Original Article

The comparison of maladaptive cognitive schemas and irrational beliefs among smoker and non-smoker students

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Abstract

Introduction: In the field of cognitive development, schemas construct is a pattern which is formed based on reality or experience to help people explain their experiences. Primary maladaptive schemas are some fixed and long-term topics and beliefs that are formed in childhood and to some extent are inefficient. These schemas are assumed as patterns for processing further experiences. Irrational beliefs are also a set of thoughts, beliefs, and notions in which there is compulsion, perfectionism and absolutism. They cause various emotional and behavioral disorders to appear. Addiction, on the whole, and particularly smoking addiction is one of the probable outcomes of cognitive distortions such as maladaptive cognitive schemas and irrational beliefs. Thus, the present study aimed to compare maladaptive cognitive schemas and irrational beliefs among smoker and non-smoker students.

Methods: In this casual comparative research, a non-clinical sample of 80 female and male students was chosen by multi-level random sampling (40 smoking and 40 non-smoking students). In order to collect data, Young's Schemas Questionnaire - short form (YSQ-SF) and Jones irrational belief questionnaire (IBT) were used. For data analysis, multivariate analysis of variance (MANOVA) was applied.

Results: The findings of the present study indicated that there were some meaningful differences between smoker and non-smoker students in both maladaptive cognitive schemas (emotional deprivation, abandonment/instability, dependence/incompetence, subjugation, entitlement/grandiosity, insufficient self-control/self-discipline) and irrational beliefs (demand for approval, emotional irresponsibility, hopelessness changes and perfectionism).

Conclusion: There is no doubt that most of human's mental problems are due to primary maladaptive schemas and originate from irrational thoughts. Maladaptive cognitive schemas, particularly those which are basically formed as a result of unpleasant childhood experiences, cause the formation of false habits and behaviors. Thus, their treatment in smoking people is really important. Apart from maladaptive cognitive schemas, beliefs that are far from reality can pave the way for problems such as addiction by changing the attitude of people in interpreting events.

Keywords: Maladaptive cognitive schemas, Irrational beliefs, Smoking cigar, Students

Introduction

Smoking cigar, based on astonishing statistics, incorporates 5 million deaths each years and it is known as a fatal universal element (1). It is estimated that 29% of adult American men and 21% of women smoke cigar (2). In the last 50 years, more than 20 million American have died because of smoking cigar (3). Lung cancer, emphysema, severe bronchitis, other types of cancer, stroke, heart coroner diseases, and addiction are some of the consequences of smoking cigar (4). It is predicted that by the year 2020 if we do not stop smoking cigar, we will have 10 million death sin which most of them happen in developing countries. In Iran, based on a research that was carried out recently, the average outbreak of using cigar among students was 8.9% (18% among male and 1.4% among female students) (5). However, based on the Ministry of Health and Medical Education only 6.2% of men and 6% of women quit smoking (6). Apart from official organizations and sanitary centers, universities and educational institutes are also worried about the negative results of smoking on students (7). Maladaptive cognitive schemas can be related to smoking cigar and other types of drugs used by students.

Maladaptive schemas are self-defeating emotional and cognitive patterns established from the early stages of growth and repeated throughout life. Based on this definition, the behavior of each person is not a part of his schemas but maladaptive manners are formed as a kind of reaction in response to primary maladaptive schemas (8). As schemas establish the core of people's self-belief, they will result in mental problems if they are maladaptive (9). Young considers those types of schemas that lead to the formation of psychic problems as primary maladaptive schemas (10). These schemas are stable during life and form the basis for cognitive structures of each individual. They help individuals to organize their experiences about the world and process information (11). Based on fundamental emotional needs, Young introduces 15 maladaptive cognitive schemas: 1) Emotional deprivation schema: the person believes that his natural emotional needs will not be fulfilled by the important people in his life; 2) Abandonment/instability schema: the person has instable and unreal recognition about the support of others; 3) Mistrust/abuse schema: the person believes that others are abusers, liars and want to hurt him and if they can they will subjugate him; 4) Social isolation/alienation schema; 5) Defectiveness/shame schema: the person believes that he is despised, humble, bad and useless and no one loves him; 6) Failure schema: the person believes that he is not able to be successful in different stages of life; 7) Dependence/incompetence schema: the person feels that he is not able to fulfill his responsibilities without the help of others; 8) Vulnerability to harm or illness schema: the person has excessive fear of any harm or inability in coping with any problems or any diseases; 9) Enmeshment/undeveloped self schema; 10) Subjugation schema: the person feels that others have control over him; 11) Self-sacrifice schema: the person has a tendency to fulfill other people's needs although his needs are not fulfilled; 12) Emotional inhibition: the person hides his feelings, relationship and behaviors due to shyness; 13) Unrelenting standards/hypocriticalness schema: the person does his best to achieve inner and inflexible standards regarding his manner and action sin order not to be reprimanded by others; 14) Entitlement/grandiosity schema: the person believes that because he is superior to others, he deserves special consideration; and 15) Insufficient self-control and self-discipline schema: the person cannot control himself efficiently. Researchers believe that primary maladaptive schemas are like a filter to prove or verify childhood experiences. Clinical signs like stress, depression, personality disorder and loneliness due to destructive interpersonal relations, alcohol and drug abuse can be owing to maladaptive schemas (12). In a study, Sava investigated primary maladaptive schemas in a sample of 173 teenagers aging 12-15 years old who were not clinical cases. The results of his study showed that some harmful behavioral manners were related to primary maladaptive schemas. Also, psychiatric problems such as stress disorders and depression are significantly related to schemas (13). In another study that was carried out on addicted men, findings showed that by using remedial schemas it is possible to decrease personality disorders of B type men who are drug dependent (14). Khosh Lahje Sedgh et al demonstrated that the mean scores of some maladaptive schemas such as mistrust/abuse, defectiveness/shame, entitlement/grandiosity, dependence/ incompetence, enmeshment/undeveloped self, and insufficient self-control/self-discipline were higher in both successful and unsuccessful drug quitters than the normal population (15). In addition, regarding primary maladaptive schemas and sociopaths in addicted women, results of a study showed that all schemas were high in women who suffered from destructive addiction (16). In terms of irrational beliefs, Dryden and Neenan that they are some rigid beliefs which are obligatory and far from realities which are used in interpreting some events of life (17). As it is quoted by Shafi Abadi and Naseri (18), Ellis in a rational-emotive theory shows a logical explanation in form of the relation (A-B-C) regarding different disorders. Based on this theory, a person's beliefs (B) about a certain situation (either rational or irrational), changes the consequences (C) of his/her action; especially by changing the person's thinking style in interpreting the activator event (A) (19). In this regard, the person who smokes cigar tends to have irrational beliefs or false interpretations. He will be easily affected by advertisements of media or the pressure of peers to achieve approval or get a social stand and may start a bad behavior such as smoking cigar (7). There are 10 irrational beliefs including 1) The necessity of demand for approval: the person believes that he needs to be approved and supported by others and all the people must love him; 2) High self-expectation (HSE): the worth of a person depends on doing too much works, being perfect and being the best in every activity; 3) Blame proneness: the person thinks that some people are wicked and mean and should be punished and blamed strongly; 4) Frustration reactive: the person believes that if things and events do not go the way that the person expected, everything is a disaster and he will be extremely sad; 5) Emotional irresponsibility: the person thinks that all his problems are because of outer elements; 6) Anxious over concern: the person believes that dangerous and frightening things cause excessive concerns and he should try to avoid these things; 7) Problems avoiding (PA): the person believes that avoiding some problems in life is easier than facing them; 8) Dependency (D): the person believes that he should be dependent on others or be supported by a stronger person; 9) Hopelessness to changes: the person believes that past events and experiences are determining factors for the present behavior and we cannot ignore the effect of past on present manners; and 10) Perfectionism (P): the person believes that each problem only has one solution and if he cannot find a remedy, everything will be so terrible and disastrous (19). Studies show that these irrational beliefs are related to many abnormal manners such as drug abuse and smoking cigar (20). In most of behavioral cognitive therapies the focus is on replacing irrational beliefs with rational ones (21). Evidence shows that people who suffer from excessive drug abuse in compari-

son to others have unhealthy social and family relations, false beliefs, unnatural feelings, emotions and dangerous behaviors. These elements are harbingers of irrational beliefs. The results of another study regarding the role of irrational beliefs in drug users' relapse revealed that there was a significant difference in average grades of irrational beliefs in those subjects who had and those who did not have the relapse (22). In other words, those subjects who were not involved in the relapse were in a better condition than the other group in terms of experiencing the irrational beliefs (23). Another study regarding irrational beliefs among patients suffering from crystal abuse and normal drug abusers, results showed that those who used crystal had more irrational beliefs. Also grades of patient group in comparison to control group, in features like stressful attention, problem avoiding, dependence and frustration to change were more than normal samples (24). Results of another study showed that drug addicted subjects had higher scores in irrational beliefs (25). Researchers believe that several cognitive variables such as lack of confidence, lack of self-belief, lack of personality development are among many factors that are related to students' tendency towards cigar and other drugs (26). Many of these variables are the result of underlying rigid beliefs that they have been fixed during long years. Maladaptive cognitive schemas and irrational beliefs are some examples of these elements that explain many of the false manners. Since smoking cigar as an incorrect manner can be explained by some false schemas or some irrational behaviors, in this study we aim to compare maladaptive cognitive schemas and irrational beliefs among smoker and non-smoker students.

Methods

The target population of the present study included all female and male students in Ardebil University in 2012-2013. The study sample encompassed 80 students (40 male and 40 female) who were chosen randomly by multilevel sampling. For data analysis, multivariate analysis of variance (MANOVA) was used. In order to collect data, different tools were used which are mentioned below:

Young schemas questionnaire-short form (YSQ-SF): For measuring primary maladaptive schemas, YSQ was applied. This questionnaire has 75 questions and each item is answered based on a 6-point Likert type scale (1 = completely false, 6 = completely true). This scale has 15 subscales including emotional deprivation, abandonment, misbehavior-distrust, social isolation, shame-defect, failure, dependence-incompetence, vulnerability to harm, involvement-entanglement, obedience, self-devotion, emotional inhibition, uncompromising standards, entitlement-magnanimity, continence, and insufficient self-discipline. Every 5 questions of this questionnaire belong to a schema and for calculating scores of schemas; the average score of all five questions will be calculated. Schemas with higher grades will be assumed as the preferred schemas for the patient. As it has been reported by Lofty et al (27), the first broad investigation about features of psychometrics

for the schemas was done by Smith, Jones and Yungoothlech. Cronbach alpha coefficient for the subscales of this questionnaire was calculated to be from 0.50 to 0.82 in a non-clinical sample. These researchers also showed that YSQ with scales of psychological distress has high correlation with personality disorders and therefore it has got favorable validity (27). This questionnaire was translated and prepared by Ahi in Iran (28). In this regard, internal consistency was reported to be at 0.97 and 0.98 in female and male groups respectively. In the present study, Cronbach alpha for each subscale was calculated and reported as: emotional deprivation 0.80, abandonment 0.87, misbehavior-distrust 0.77, social isolation 0.70, defect shame 0.83, failure in progress 0.84, dependence-incompetence 0.80, vulnerability to harm 0.73, involvement-entanglement 0.71, emotional inhibition 0.79, uncompromising standards 0.78, entitlement 0.66, imperfection continence and insufficient self-discipline 0.72. The Cronbach alpha for the whole questionnaire was 0.90.

Jones irrational beliefs test (IBT): This is a prominent self-report instrument that was designed by Jones. This valid instrument assesses dispositional rationality-irrationality. It encompasses 100 items on a 5-point Likert scale. Each item measures one of the irrational beliefs (29). Irrational beliefs which are assessed by this questionnaire include necessity of demand for approval from others, high expectations of oneself, tendency to blame, reaction to frustration, emotional irresponsibility, high preoccupation with stress, avoidance of problems, dependency, hopelessness to change, and perfectionism. This test has an acceptable validity and reliability. The reliability coefficient calculated by Jones via test-retest method was 0.92 (30). As it has been cited in Taghipour's study, for validity purposes, Smith and Zevaraski measured the correlation of this test with emotional turmoil assessment test. On this basis, the meaningful correlation coefficient of the test with other tests such as stress status, Beck depression, and anger status tests was at 0.70, 0.77, and 0.59 respectively (31). In Iran, the reliability of this questionnaire was calculated and reported to be 0.71 (30). In the present study, using Cronbach alpha, the reliability of the questionnaire was reported at 0.80. The reliability of each subscale ranged from 0.77 to 0.87. To assess the validity, the correlation of each item was calculated with the questionnaire's total score without the presence of that item in the calculation; all the coefficients were meaningful at 0.95; indicating a good validity for the questionnaire.

Results

The aim of the present study was to compare maladaptive cognitive schemas and irrational beliefs among smoker and non-smoker students. As findings of this study (the presence of a meaningful difference between maladaptive cognitive schemas and irrational beliefs among smoker and non-smoker students) were positive, details of the obtained results and their explanation are highlighted in the following section.

As can be seen from Table 1, smokers had higher scores

Table 1. Mean score of maladaptive cognitive schemas and irrational beliefs in smoker and non-smoker students

Variable		Mean	SD
Emotional deprivation	Smoker	20.15	7.75
	Non-smoker	11.45	5.98
Abandonment	Smoker	19.95	7.19
	Non-smoker	14.08	5.25
Mistrust-abuse	Smoker	12.85	3.71
	Non-smoker	12.54	4.70
Social isolation /alienation	Smoker	13.00	5.02
	Non-smoker	11.03	5.41
Defectiveness/shame	Smoker	12.75	3.58
	Non-smoker	11.06	3.15
Failure	Smoker	11.70	4.72
	Non-smoker	9.55	4.73
Dependence/incompetence	Smoker	14.40	4.72
	Non-smoker	11.49	4.82
Vulnerability to harm and illness	Smoker	11.20	4.94
	Non-smoker	10.10	5.42
Enmeshment/undeveloped self	Smoker	13.10	4.43
	Non-smoker	13.64	5.14
Subjugation	Smoker	17.55	5.12
	Non-smoker	11.59	5.62
Self-sacrifice	Smoker	16.50	4.91
	Non-smoker	15.76	5.30
Emotional inhibition	Smoker	15.25	3.72
	Non-smoker	13.32	5.11
Unrelenting standards/hypocriticalness	Smoker	14.70	4.23
	Non-smoker	16.61	4.81
Entitlement/grandiosity	Smoker	17.00	3.87
	Non-smoker	14.88	4.62
Insufficient self-control/self-discipline	Smoker	14.40	3.95
	Non-smoker	11.88	4.67
Demand for approval	Smoker	34.00	3.59
	Non-smoker	30.30	6.00
High self-expectation	Smoker	33.05	4.09
	Non-smoker	32.15	4.25
Blame proneness	Smoker	33.05	4.09
	Non-smoker	32.15	4.25
Frustration reactive	Smoker	34.40	3.95
	Non-smoker	34.69	4.02
Emotional irresponsibility	Smoker	38.05	5.38
	Non-smoker	32.16	7.17
Anxious over concern	Smoker	30.45	4.75
	Non-smoker	29.11	4.61
Problems avoiding (PA)	Smoker	32.75	3.58
	Non-smoker	31.79	4.72
Dependency	Smoker	35.50	6.64
	Non-smoker	33.37	5.50
Hopelessness changes	Smoker	35.70	4.07
	Non-smoker	31.62	3.68
Perfectionism	Smoker	36.50	3.77
	Non-smoker	33.67	4.07

for some subscales of maladaptive cognitive schemas in comparison to non-smokers, for example "emotional deprivation", "abandonment", "incompetence-dependency", "obedience", "entitlement", "continence-insufficient self-discipline". By the same token, in terms of irrational beliefs

the mean score of smokers was higher than non-smokers regarding "necessity of demand for approval", "emotional irresponsibility", "hopelessness to change", and" perfectionism". Before applying parametric multivariable analysis of variance test, to comply with its assumptions, Box plot and Levene test were used and homogeneity of variance or covariance matrices was taken into account as well. This test was not significant for any of the variables, so as a result, the use of parametric test was appropriate. The level of significance in all tests makes it possible to use analysis of MANOVA.

As shown in Table 2, the results of MANOVA test for maladaptive cognitive schemas and irrational beliefs in smoker and non-smoker students indicated that, in regard to the significance level and partial eta squared, the observed differences between two groups were significant ($P < 0.05$). Moreover, the results of Wilks lambda test showed that the effect of group on students' irrational beliefs and maladaptive cognitive schemas was significant (Wilks lambda test $= 0.656$, F $= 7.20$, $P \leq 0.001$). This indicates that there was a significant difference between irrational beliefs and maladaptive cognitive schemas in smoker and non-smoker students.

Discussion and Conclusion

Undoubtedly many of human mental problems originate from primary maladaptive schemes and irrational beliefs. Primary maladaptive schemes are to a great extent inefficient, and are patterns for processing future experiences (8). Based on the first finding of this study, there was a significant difference between primary maladaptive schemes for the two sample groups in several variables including emotional deprivation, abandonment, dependence/incompetence, obedience, entitlement/grandiosity, self-discipline and insufficient self-control. Findings showed that the average score of smokers was higher than that of non-smokers. This is in line with findings of other studies in this respect (13,15,16). The outbreak of maladaptive schemas has been observed in a lot of disorders and abnormal behaviors. In fact, those who use maladaptive schemas excessively are more affected by negative events of life (32). Petrocelli et al also showed that about 76% of variance in personality disorders and addiction is composed of schemas such as emotional deprivation, dependence/incompetence, entitlement/grandiosity, enmeshment, undeveloped self, and failure (33). Bamber and McMahon found that these schemas are predictors of high levels of psychiatric disorders (34). Brummett also showed that those with imperfection, dependency and worrisome schemas will probably be attracted by drugs more than others (35). Welburn et al in a study that was carried out on 196 patients in a psychiatric hospital showed that schemas are the strongest predictors of psychic signs such as stress, depression, being paranoid, and drug abuse (36). In a study by Kirsch the relationship between early maladaptive schemas, self-esteem, depression, and stress among young adults during treatment of drug abuse was observed (37). But why maladaptive schemas are more

Table 2. Results of MANOVA for maladaptive cognitive schemas and irrational beliefs in smoker and non-smoker students

Variable	df	MS	F	P	Partial eta squared
Emotional deprivation	1	209.19	5.003	0.020	0.04
abounment	1	513.84	15.30	0.000	0.16
Mistrust-abuse	1	1.41	0.07	0.790	0.01
Social isolation /alienation	1	57.04	2.04	0.150	0.26
Defectiveness/shame	1	42.26	3.96	0.070	0.08
Failure	1	68.44	3.05	0.080	0.09
Dependence/incompetence	1	126.35	5.48	0.020	0.04
Vulnerability to harm and illness	1	18.01	0.63	0.420	0.14
Enmeshment/undeveloped self	1	4.42	0.17	0.670	0.14
Subjugation	1	530.00	17.49	0.000	0.185
Self-sacrifice	1	8.12	0.29	0.58	0.10
Emotional inhibition	1	55.52	2.40	0.120	0.03
Unrelenting standards/hypocriticalness	1	54.50	2.49	0.11	0.03
Entitlement/grandiosity	1	67.04	3.38	0.05	0.04
Insufficient self-control/self-discipline	1	94.75	4.21	0.04	0.10
Demand for approval	1	203.92	6.71	0.010	0.03
High self-expectation	1	12.03	0/67	0.410	0.090
Blame proneness	1	1.29	0.81	0.770	0.01
Frustration reactive	1	37.23	1.71	0.190	0.02
Emotional irresponsibility	1	516.51	11.25	0.010	0.12
Anxious over concern	1	26.47	1.22	0.270	0.01
Problems avoiding	1	13.57	0.67	0.41	0.009
Dependency	1	67.58	2.002	0.005	0.02
Hopelessness changes	1	247.77	17.28	0.000	0.18
Perfectionism	1	118.95	7.43	0.008	0.08

common among smoker students? Evidence shows that those who use maladaptive schemas excessively are more affected by negative events of life (32). In fact, maladaptive schemas cause people to experience negative events. In addition, the existence of such events in life results in a lot of mental pressure and dissatisfaction from life (12). As it is evident, one of the common reasons of smoking cigar is to cope with tensions and dissatisfactions. Because of this, people who use one type of drug, are typically more anxious, irresponsible and disorganized (16). Therefore, as long as these schemas are prevalent we cannot expect smokers to be successful and efficient. Findings also revealed that there was a significant difference between smokers and non-smokers in terms of variables such as necessity of demand for approval, support and verification of others, emotional irresponsibility, dependence, hopelessness to change, and perfectionism. This indicates that the average score of smokers was higher than that of non-smokers. These findings are consistent with other results and show that people who are involved in addiction in any way have more irrational beliefs in comparison to ordinary people (7,20,22-24,27). It seems that drug abusers are more in danger of having irrational beliefs in comparison to normal people due to their risky behaviors, psychic illnesses, low confidence, inability to say "no" to their friends and peers, inability in making decisions, isolation, irresponsibility, low endurance, and other negative behaviors. People with irrational beliefs face many problems in their lives and it is hard for them to reach satisfaction. When the person fails to get satisfaction in a normal way, he will cling to bad ways to get satisfaction

such as dependency to smoking cigar. Thus, it is clear that if people react to unpleasant events of their life in rational ways, they will be faced with less cognitive, emotional, behavioral, and psychological consequences (38). Therefore, as long as we have irrational beliefs behind an abnormal function, such as smoking cigar or other drugs, it is very hard to quit these types of behaviors because false beliefs will lead to false attitudes and false behaviors (39). The connection between irrational beliefs and the experience of various drug abuses leads us to hopeful results because studies show that dealing irrational beliefs and revealing the basis of irrational thoughts among drug abusers will change their attitude towards the formation of maladaptive habits such as smoking cigar and finally leads them to quit smoking (40). Hence, those cognitive therapists who are proponents of Ellis' theory encourage smokers to distinguish between rational and irrational beliefs (7). In summarizing the findings of this study, we should mention two important points: 1) when primary maladaptive schemas are active, some levels of distorted thought stare distributed and directly or indirectly will lead to some forms of cognitive and emotional disorders such as depression, stress, and job-related problems, lack of educational improvement, drug abuse and interpersonal conflicts (41). Also by increasing cognitive maladaptive schemas, the outbreak of abnormal behaviors will be increased too (12. Thus, it is necessary to pay attention to the treatment of maladaptive schemas in order to treat smoker students. However, many of unpleasant reactions and abnormal behaviors of smoker students are because of irrational and unreasonable beliefs and thoughts (42). These problems

will be common as long as they exist. Therefore, it is necessary to consider corrective actions in order to change the irrational thoughts of smoker students. This study had some limitations. First, the study sample was small and from a specific location (Ardebil University). Second, using self-reporting instruments as the solely way of identifying smoker students, imposes some limitations on the generalization of the findings of the current study to other similar populations. Future researches can focus on more varied and broader population and using other designs and methods. The effectiveness of corrective actions in the field of cognitive maladaptive schemas and irrational beliefs of smoker students can have very valuable results.

Ethical issues
Participation of students was voluntary, so they could withdraw from the study at any time.

Authors' contributions
All authors equally helped for writing the current manuscript.

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