

The Study of Substructures of Addiction Phenomena in High School Students Using Problem Finding Workshops

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Abstract

Background: Addiction is one of the complicated problems in Iranian young population. The social and cultural dimensions of this social disease are less considered. So considering socio-cultural and environmental resources, this study investigated the substructures of addiction according to the viewpoints of high-school students of Kerman, Iran in 2007-2008.

Methods: This qualitative study accomplished in ten high schools through a one-day problem finding workshop and continued until data saturation. The resulted terms and phrases were analyzed by content analysis. To assure about the validity and reliability, the outputs reviewed by workshops participants, and classification and codification of the data were executed separately by two experts.

Findings: A total of 212 students, 45.3% girls and 54.7% boys, participated in the study. The students introduced the followings as the addiction substantial fundaments: lack of knowledge, positive attitude and interpretation of addiction as a value, family or friends' habit, economy status, psycho-personality problems and availability. Rules infirmity or non-implementation of the current rules enforcement, geographical status and addiction as a conspiracy were also observed in students' statements.

Conclusion: The positive attitudes and historical roots of addiction along with the process of changing the values caused the growth of drug addiction in young population which could neutralize the security measures, legislations policy and even the knowledge. Therefore, intensification of personal protective factors and culturalization addressed for improving inner layers of values are recommended.

Keywords: Addiction, Qualitative study, Students, Etiology.

Addict & Health 2011; 3(1-2): 1-8.

Received: 14.12.2010, Accepted: 20.2.2011

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Introduction

Addiction, as one of the four crisis of 21st century, is a phenomenon that all the countries of the world are involved with. It not only has the individual aspect, but also considered as a social disease and can cause severe social damages such as divorce, homeless children, prostitution, violence and delinquency. Studies in Iran also have shown that there was a significant correlation between addiction and physical and mental abuse¹ and the highest cause of violence against women had been due to addiction.²

All over the world, 200 million or 5 percent of the people from 15 to 64 years old, consumed addictive substances in latter year.³ Before the revolution in Iran, the number of drug abusers was 1.5 million out of its 14-million population of that time.⁴ In a cross-sectional study in 1999, the number of drug abusers estimated as 2 million people.^{5,6} Currently, considering the annual addiction growth rate (8%) and population growth rate (2.63%) in the past twenty years, the number of drug addicts is estimated as over 6 million⁵ that provided with adding the occasional consumers, it would form a considerable number of Iranian population. Hence, currently Iran has the highest rate of opiates consuming in the world³ and it affected psychological, social and political complications of this society.

During the early first three decades of 20th century in industrial countries, the drug abuse was considerably increased simultaneously with changing the social structure. Iran, also with passing through a developing and traditional community toward an industrial society, has experienced drug consumption and changing consumption patterns.⁷ Moreover, drug abuse in Iran has few hundred years of history and in Kerman sometimes it has a cultural and traditional image.

The study of drug abuse trend in Iran has shown that in recent years, the age of addiction onset has reduced from 22 years⁴ to 20 years.^{5,6,8} Considering that more than 40% of Iran's population are people under 16, addiction crisis in youth would have more complex aspects.

Drug abuse and addiction status in Iran is unique and is integrated with social issues. Most of the studied researches about field of addiction in Iran have been related to clinical researches and basic sciences and are more associated with its physical effects, treatment and mental disorders (94 Articles) and have less considered the etiology

and socio-psychological effects of addiction (19 Articles). Therefore, lack of conclusive social studies is felt.⁹ Considering the socio-cultural context of addiction development, neighborhood with the largest producer of narcotics, and the growing of addiction in the youths, it is necessary to study cultural and social contexts of addiction from the perspective of young population. But, in addition to effectiveness, the common survey methods had been confined to epidemiology and prevalence of drugs.¹⁰ Hence, it seems necessary to conduct holistic studies which consider different aspects of this issue.⁷ One of recommended studies to identify cultural and social substructure of addiction are qualitative studies.¹¹

Therefore, the present study aimed to investigate substructures of addiction phenomenon according to socio-cultural conditions of Kerman using qualitative study in the population at risk (adolescents).

Methods

This qualitative study was done with participatory problem finding through one-day workshops in 9 high schools in Kerman. The schools randomly were selected from district one of education areas which was more contaminant compared to district two of non-deprived, semi-deprived and deprived zones. Finally, the students of 4 girls' and 5 boys' schools entered the study.

Each workshop included a maximum of 24 students that later on divided into 5-6-member focused groups. The students of each school were selected based on random numbers table and the study objective and the quality of selecting them explained to the parents so that no doubt and bias occurred for the students and their parents; besides, the volunteers only entered the study.

Facilitators of the workshops used to be the education staff and have previously been given the required training during two 3-day workshop. The structure of each workshop, objective scheduling and requirements were discussed and designed by the executives during some sessions. So that the facilitator, with posing the general subject of the addiction, tried to cause motivation and participation in each one of the individuals and also provide a condition enabling students to have intellectual communication and active thinking with other

students; moreover, the facilitator avoided any personal comments and only had the role of a guide and coordinator. Thereafter, the facilitator, with initial estimation, simulated the students of each workshop in the focused groups and made a free discussion about the addiction status subject. Thus, each group gathered and prioritized a series of his/her viewpoints and again discussed them in the general assembly of the workshop. Hence, at the end of the workshop, common topics separately were registered along with innovative subjects. In brief, addiction status was discussed and debated at first in the focused groups then in the general assembly or public meeting. When no new topic was introduced, the results of the workshop were recorded in the form of statements.

The findings of each workshop (school) after collecting were analyzed using content analysis method by open, axial and elected codification phases. The classification index concepts were the sentences (phrases) and statements. Explicit and implicit concepts were classified and if necessary, some subcategories were included. Thereafter, the classes and categories were merged together so that axial clusters or categories were obtained. However, indicators were defined and changed several times during the qualitative analysis along with repeated revising so that at the end brought about an ultimate classification. The classification executed by two experts to reduce the internal errors. To ensure the validity and reliability, the classification and codification of unanimous comments in each workshop, were performed twice and revised by two other experts and the consistency obtained was almost 90 percent.

Results

In total, 212 high school students attended the workshops from which 24.5% educated in pre-university, 46.2% in the third year of high school and 29.3% in the second year and included 45.3% females and 54.7% males. 320 initial codes were extracted from the study data that were classified under the 8 main categories in table 1.

The abstract information on the cause-effect and relationship among dominant categories are reported in figure 1.

Some of the participants were familiar with the addiction concept and even were aware form its hidden sides like addiction to sleeping pills

Table 1. Classification of the extracted categories and subcategories in the problem finding workshops

Knowledge and attitude
<ul style="list-style-type: none"> • Lack of knowledge • Addiction as a value • Positive attitude toward addiction
Relationship
<ul style="list-style-type: none"> • Familiar • Friendship
Economy
<ul style="list-style-type: none"> • Poverty • Richness
Rules
<ul style="list-style-type: none"> • Non-implementation of laws • Weakness or lack of laws
Personality problems
Accessibility
Geographic coordinates
Conspiracy of superpowers

and pornographic movies. However, the majority of them believed that their general knowledge has not been sufficient towards opiates and the side effects. In some cases, lack of knowledge was seen in some wrong phrases such as "some parents say they are useful for blood purification", "some students consume drugs because their courses are very difficult and they need to sleep less or to be wholesome", or "drugs are to relieve physical pains and sorrows". Among some of the phrases, they were discussed with a voluble content like: "addiction indicates being prosperous and rich", "addiction is a kind of fashionable thing (classy)", "addiction means you are grown up" and "the physician of the society is addicted, let alone..." (Table 1).

According to viewpoints of the workshops' participants, familial status and internal relations and their problems were the major underlying causes of addiction (Table 1). Here, family problems such as divorce, family disregarding and inappropriate family environment formed the major subcategories (Figure 1).

The expressed statements such as the following "for fun or in a party, my father immediately provides the drugs arrangements", or "parents send their child away to transit and smuggle drugs" indicated complex parental involvement. However, it should be noted that some of them stated that "people are less directly encouraged to abuse drugs by the families"; instead, they believed in relationships

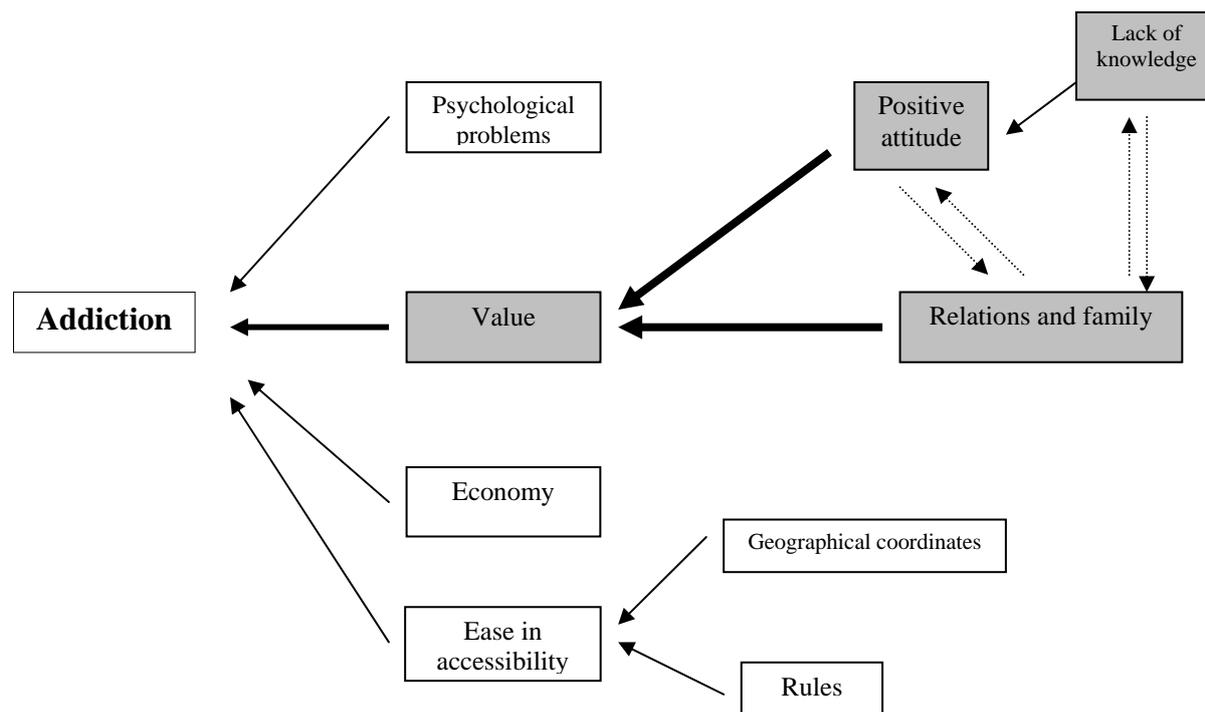


Figure 1. The relationship among dominant categories extracted from problem finding workshops and addiction.

with friends and peers as the first step to addiction (Table 1), because “addiction requires membership in some of the attractive groups and needs drug abuse”.

Drug abuse, as a recreation to fill leisure time of a group, was another issue obtained in this study. Statements such as the following indicate this subject: “drug consumption is for happiness which does not exist in the society” or “youths use exhilarating (ecstasy) pills in their own parties”.

In students' opinions of this study, some of the personality problems can cause addiction like usual problems of puberty such as emotional, educational and familial failures (Table 1). Students repeatedly mentioned the temptations of the youth, curiosity, life failures, mental and psychological problems and particularly the term “unhappiness”. In a statement it was like: “at the third seven-year of the life, individual would tend to drugs, and he/she would tend to make a difference in him/her with the society”.

Economy, which means required activities to provide necessities of life, was discussed as the major underlying social factor for addiction (Figure 1). In this regard, it was pointed out both to poor economical status (or poverty) and proper economical status (or richness) (Table 1).

Unemployment, lack of job opportunities and poverty were the concrete words that were seen in the statements. Alongside, proper economical status also was mentioned as an underlying factor. Moreover, some of the students believed that “addiction is happened in the youth who have higher prosperity”.

Favorable laws and rules toward consumption, transportation and addiction promotion were other categories obtained in this study (Figure 1). This category simply divided into two subcategories of non-implementation of the current laws and weakness or lack of laws (Table 1). The following statements indicated weakness of the current laws: “a student was distributing drugs among others”, “abusing the police uniforms to transport drugs” or “our neighbor planted poppy in his home”. In some of the cases also, non-implementation of the current laws were seen like: “execution of someone with 1 kilogram of opium while releasing another guy with 30 kilograms” and “police took bribes from the smugglers”.

The following statement indicated the ease in accessibility to drugs: “around Sarasiab Square, they sale and distribute drugs while pretending it is cigarette sales”, “it is available in the all parks” and “you can find drugs everywhere easily, but going to gymnasium is difficult”.

While this statement showed the drug availability and the ease of abuse: "there are some ruined houses around our house that everyone can go there and use it". The following statements indicated the availability of the drugs and its change to a social normative: "both mom and dad use it" and "in the wedding celebrations and night parties, drugs are offered".

Geographical location of the city (province) may also play a role in availability of the drugs (Table 1). Students believed that due to proximity of Kerman near Afghanistan and Pakistan and wide range of smuggling in the border and south areas, Kerman is more at the risk of addiction than other provinces.

In analyzing the content of the study data, independent statements and concepts had been expressed which had discussed a cultural viewpoint about addiction with a transnational approach. Participants believed that addiction, and especially hallucinogenic drugs are originated from the West and it is the conspiracy of the major industrial countries which in one hand would lead to destruction of the young and active forces and on the other hand would bring about a big profit for the producers. According to this, there are some policies that drugs easily are provided for the youths and there are even some people to provide it freely for them.

Discussion

Dependency to any drug initially would start with familiarity or emotional pleasure. Our studied group, despite having the necessary knowledge toward addiction concept, expressed positive attitude towards this phenomenon. This tension on one hand was associated with old tradition of opium consumption in the families and on the other hand was related to positive attitude of the society, particularly the young population, toward drug abuse. This positive attitude made the addictive behavior to be norm among the youths so in the students' statements consuming narcotic drugs was considered as a value (mode, class) and also a positive distinction (Figure 1).

One of the factors discussed as tendency to addiction was the family role and related issues. The results of the present study have also emphasized the family and interrelated relations (Table 1). Etiology of addiction in children has

shown that divorce and single parent families are more at risk.¹² However, parents' role in addiction of the children should be investigated with a holistic view and in different aspects. The risk of addiction increased in families where children are so free with no limitation and no supervision on their behavior, or on the contrary, in families that authoritarian training is dominant.¹³ On the other hand, lack of security in the family and physical and emotional abuse of the children also were discussed as the underlying causes of addiction.¹ While family has been considered as the main center of determination of the youth's behavior, but participants of this study emphasized more on the relationship of the friends and peers (Figure 1). Identity crisis, personality changes, fixing the social relations and pressure group in adolescents also were the effective factors in tendency toward drug abuse.¹⁴ In other studies also association with unsuitable friends had a decisive and determining role in dependency^{15,16} and relapse to drug abuse.¹⁷ Furthermore, deprivation, lack of social adjustment of the youth, loneliness and being rejected were considered the cause of addiction¹⁵ and sometimes addiction, itself was a mean to express social conflict.¹⁸

Drug abuse mainly is a group behavior. Lack of proper recreation and joyful facilities for young population had made this aspect of the issue more problematic for them. So that with drugs some people found an easy source of pleasure gain. The results of this study also indicated that one of the ways of knowing drugs had been gaining pleasure which was usually done in a group. In a study in Tabriz, Iran, this finding was confirmed that unsuitable friends along with gaining pleasure were the major causes of drugs tendency.¹⁶ In Tehran Province also pleasure seeking and attending the friendly meetings were mentioned as the main causes of youths' tendency.¹⁹ Pharmacologically, it also has been proved that drugs with affecting the reward pathway of the brain, initially caused feeling pleasure even in the laboratory animals and then positive reinforcement and repetition would cause conditioning and finally, addiction and dependency.²⁰ This is what occurred in individual gradually. In other words, from the socio-psychological perspective, individual, after the emotional pleasure phase, would enter the increased consumption phase or emotional tolerance which ultimately would lead to addiction and drug abuse.

Most of the individuals who enter into addiction and dependency phase are suffering from a psychiatric disorder.¹² The students of this study also discussed psychological (personality) problems in the forms of failures and emotional frustrations or psychological problems (Table 1). In the study of Afigheh et al., 42.4% of the addicted people had major depression.²¹ In Kashan, psychological profile of these people had been anxiety (43%) and depression (34%).⁷ In the life skills area, many of the studies also mentioned psychological stress and life problems and lack of social adjustment as affective factor on tendency toward drugs.^{15,16} That is why self-esteem and beliefs of the individual toward ego and toward positive values must be reinforced because, there is a significant correlation between self-concept - which is acquirable- and drug abuse.²²

Always economic status, as a social category, had a significant role in tendency toward drugs. Due to several reasons, addiction is more prevalent in the poor people. The results of this study, in addition to confirming the role of poverty, discussed good economical status as the underlying cause of addiction (Table 1). This finding partly can be attributed to modification of the value system of Iranian society from traditional-religious to modern-materialistic mode in recent years; and this with positive attitude would cause that individual, in order to keep balance between the new goals and values, follow the deviant behaviors, one of which is tendency toward drug abuse (Figure 1). In other words, individual, in order to make individual adjustment with society's value changes, would follow the abnormal behaviors. That is the reason drug consumption and drug trafficking are innovated to a lucrative and easy job with high leisure time. Quoting from the students of this study, provided that favorable rules (non-implementation or law weaknesses) are also placed near this collection, social approach of addiction would be more complex (Figure 1).

References

1. Namdari P. Prevalence of child abuse in Khorramabad secondary schools. *Iranian Journal of Psychiatry and Clinical Psychology (Andeesheh va Raftar)* 2003; 9(33): 62-70.
2. Bakhtiari A, Omidbakhsh N. Backgrounds & effects of domestic violence against women referred to Law Medicine Center of Babol, Iran. *Behbood* 2004; 7(19): 28-35.
3. United Nations. *World Drug Report 2006*. New York: United Nations; 2006. p. 31, 51, 64.
4. UNODC. *Epidemiology of drug use in Iran* [Online]. 2011 [cited 2011 Jun 2]; Available from: URL: www.unodc.org/iran/en/epidemiology.html/
5. Mokri A. Brief overview of the status of drug abuse in Iran. *Archives of Iranian Medicine* 2002; 5(3): 184-90.

However, in Iran, massive policy-makings, government regulations and strong security measures have been performed to reduce drugs accessibility. According to UNODC reports in 2004, 83% of global opium seized (18 tones) was done in Iran. However, transiting drugs from Afghanistan, as the biggest producer for Iran, is increasing and despite security measures and more than 3200 martyr from the Security and Police Forces in 2002 and annual growth of 20% in the seize of the drugs,^{3,4} still Iran is in the first place in the world for drug consumption.⁵

Conclusion

The diagram of cause-effect showed in figure 1 summarized the information on substructures of addiction. In spite of innovative method and target population, the obtained issues in this study consisted of different dominants which were in accordance with some of the basic theories of sociology and biology of addiction. External understanding and interpretation of the researcher was that the presence of a positive approach in the family and then, in the society in general, is one of the most important underlying causes of addiction. This attitude, which has an old historical root, has developed due to social turmoil during the transition of traditional society to a modern and industrial society. In other words, in the process of changing the values and positive attitude towards drug consumption, the increment of mere knowledge and ordered policy-makings or increment of security measures and legislation will not be effective anymore and addiction will be growing. Therefore, intensification of the personal and social protective factors and particularly social culturalization with tendency toward inner layers of values and attitudes are recommended.

Conflict of interest: The Authors have no conflict of interest.

6. Rahimi Movaghar A, Mohammad K, Razaghi EM. Trend of drug abuse situation in Iran: A three-decade survey. *Hakim* 2002; 5(3): 171-80.
7. Jenkins R. Making psychiatric epidemiology useful: the contribution of epidemiology to government policy. *Acta Psychiatr Scand* 2001; 103(1): 2-14.
8. Asarian F, Omidi A, Akbari H. Psychological and personality characteristics of young addicted subjects in Kashan, 2000. *KAUMS Journal (FEYZ)* 2004; 8(1): 37-42.
9. Rahimi Movaghar A, Sharifi V, Mohammadi MR, Farhudian A, Sahimi I, Radgudarzi E. Researches on substance use in Iran: 3 decades evaluation. *Hakim* 2006; 8(4): 27-44.
10. Ahmadi J, Hasani M. Prevalence of substance use among Iranian high school students. *Addict Behav* 2003; 28(2): 375-9.
11. Carlson RG, Siegal HA, Falck RS. Qualitative research methods in drug abuse and AIDS prevention research: an overview. *NIDA Res Monogr* 1995; 157: 6-26.
12. Sadock BJ, Kaplan HI, Sadock VA. Kaplan and Sadock's synopsis of psychiatry. 9th ed. Philadelphia: Lippincott Williams & Wilkins; 2003. p. 712-16.
13. Brown RT. Risk factors for substance abuse in adolescents. *Pediatr Clin North Am* 2002; 49(2): 247-55, v.
14. Pumareiga AJ, Kilagus MD, Rodriguez L. Adolescence. In: Kaplan HI, Sadock BJ, Editors. *Comprehensive textbook of psychiatry*. Philadelphia: Williams & Wilkins; 2006. p. 1034-7.
15. Sohrabi A, Pour Afkari N, Razi A, Sohrabi M, Sohrabi M. A study of psychosocial effective factors in addicted prisoners in Tabriz. *Urmia Medical Journal* 2003; 14(1): 1-7.
16. Ghoreishi Zadeh SM, Torabi K. Factors contributing illicit substance dependence among treatment seeking addicts in Tabriz. *Iranian Journal of Psychiatry and Clinical Psychology (Andeesheh Va Raftar)* 2002; 8(1): 21-8.
17. Amini K, Amini D, Afshar Moghadam F, Azar M. A study on social and environmental factors which made addicts to relapse into drug abuse in Hamedan. *Journal of Zanjan University of Medical Sciences* 2004; 11(45): 2-41.
18. Parvizi S, Nikbahkt A, Pournaghash TS, Shahrokhi S. Adolescents' perspectives on addiction: qualitative study. *Nurs Health Sci* 2005; 7(3): 192-8.
19. Shojaizadeh D, Rabiian M. An epidemiological approach toward the problem of drug addiction in Tehran. *Iranian Journal of Public Health* 1997; 26(1-2): 11-20.
20. Lowinson JH. Substance abuse: a comprehensive textbook. 3rd ed. Philadelphia: Williams & Wilkins; 1997. p. 154-62.
21. Afgheh S, Khalilian A. Survey of factors related to opioid dependency in Mazandaran Province. *Journal of Mazandaran University of Medical Sciences* 1996; 6(12): 29-35.
22. Foroeddini Adl A, Sadrossadat SJ. A survey on relationship between the self-concept of youngsters and their tendency towards addiction. *Tebb va Tazkie* 2002; 14(46): 66-74.

بررسی زیرساخت‌های پدیده اعتیاد با روش مسأله‌یابی مشارکتی در دانش‌آموزان دبیرستانی

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چکیده

مقدمه: اعتیاد یکی از معضلات پیچیده در جمعیت جوان ایران می‌باشد که به ابعاد فرهنگی و اجتماعی این بیماری اجتماعی کمتر پرداخته شده است. این تحقیق با در نظر گرفتن بسترهای فرهنگی، اجتماعی و محیطی به بررسی زیرساخت‌های اعتیاد از دیدگاه دانش‌آموزان دبیرستانی کرمان در سال ۸۷-۱۳۸۶ پرداخته است.

روش‌ها: این مطالعه کیفی از طریق کارگاه‌های یک روزه مسأله‌یابی مشارکتی در دانش‌آموزان ۱۰ دبیرستان کرمان انجام شد. عبارات حاصل از هر کارگاه تا اشیاع داده‌ها تحلیل محتوا گردید و جهت اطمینان از روایی و پایایی علاوه بر بازنگری و اتحاد نظر مشارکت کنندگان، طبقه‌بندی و کدگذاری دوبار توسط دو نفر انجام شد.

یافته‌ها: در مجموع ۲۱۲ دانش‌آموز شامل ۴۵/۳ درصد دختر و ۵۴/۷ درصد پسر در مطالعه شرکت داشتند. دانش‌آموزان فقدان دانش، وجود نگرش مثبت و تلقی اعتیاد به عنوان یک ارزش را به عنوان زیرساخت‌های اصلی روی آوردن به اعتیاد مطرح نمودند. همچنین به مقولاتی مانند روابط دوستان و خانواده، وضعیت اقتصادی، مشکلات روانی شخصیتی و دسترسی آسان اشاره گردید. ضعف یا عدم اجرای قوانین جاری، وضعیت جغرافیایی و اعتیاد به عنوان یک توطئه نیز در اظهارات آنان مشاهده شد.

نتیجه‌گیری: این مطالعه نشان داد که وجود نگرش مثبت و ریشه‌های تاریخی اعتیاد در کنار فرایند تغییر ارزش‌ها موجب رشد اعتیاد در جامعه جوان می‌باشد که شاید موجب خنثی شدن تدابیر امنیتی، قانون‌گذاری و حتی آموزشی شده است. بنابراین افزایش عوامل محافظتی فردی و فرهنگ‌سازی با گرایش به لایه‌های درونی ارزش‌ها و نگرش‌ها توصیه می‌گردد.

واژگان کلیدی: اعتیاد، مطالعه کیفی، دانش‌آموزان، سبب‌شناسی.

مجله اعتیاد و سلامت، سال سوم، شماره ۲-۱، زمستان و بهار ۹۰-۱۳۸۹

تاریخ پذیرش: ۸۹/۱۲/۱

تاریخ دریافت: ۸۹/۹/۲۳

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