0.826	1.973	0.271
Step 4				
Attitude	1.485	1.304	1.692	0.000

4. Discussion

The aim of this study was to prevalence and determines factors related to Ritalin among college student in Kermanshah University of medical sciences based on the theory of planned behavior.

Of the 316 respondents, 17 (5.4%) had used the Ritalin at some point in their lives, and 8 (2.5 %) reported using the Ritalin at last month. Habibzadeh et al [12] stated that 8.7% of college student in Tabriz University of medical sciences, the north western of Iran had used the Ritalin. Teter [11] among Michigan University students, and Babcock [10] among Massachusetts University students, and DeSantis et al [9] reported that 3%, 16% and 34% of the subjects in their studies had used of Ritalin at least once respectively. In addition, White [20] Northeastern University students reported that 16% used of Ritalin. This various statistics, could be due to differences in college student (In some studies only undergraduate students were examined), rate of access to Ritalin and cultural differences between the population was Investigated.

According to the results, to be able to concentrate better while studying was the main motive for Ritalin abuse; this outcome is consistent with similar studies [11, 12, 21]. These findings showed, many of college students Ritalin abuse for improve academic performance. Desantic et al [9] in their study reported student's justification of this positive reinforcement for the Ritalin abuse.

Linear regression analysis showed, attitude, subjective norms and perceived behavioral control were accounted for 21% of the variation of Ritalin use intention. Also the results of the present study indicated that attitude was the most influential predictor to Ritalin abuse.

In this regard, Litchfield et al [22] showed attitude is a strong factor for amphetamines abuse intention prediction. But Judson et al [23] in their study showed subjective norms was a strong prediction factor for Ritalin abuse. Ajzen [19] says Influence of attitudes, subjective norms, and perceived behavioral control, considering to type of behavior were can be different.

It seem, Ritalin user have a more favorable attitudes towards positive outcomes of Ritalin use (e.g. increased alertness and focusing) Compared to negative side effect (e.g. dependency and mental health disorder); this point should be consider in Ritalin abuse educational prevention program. Allahverdipour et al [24] in their studied showed the relationship between enhancing negative attitudes towards drugs and the reduction of drug abuse.

Although our study has several strengths, such as theory based study and of the first studies for identification of the factor related with Ritalin abuse among Iranian college student the study are few limited. First, data collection was based on self-reporting; this is maybe prone to recall bias. And a second key limitation is the lack of diversity among the participants. We only evaluated the small group of students in medical fields.

5. Conclusion

Comprehensive preventative health education programs need to emphasize on psychological factors that mediate and predict adolescents' and youths health-related behaviours [25]. Our findings showed that positive attitude toward Ritalin use was mediators for promoting effectiveness of the Ritalin abuse preventative programs among college student, so promotion negative attitude toward Ritalin abuse and increasing of students informing of the serious side effects of Ritalin abuse may be usefulness of the results in order to prevent of Ritalin abuse.

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