

SUGGESTIBILITY AND SUBSTANCE ABUSE AMONG ADOLESCENTS: EXAMINING THE ASSOCIATION THROUGH STRUCTURAL EQUATION MODELING

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ABSTRACT

Objective: To examine the association between suggestibility and drug abuse while controlling the effect of socio-demographic variables.

Methodology: It was a cross sectional survey conducted in three different professional institutes, namely Khyber Medical University, University of Engineering and Technology Peshawar and Ghulam Ishaq Khan University Swabi, Khyber Pakhtunkhwa, from March to April 2012. A total of 300 students both male and female in the age range of 19-25 years were enrolled from different programs. Purposive sampling technique was used to collect the data. Demographic Data Sheet, Short Suggestibility Scale (SSS) and Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) were used. The suggestibility scale has a good reliability (i.e., Cronbach's alpha = .85). Spearman's rank correlation test was used to measure the association between the two variables.

Results: The correlations analysis presented a negative relationship between age and substance use and a positive correlation between substance use and living status suggesting that young adolescents and adolescent living in their homes were more vulnerable to substance use. Suggestibility appeared to have the strongest relationship with drug abuse (i.e., $r_s = -.47$, $p < 0.01$) presenting it as one of the key indicators of drug abuse.

Conclusion: Age, living with family and suggestible personality traits are vulnerability factors for substance abuse.

Key Words: Adolescent, Substance abuse, Suggestibility, Structural Equation Modeling

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INTRODUCTION

Substance use has become a major health issue among students all over the world¹. Many researches figure out the excessive substance use among student population². This is the time when university students are in period of transition from adolescence to early adulthood, which provides attractive opportunity to be the part of a large group of peers and usually proceed without parental guidance and supervision. Gau et al³ found out the provoking variables such as psychiatric, psychosocial problems and substance use among adolescents. Substance use was studied with psychosocial variables e.g. male gender, low socio economic status

(SES), inadequate parental practices and psychiatric predictor's e.g. ADHD, conduct disorder and depression⁴. On the other hand, the effect of substance use on adolescent brain development was also investigated. A study was conducted to see the effect of substance use on adolescent and concluded that brain abnormalities can be the result of substance use which ultimately causes poor cognitive performance, change in brain volume and white matter quality⁵. Additionally, marijuana use may also deteriorate the spatial working memory efficiency⁶. A consistent finding relates SES with psychiatric illness as well⁷. Previously, alcohol use was found in adults with lower SES⁸ while high SES was also related with substance use⁹. Patrick et al¹⁰ reported that young

adults belonging to high SES show more inclination towards using alcohol and marijuana. Goodman & Hang¹¹ found out that white teenagers with low SES were using alcohol, cigarettes and cocaine. Being male and living in boarding may cause increased substance use in male students population¹².

Low parental education and moderate household income was also associated with smoking in adolescents¹³. On the other hand, adolescents with high SES have a greater propensity to develop substance use disorder. In another research by Keyes et al¹⁴ there is an indication of positive relationship between hazardous use of alcohol and income. Galea et al¹⁵ also studied the same phenomenon. While Lawrence¹⁶ investigated the eco system variables (family income & parental education) with substance use and concluded the significant relationship among them. Wilkinson¹⁷ proposed a model that leads to develop the impact of SES on depression and substance use. The SES, drug abuse and the mediating role of depression was also reported¹¹. Another factor that may influence vulnerability to drug abuse is suggestibility, which is similar to compliance. This topic is greatly discussed under forensic setting particularly in interrogation process and its relationship with false confession¹⁸. Alcohol use can affect the suggestibility of university students¹⁹. Therefore, the present study was aimed at figuring out, the relationship of suggestibility with drug abuse, age, living status and socioeconomic status.

METHODOLOGY

This cross sectional study was conducted on a sample of 300 students both boys and girls with age range 19-25 years from March to April, 2012. Data were collected using purposive sampling technique from three different universities of Khyber Pakhtunkhwa including Khyber Medical University, Engineering University of Science and Technology and Ghulam Ishaq Khan University Swabi.

Demographic sheet comprised of age, gender, SES and residence (hosteller/day scholar), alcohol, smoking and substance involvement screening test (ASSIST V3.0). ASSIST was developed by WHO²⁰. The said scale screens risky behavior related to substance use in adults. It consists of eight questions covering tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants (including ecstasy) inhalants, sedatives, hallucinogens, opiates and 'other drugs'. The scores are grouped into 'low risk', 'moderate risk' & 'high risk'. Short Suggestibility Scale (SSS) was developed by Kotov, Bellman and Watson²¹. The scale consists of 21 items. It is a 5-point rating scale with numerical weightage as 1 for 'not at all'; 2 for 'a little or very slightly'; 3 for 'somewhat'; 4 for quite 'a bit'; and 5 for 'a lot'. Possible score on suggestibility ranged from 21 to 105.

After having permission of the management, the participants were provided an explanation of the general nature of the research. They were informed of their right to confidentiality and anonymity, as well as their right to suspend participation without penalty. Those who decided to participate were asked to complete the demographic data sheet comprising information e.g. gender, age, institute, SES and residence. Later on, SSS and ASSIST were administered. Spearman's rank correlation test was used to measure the association between the two variables. Further analyses were conducted to estimate the effect of suggestibility on drug abuse by controlling the effect of demographics. A step by step approach was used to develop and test a model to predict drug abuse. In the first step, confirmatory factor analysis was conducted for the latent factor suggestibility using the 21 items SSS. The scale had good reliability (i.e., Cronbach's alpha = .85); confirmatory factor analysis (CFA) was conducted to confirm the factorial validity of the scale. The resulting model fit index suggested a poor fit of the data to the CFA model i.e., χ^2 (df) = 406.70 (189), CFI = 82, TLI = 80, and root mean square error of approximation (RMSEA) = .06.

RESULTS

A preliminary analysis suggested younger adolescents and living in their home are more vulnerable to drug abuse compared to older adolescents and those living in hostels. Further, Table 1 presents negative correlation between drug abuse and SES, suggesting that people with higher socioeconomic status are less vulnerable to drug abuse. Along with all these demographics, suggestibility appeared to have the strongest relationship with drug abuse (i.e., $r_s = -.47$, $p < 0.01$) presenting it as one of the key indicators of drug abuse.

Results suggested very low loading for the first item on suggestibility. Item 1 was excluded from the CFA model and some error covariances were incorporated. The resulting CFA model of suggestibility based on the 20 items scale presented a good model fit i.e., χ^2 (df) = 192.15 (153), CFI = 97, TLI = 96, and RMSEA = .03. All items loaded well on the latent factor suggestibility ranging from .33-.65. In the next step outcome variables i.e., drug abuse was incorporated in the model and effect of latent variable suggestibility was estimated on addiction controlling for the effect of age, living status and socioeconomic status. The results indicated a good model fit i.e., χ^2 (df) = 304.53 (232), CFI = 97, TLI = 96, and RMSEA = .03, and the model suggested that even after controlling for the effect of age, living status, socioeconomic status, suggestibility was a significant predictor of addiction (i.e., $\beta = -.11$, $p < .05$) and explained 16% variance in drug addiction.

Finally, the model was tested across gender to test its applicability across male and female adolescents. The

Table 1: Correlation between study variables (Spearman's rho)

Variables	Drug Abuse	Age	Living Status	Gender	SES
Age	-.16**				
Living Status	.17**	.03			
Gender	.16**	.03	.23**		
SES	-.38**	.22**	-.12*	.07	
Suggestibility	-.47**	.18**	-.11	.01	.23**

Table 2: Model fit indices

Models	X2 (df)	CFI	TLI	RMSEA
L1	406.70 (189)	0.82	0.8	0.06
L2	192.15 (153)	0.97	0.96	0.03
M1	304.53 (232)	0.94	0.93	0.03
M2	552.29 (468)	0.94	0.92	0.03
M3	569.44 (494)	0.94	0.94	0.02

CFI=Confirmatory factor index, TLI= Tucker-Lewis Index, RMSEA= Root Mean Square Error of Approximation

L1 : CFA model with 21 items short suggestibility scale

L2: CFA model with 20 items short suggestibility scale

M1: Model predicting drug abuse with latent suggestibility controlling for age, SES and place of residence

M2: M1 across gender

M3: M1 across gender with equality constraints for male and female population

results presented a good model fit (Table 2) suggesting that model is applicable for both male and female population and explained 21% variance in females in comparison to 16% variance in male population. Finally, the effect of parameters was tested for equality constraints across gender. The results suggested equal effect of suggestibility i.e., $\beta = -.13$, $p < .05$ for both males and females; whereas SES appear to have slightly higher effect on drug abuse in female population i.e., $\beta = -.42$, $p < .01$ compared to their male counter parts i.e., $\beta = -.35$, $p < .01$. In all aspects, the model suggested crucial impact of suggestibility on drug abuse.

DISCUSSION

The results of the present study highlighted that young population is more vulnerable to substance use. The present findings are in line with the previous literature²². Adolescence period is usually considered vulnerable time for developing risky behavior. Substance use is one of the most common risky behaviors. It is well established that adolescents having drug using friends will have more chances to develop the same habit²³. Friends not only facilitate for drugs in term of access as

well as help to make a positive image towards the use of drug on the other hand, collision and malevolence among friends also lead towards substance use. However, some researches indicate the positive features of friendship and low level of substance use²⁴. Parent child relationship, home environment and family conflict have strong impact on adolescent's social behavior. Parents-child relationship characterized by positive attributes e.g. parent support, encouragement, praise, attachment may link to less substance use²⁵.

The current findings are not supporting the hypothesis that students living in hostels will be more prone to substance use. It seems that parental conflict and home environment may influence the adolescent behavior more strongly as compared to peer pressure. Effective parenting is important in rearing a child's life and there is documented negative relationship between adolescent substance use and parenting style²⁵. Parental knowledge was also associated with adolescent substance use. For instance, positive parent-child communication and relation give awareness to the parents about their child's friendships, their activities and whereabouts²⁶. Another study concluded that positive parenting can reduce

substance use risk among adolescents²⁷. However, paternal and maternal knowledge was studied separately which concluded that maternal knowledge is stronger variable as fathers are less involved in parenting²⁸. Parental education and relationship with adolescent substance use may be explained by the fact that they fail to fill the communication gap which can otherwise reduce the risk of tobacco and alcohol use among adolescents²⁹. A negative correlation between drug abuse and SES was found. The present finding is consistent with a growing number of studies³⁰. SES usually refers to these inequalities i.e. house hold income³¹, parental education and occupation. These factors ultimately affect the upbringing of their children. One of the more perplexing finding in this study was a strong association of adolescent with suggestible personality component and drug use. The analysis also confirmed the factorial validity of the scale on both male and female. The present result determined a very strong relationship between suggestibility and drug abuse.

CONCLUSION

Younger adolescents and living at home are vulnerability factors for substance abuse as compared to hostellers. The study also concluded that suggestibility in personality can predict substance use.

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CONTRIBUTORS

UK conceived the idea, designed the study and drafted the manuscript. JM helped collection of data, analyzed and compiled results, critically appraised the draft and did corrections after reviewers' suggestions. All authors contributed significantly to the submitted manuscript.