THE EFFECTS OF PREVENTIVE INTERVENTIONS INVOLVING HOLISTIC INTERVENTION ON SUBSTANCE DEPENDENCY IN STUDENTS: A PROSPECTIVE FOLLOW-UP STUDY

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ABSTRACT

The usage of substances is preventable, thus requiring continuous multidimensional interventions and monitoring. The increasing trend of substance use among young people highlights the need to evaluate the effectiveness of studies conducted in this field. This study aims to demonstrate the effectiveness of substance dependency prevention efforts within a local community in Eastern Turkey. This study adopts a comparative cross-sectional type based on prospective monitoring. It was completed with a total of 1089 students. Data for the research were collected using the Substance Use and Reasons Survey and the Self-Efficacy Scale for Preventing Substance Addiction in Adolescents between March and April 2018, following necessary permissions. The data were analyzed using percentages, chi-square, t-tests, ANOVA, correlation, regression analysis, and Odds Ratio values in the SPSS program. According to the research findings, over three years compared to multidimensional studies, the rates of cigarette (2015: 21.7%, 2018: 19.5%) and alcohol (2015: 21.7%, 2018: 19.5%) usage showed a decreasing tendency, while there was a slight increase in the usage of other addictive substances (2015: 4.2%, 2018: 4.8%). Additionally, there was an observed increase in scores on the Substance Addiction Prevention Scale for Adolescents (2015: 93.61±18.99, 2018: 100.09±18.18).

Keywords: Adolescent, Holistic Program, Prevention, Substance Dependency.

BÜTÜNCÜL MÜDAHALEYİ İÇEREN ÖNLEYİCİ ÇALIŞMALARIN ÖĞRENCİLERDE MADDE BAĞIMLILIĞINA ETKİLERİ: PROSPEKTİF İZLEM ÇALIŞMASI

ÖZET

Madde kullanımı önlenebilir olduğundan, sürekli çok boyutlu müdahalelere ve izleme ihtiyaç vardır. Gençler arasında madde kullanımının giderek artan eğilimi, bu alanda yapılan çalışmaların etkinliğinin değerlendirilmesi gerekliliğine işaret etmektedir. Bu çalışmanın amacı Türkiye'nin doğusunda yerel bir toplulukta madde bağımlılığını önleme çalışmalarının etkinliğini ortaya koymaktır. Bu çalışma, prospektif izleme dayanan karşılaştırmalı türden kesitsel bir çalışmadır. Çalışma, toplam 1089 öğrenci ile tamamlandı. Araştırmanın verileri gerekli izinler alındıktan, sonra Mart-Nisan 2018 tarihleri arasında Madde Kullanımı ve Nedenleri Anketi ve Ergenlerde Madde Bağımlılığından Korunma Öz-Yeterliği Ölçeği kullanılarak toplandı. Veriler SPSS programında yüzde, ki-kare, t-testi, ANOVA, korelasyon ve regresyon analizi ve Odds Ratio değeri kullanılarak değerlendirildi. Araştırma bulgularına göre, çok boyutlu çalışmalara göre 3 yıllık dönemde sigara (2015: %21,7, 2018: %19,5) ve alkol (2015: %21,7, 2018: %19,5) kullanım oranları azalma eğilimi gösterirken, diğer bağımlılık yapıcı maddelerin kullanımında ise hafif bir artış olduğu görüldü (2015: %4,2; 2018: %4,8). Ayrıca Ergenler İçin Madde Bağımlılığını Koruma Ölçeği puanlarının (2015; 93,61±18,99, 2018; 100,09±18,18) arttığı gözlemlendi.

Anahtar Kelimeler: Adolesan, Bütüncül Program, Önleme, Madde Bağımlılığı.

1. INTRODUCTION

Substance use has become an important social problem all over the world due to the trend toward increase and the problems it causes. That is this reason, more than two decades have concentrated on different levels of studies to prevent substance addiction (Norberg, Kezelman, & Lim-Howe, 2013; Tobler et al., 2000). The most important result of these studies is that the treatment of substance addiction is quite costly and

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difficult, and therefore, protective interventions towards the individual, family, and society should be encouraged. Adolescents constitute the target population for protection from substance use. It is also necessary to start protective intervention before this age (Miech, Johnston, O'Malley, Bachman, & Schulenberg, (2016:5-9, 52); Stueve & O'Donnell, 2005). The aim of these programs should be to increase the resistance skills of adolescents, to treat the use in the initial stage and to delay the age of contact with the substance (Karatay & Gürarslan Baş, 2017).

In the region where this study is carried out, studies are being carried out at the institutional level on cigarette, alcohol and other addictive substances in young people and it is needed to evaluate whether these studies are effective in three years period. Since the first data gathered in 2015, a lot of action programs were purposively built to decrease substance use prevalence among teenagers in the city that study conducted. These action programs included individual, family, and community-based interventions. These interventions focused mainly on the use of cigarettes, alcohol, and cannabis, because of these are the most widely used substances in this community. In this context, three social projects (covering artistic and cultural activities for risk groups), one scientific research project (Karatay, & Gürarslan Baş, 2017), continuous education activities in schools and parent education were performed. All these interventions were planned within the framework of social influence, resistance and information approach. The researchers who conducted this study planned scientific studies, developed projects and made significant contributions to the shaping of these programs in substance use prevention commissions. A researcher specialized in education management made significant contributions to the access to schools, coordination and data collection processes.

Conceptual framework: effectiveness of prevention programme

Substance use and related problems are largely preventable (Gottfredson, Wilson, 2003; Renstrom, Ferri, & Mandil, 2017). Substance use preventive interventions are needed to plan a public health perspective. Prevention intervention is based on scientific evidence, working with whole populations, families, schools, and communities as comprehensive multi-disciplinary and multi-sectoral approaches (EMCDDA, 2018). Cost-effective programs are needed as part of national policies to prevent substance usage, especially in low-middle income countries (Renstrom, Ferri, & Mandil, 2017). When the intervention conducted in different countries are evaluated; It is seen that there are family- oriented (Bühler, & Thrul, 2015:31-35; UNODC, 2012), school-oriented (Caria, Faggiano, Bellocco, Galanti, EU-Dap Study Group Collaborators, 2011; Norberg, Kezelman, & Lim-Howe, 2013; Storm, Adolfsen, Fossum, Kaiser, & Martinussen M, 2014) and community-oriented (Carson, Brinn, & Labiszewski, 2011; Patnode, O'Connor, & Whitlock, 2013) interventions aimed to prevent or decrease substance addiction.

School-based interventions are particularly prominent in multiple intervention studies. From a population perspective, adolescent-focused prevention initiatives include some intervention for young people, especially in school settings (Campbell et al.,2008; Strøm et al., 2014). Schools are the most easily accessible

and ideal places for the prevention of substance addiction. However, studies to prevent substance addiction should be evidence-based in line with the scientific approach.

Review articles and meta-analyses showed that while only-information based, universal programmes or uneffective implemented programmes have limited effect to reducing substance addiction, combined social competence and social influences curricula have a significant effect on it (Cuijpers, 2002; Thomas, McLellan, & Perera, 2013; Spoth, Greenberg, & Turrisi, 2008; Vogl, Teesson, Newton & Andrews, 2012). There was evidence that multidimensional interventions were effective in reducing substance usage rates (Müller-Riemenschneider, Bockelbrink, & Reinhold, 2008).

The purpose of this study is to reveal the substance use status, risk factors and the changes that have occurred over the years in a local community in Turkey. For the purpose of research, questions of the study were generated as follows:

a) What is the trend of using cigarettes, alcohol and other substances in the province where the study is conducted?

b) What are the new cultural risk factors affecting substance use?

c) Are substance abuse prevention training conducted in schools effective?

2. METHODS

Study design and setting

This cross-sectional comparative study based on follow-up was conducted at a local community in East Turkey. The universe of research was consisted of 1392 males, 1252 females, totally 2644 students who studying a province where located in the eastern part of Turkey. The majority of the students (1788) were studying in the city center. While selecting the sample, each class and class was considered as a cluster unit and selection was made using the cluster sampling method. In order to ensure maximum diversity and heterogeneity one branch from each grade level was taken from all schools in the city and district centers. The branches to be sampled at each grade level were determined by lottery method. In this context, 1089 students (41.18% of the universe) were included in the study. In 2015, data was collected from 613 high school students (34.7% of the universe) studying in the city center of the same province, using the same data collection tools and method. In this study, the data obtained in 2015 and 2018 were compared.

Instruments

The data of the study were collected by using The Questionnaire on Substance Use and Causes and Self-Efficacy for Adolescences Protecting Substance Abuse Scale (SEAPSAS).

The Questionnaire on Substance Use and Causes: The questionnaire was prepared by the researcher in light of literature (Cuijpers, 2002; Espada, Gonzálvez, Orgilés, Lloret, & Guillén-Riquelme, 2015; Renstrom, Ferri, & Mandil, 2017; Thomas, Baker, Thomas, & Lorenzetti, 2015; TUBIM, 2014) and received expert opinions for validity of questions. The first 20 questions of 38 questions were related to socio-demographic

characteristics, while the other 18 questions were related to substance use status. The last 5 questions in the questionnaire were aimed at assessing the effectiveness of the training on prevention. Therefore, the students were asked to evaluate the effectiveness of the training programs. At the beginning of the questionnaire, there was explanatory information for the students and they were asked to fill in an objective perspective.

Self-Efficacy for Adolescences Protecting Substance Abuse Scale (SEAPSAS): This scale was developed by Eker, Akkuş, and Kapusuz (2013) is to evaluate the self-efficacy perceptions of high school students regarding resisting substance abuse in the Turkish Language. The scale was composed of 24 items with 4 factors and 1 control item. Regarding the experts' opinion, subscales were named as Staying Away From Drugs/Stimulant Drugs–General (12 items), Staying Away From Drugs/Stimulant Drugs–Under Pressure (4 items), Help-Seeking About Drugs/Stimulant Drugs (4 items), and Supporting a Friend About Drugs/Stimulant Drugs (3 items). According to the scale, higher scores indicate higher self-efficacy in protection against substance abuse. The SEAPSAS was first applied to 9th, 10th and 11th graders in three major high schools in the province of Düzce in Turkey. The Cronbach internal consistency coefficient of the whole scale was found to be 0.81. The internal consistency of subscales ranged from 0.45 to 0.87. In this study, Cronbach's Alpha value was found to be 0.81.

Data collection procedures

The data of the study were collected between March and April 2018 with a mass questionnaire method. The data were collected under the supervision of researchers in the city center and guidance teachers in the districts. Before the data were collected, guidance teachers were given 2 hours of pre-training and were asked to manage the factors that would decrease data quality. It took an average of 15-20 minutes to complete each questionnaire.

Data analysis

The data were evaluated by using computer-based SPSS program. Number, percentage, chi-square, t-test, ANOVA, correlation and regression analyses were used to evaluate the data. Multinomial logistic regression analysis. The odds ratio was calculated how the use of alcohol affects the use of other substances.

3. RESULTS

Demographic characteristics

In high schools with four years of education, the distribution of students according to class was similar. 53.4% of students consisted of male and 65.8% of them were studying in normal high schools called Anatolian High Schools in Turkey; 32.7% of their family lived in the provincial center, 35.4% in the district and 32% in the villages. 41.2% of the students stated that they actively participate in a sport, while 12.7% said they did not like to do sports and 15.0% said they were just watching. 45.9% of the students described themselves as assertive-outward-looking, 29.4% shy-introverted, 17.9% nervous-aggressive, and 63.4% had a history of trauma.

Table 1. Some Socio-Demografic Charecteristics of Students (n=1089)

Charecteristics	n*	%
Sex		
Male	582	53.4
Female	507	46.6
Grade		
1.Class	324	29.8
2.Class	292	26.8
3.Class	242	22.2
4.Class	231	21.2
School type		
Science high school	96	8.8
Anatolia high school	717	65.8
Vocational high school	276	25.4
Family residence		
City center	355	32.7
Borough	384	35.3
Village	347	32.0
Interest to sport		
Doesn't like sport	136	12.5
Like watching only	162	15.0
Active participation in a sports branch	443	41.2
Only plays on the street and at school	264	24.5
Other	74	6.8
Self-assesment of temperament		
Assertive-outward	477	45.6
Shy-introvert	305	29.2
Nervous-aggressive	186	17.8
Other	78	7.5
Trauma experience		
Yes	672	63.4
No	388	36.6

* The number of samples varies due to questions left blank.

Three-years results with numbers

In the study, the students' substance use status was evaluated according to year. While the rates of use of cigarettes (2015: 21.7%, 2018: 19.2%) and alcohol (2015: 47.3%, 2018: 34.8%) were decreased, rates of illicit drug use were increased. In general, The average SEAPSAS score of the students (2015: 93.61 ± 18.99, 2018: 100.09 ± 18.18) was increased.

Table 2. The Status of Substance Use of Students By Years

Status of substance use	Years	
	2015	2018
	%(n)*	%(n)*
Cigarette		
Occationally smokes	11.5 (55)	8.3 (86)
Regularly smokes	10.2 (49)	11.9 (123)
Totaly	21.7(104)	19.2 (209)
Alcohol		
Drinks	47.3 (229)	34.8 (379)
İllicit drugs intake		
Yes	4.2 (24)	4.7 (51)
SEAPSAS Score (Mean±SD)	93.61±18.99	100.09±18.18

* Sample size may vary depending on response status.

When the relationship between SEAPSAS scores and some variables were evaluated; The mean score of SEAPSAS was higher in the female students (102.28±17.59) versus male students (94.10±23.12), who were studying in the city center (100.09±18.18) versus studying in the county (95.03±24.13), who were living of their family in the province center (100.87±17.15) versus their family living district (96.42±22.65), who were studying in science high schools (105.13±12.48) versus vocational school (95.10±21.68) and evaluating the academic achievement as good (101.09±19.35) versus poor (87.03±27.56).

Tablo 3. The Relationship Between the Students' SEAPSAS Score and Some Variables (Mean±SD)

	SEAPSAS Score	Significant Test	
	Ort.± SS	F, t	p
Sex			
Female	102.28±17.59	47.505	**<0.001**
Male	94.10±23.12		
Residential			
City center	100.09±18.18	43.020	**<0.001**
Borough	95.03±24.13		
Family residential			
City center	100.87±17.15	29.289	**<0.001**
District	96.42±22.65		
School type			
Science high school	105.13±12.48	8.322	**<0.001**
Anatolia high school	98.16±21.33		
Vocational high school	95.10±21.68		
Self-assesment of school success	87.0361±27.56		
Poor	97.6657±20.67	15.113	**<0.001**
Middle	101.0906±19.35		
Good			

Re-evaluation of risk factors

Logistic Regression Analysis was used to again evaluate risk factors for substance use, According to test results; male students, 3rd and 4th grades, who had low school success, who had trauma experience, who had smoker family member or friend, who received weekly allowance more than 25 Turkish Liras were more used substance than others.

Table 4. Regression Analysis of Risk Factors on Substance Use

	B	SH	β	t	p
Sex	.39	.23	.07	2.247	.025
Grade	.12	.02	.21	6.107	.001
School type	.044	.04	.03	1.086	.278
Residential	.10	.05	.07	1.998	.046
Marital status of parent	.04	.05	.02	.810	.418
Self-assesment of temperament	.08	.02	.01	0.320	.749
Self-assessment of school success	-.08	.04	-.07	-2.116	.035
Interest to sport	-.03	.04	-.04	-.44	.448
Trauma experince	-.16	.05	-.11	-.32	.001
Smoking by family member	.18	.04	.13	3.839	.001
Smoking of best friends	.018	.04	.13	3.839	.001
Weekly allowance	.32	.01	.24	2.841	.005
R^2	0.158				

The relationship between usage of cigarette, alcohol and other addictive substance

When we look at the relationship between smoking, alcohol and other addictive substances; the rate of alcohol drinking among non-smokers was 27.1%, while 73.2% of regular smokers was drunk and the difference was statistically significant (X^2 = 123.230, p = 0.001); while 2.3% of the non-smoker students was used other addictive substances, 20.7% of the students were used it and the difference was statistically significant (X^2 = 75.448, P = 0.001); Similarly, 2.2% of the students who didn't use alcohol used other addictive drugs, while this rate was 9.8% in the users and the difference was statistically significant (X^2 = 30.818, p = 0.001). In the statistical evaluation, it was observed that alcohol use increased the rate of using other addictive substances by 4.94 times (CI: 2.66-9.14).

The effectiveness of substance addiction training

69.1% of the students stated that they found useful in substance addiction training. Considering the relationship between some variables and usefulness of preventive training; students living in district centers (74.4%) compared to to the provincial center (65.2%) (p> 0.05, X^2 = 9.535); the male students (72.2%) compared to female (65.7%) found that trainings were more useful (p> 0.05, X^2 = 4.949). In addition, as the number of education increased, the rates of perception of useful were increased, specially by the first year students (X^2 = 7.542, p = 0.056) and the vocational high school students (X^2 = 4.951, p = 0.016). Looking at the relationship between substance addiction and educative satisfaction; school teachers were the least effective group for students; the most influential group was external experts (X^2 = 28.087, SD = 5, p = 0.001).

4. DISCUSSION

When the studies on prevention of addiction in children and adolescents are considered, the benefits of some programs are highlighted and it is seen that there is no ideal program to recommend. Programs with content focused on social influences. Programs with content focused on social influences' knowledge, resistance skills, and that use participatory or interactive session were more effective than a classical universal approach. Research indicates that parents, schools, social environment play an important role in the reduction in substance use at young people (Faggiano et al., 2005). In this study, the effects of multiple interventions targeting adolescents, their families and the social/cultural environment have been evaluated in the large time period. Within the scope of these interventions, the parent-child relationships, peer refusal skills, role-playing, social pressures, and providing information session were taking place.

Three year results with numbers

According to the findings, it was seen that the trend of using cigarette and alcohol was decreasing in comparison with the data of 2015. The trend of using other addictive drugs, mostly cannabis, has been on an upward trend. Although this study includes smoking and alcohol consumption trend downward, these rates are still higher than the average of Turkey. According to TUBIM (Turkish Monitoring Center for Drugs and Drug Addiction), 8.3% of the students were smoking cigarettes, and 9.7% were using alcohol in Turkey (TUBIM, 2014). The province where the study is carried out has some disadvantages such as historical trauma and discrimination, it is thought that this situation affects the next generations. Alcohol consumption in this study is more readily tolerated than in other parts of Turkey due to cultural difference. Therefore culturally alcohol use among adolescents in our city needs to be effectively addressed because of the early onset of alcohol use is associated with problematic substance abuse in later adolescence (Currie et al., 2012:155-162).

According to the findings obtained in the study, the tendency to decrease at alcohol use in 3 years follow-up was higher than cigarette use. In the meta-analysis study of Storm et al. (2014), it was stated that alcohol-related prevention studies in schools changed the results of alcohol use in a small portion but this change was positive. As with all over the world (Johnston, O'Malley, Bachman, & Schulenberg, 2011), in Turkey (TUBİM, 2014:155) and also carried out in the province where the work is noteworthy that the increase related to cannabis use. This suggests that more specific studies should be conducted to prevent cannabis use.

Re-evaluation of risk factors

In order to prevent drug addiction, it is important that each country, region, and even the cultural group make a specific risk map and manage the risks according to priorities (Renstrom, Ferri, & Mandil, 2017). In this study, risk factors were re-evaluated in order to reshape the substance addiction prevention programs for adolescents. According to the findings, it was observed that males, 3rd and 4th-grade students, those with low academic achievement, who had a history of trauma, who had cigarette smoking between their family and close friends, had a higher risk of using the drug than others. In addition, it was observed that there was a close

relationship between smoking, alcohol and other addictive substances and the use of cigarette and alcohol increased the tendency toward other relative substances. According to SEAPSAS scores, students who study in the district and vocational high schools are also added to the risk factors. According to the risks identified in this study, new plans were made at the beginning of 2018-2019 academic year in order to reduce the dependence by the Coordination Council on Combating Addiction and the National Education Directorate.

The Relationship Between Addiction of Cigarette, Alcohol and Other Addictive Substance

According to the findings of the study; the use of cigarettes, alcohol and other addictive substances seems to be related to each other. Similar findings can be found in other studies (Engel, Scalf, 2010; Harrell, Trenz, Scherer, Ropelewski, & Latimera, 2012). According to culture and different geographies, the initial substance may change. For example, in Turkey cigarette use, in European countries, alcohol, marijuana may be the initial starting substance. The use of a substance changes the susceptibility and response to other substances because the brain's reward center is stimulated (Levine, et al., 2011; Weinberger, Platt, & Goodwin, 2016). Epidemiologic and preclinical data suggest that the use of marijuana in adolescence could influence multiple addictive behaviors in adulthood. In this study, alcohol and cigarettes are the first tried substances due to cultural tolerance.

The effectiveness of substance addiction training

In this study, the effectiveness of the training conducted in schools as part of the multi-intervention program was evaluated. Education has been used as the most important protective method. With age-gender-cultural appropriate information about the harm associated with substance use is a key component in prevention programming (Suls, Luger, & Curry, 2012; Lipari, 2017). When the number of studies increased, the self-efficacy level of the students was observed to be increased. In the meta-analysis study of Tobler et al. (2000), it was seen that the number of sessions increased and the effectiveness of the programs increased. In the study of Onrust et al. (2016), it was stated that substance addiction prevention studies according to developmental perspective should be structured differently according to age groups in adolescents. In this study, Onrust et al. (2016) proposed different types of education according to age groups. While the resistance and rejection skills of secondary school students were studied, it was based on the social influence approach and harm approach.

In this study, the majority of the students stated that they found the substance addiction prevention training beneficial and especially the risk groups were more affected by the training. Those living in rural areas, high school students and male students stated that they found the training more useful. Prevention programmes and related interventions are most effective during critical transition periods, for example the period of transition from middle to high school (Renstrom, Ferri, & Mandil, 2017), high school to university. When the educators were evaluated, it was seen that the students were more affected by the experts they did not know before, than the school teachers. In meta-analysis studies, it was observed that students were more affected by health professionals, external experts and interactive methods (Espada, Rosa, & Méndez, 2003). In the same

study, it was seen that educational techniques that appeal to different sensory organs at the same time were more beneficial.

5. CONCLUSION

According to the findings of the multidimensional prospective follow-up study aimed at preventing substance addiction, comprehensive preventive intervention has a positive effect on smoking and alcohol dependence and has no effect on other other addictive substances such as cannabis. When the school-based training were evaluated; the majority of the students, especially the risk groups, found the training useful. In this respect, continuity of multidimensional programs to prevent substance addiction should be ensured, and it is recommended to continue to evaluate the effects of long term effects in larger samples.

Limitations

This prospective fallow up study, reflecting results containing a specific region and cannot be generalized to the Turkey population. The findings gathered from the study are subjective because they are based on students' self-report.

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