ADOLESCENT RISK TAKING BEHAVIORS: THE CASE OF GEORGIA

Shorena Sadzaglishvili, PhD, MSW
Ilia State University, Georgia
Cholokashvili Str 3/5, Tbilisi 0162

Abstract:

A Unified Theory of Behavior (UTB) was used to answer the main questions: (1) Is a person's intention to perform a behavior is a strong predictor of his/her risk behavior? (2) Which factors are the most influential that affect adolescent risk behaviors, such as tobacco smoking, drug and alcohol abuse? In order to understand these risk behaviors survey data were collected from the 9th and 11th graders of the biggest secondary public schools of Georgia by using self-administered questionnaires (958 respondents). The major classes of variables that are most highly correlated with behavioral intentions and behavior were identified. Based on the obtained data effective intervention model was designed for each risk behavior. These models underline the factors that show the most promise for producing behavior change among the Georgian youth.

Key Words: *Adolescence, drug and alcohol abuse, tobacco smoking, health behavior.*

1. Introduction

Adolescence (10 to19) is the time when the majority of people tend to risk taking behaviors such as tobacco smoking, drug and alcohol use. Social scientists have devoted considerable attention to developing theories of adolescent risk taking behaviors. In our study we focus on Unified Theory of Behavior which unifies macro and micro level theories such as the Theory of Reasoned Action as developed by Ajzen and Fishbein (1981), Bandura's Social Learning Theory (Bandura, 1975, 1986), various versions of the Health Belief Model (Janz & Becker, 1984; Rosenstock, Strecher & Becker, 1988), Self Regulation Theories (Kanfer, 1975), and Triandis' (1972) Theory of Subjective Culture (Jaccard, Dodge and Dittus, 2002).The core variables of the model are organized into two sequences. The first sequence focuses on the immediate determinants of behavior and the second aspect of the framework focuses on the determinants of an individual's willingness, intention, or decision to perform a behavior. Behavior is influenced by five core variables such as (1) intention or decision to perform behavior, (2) knowledge and skills to perform behavior, (3) environmental constraints, (4) salience of behavior, (5) habit and automatic processes. These five variables interact in complex ways to determine behavior. In general, a positive behavioral intention is a necessary but not sufficient condition for behavioral performance to occur. Behavior is most likely to occur when each of the variables join together toward behavioral performance. Behavioral intention is influenced by 6 factors, such as (1) attitude toward behavior, (2) social norms, (3) beliefs and expectations, (4) self-concept, (5) affect and emotions, and (6) self-efficacy. Thus, adolescent's attitude toward risk taking behaviors (tobacco, drug and alcohol abuse), social norms, beliefs and expectations, self-concept, affect and emotions and self-efficacy influences behavioral intention of risk taking behavior, which influences risk taking behavior itself (Guilamo-Ramos et al, 2008).

Thus, to understand adolescent intentions to engage in a risk taking behavior, one should consider (1) their attitudes about performing the behavior, (2) their expectancies about the advantages and disadvantages of performing the behavior, (3) the normative pressures to perform the behavior, including whether important others approve or disapprove of their actions (injunctive norms) as well what their peers are doing (descriptive norms); (4) their ability to perform the behavior and the obstacles that may impede behavioral performance; (5) the social images they will project if they perform the behavior; and (6) how the behavior "feels" to them emotionally and affectively (Guilamo-Ramos et al, 2008).

The present study applied the above framework, focusing on six factors that influence adolescent's risk taking behavioral intention or decision-making and then behavior itself (partial mediation). In addition, we studied possible moderating effects of grade, gender and region on behavioral intention's effect on risk taking behavior itself. Our general working hypotheses were the following: (1) adolescent intention (dependent variable) is affected by such independent factors as adolescent's attitude, social norms, beliefs and expectations, self-concept, affect and emotions and self-efficacy and (2) behavioral intention itself determines adolescent's actual behavior.

2. Method
2.1. Respondents

958 adolescents (490 girls and 458 boys) were randomly selected from 9th and 11th grades from nine different public schools located in the biggest cities - Tbilisi (3 schools), Kutaisi (3 schools) and Batumi (3 schools) of Georgia. The biggest schools in the region were selected. Respondents were aged from 13 to 18. We used three different likert style self-administered questionnaires for measurement of tobacco smoking, drug and alcohol abuse and consequently, we conducted three different surveys. In each above-mentioned city, we conducted all three surveys (one survey per school); Totally, 312 adolescents from the above mentioned regions of Georgia participated in tobacco smoking survey, 335 - in drug abuse survey, and 311 adolescents in alcohol abuse survey; In addition, equal number of 9th (13,14,15 yeas old) and 11th (16,17,18 years old) graders were selected.

2.2. Measures

The content of the measures was developed using focus groups. Totally 6 focus groups were conducted in 6 schools of the capital city - Tbilisi. The schools were located in the different districts (2 focus groups on tobacco smoking, 2 focus groups on drug abuse, and 2 focus groups on alcohol abuse for 9th and 11th graders); 63 pupils (app.10-12 per focus groups) participated in focus groups (totally 28 female and 35 males);

Adolescents were interviewed with open-ended questions. They were asked about the advantages and disadvantages of engaging in risk taking behavior (in other words, expectancies and beliefs), about their attitudes, norms (to identify relevant referents), affect (to identify relevant emotions), self-efficacy (to identify relevant obstacles), and self-concept (to identify relevant attributes for the social prototypes) and the answers they gave were content analyzed. These focus groups were used in order to inform the language (slang) used in the questions. In addition, the most frequently mentioned advantages and disadvantages; emotions, norms, etc. were used to construct the closed-format questions for each variable category used in the each surveys- tobacco smoking, drug and alcohol abuse. The surveys were pilot tested for readability and comprehension.

We included customary demographics to assess the main tendencies regarding the risk taking behaviors. Mostly we structured our items in such a way that respondents use either a five-point disagree-agree scale, or a five-point positive-negative scale (very positive, moderately positive, neutral, moderately negative, very negative).

Tobacco Smoking Questionnaire included 96 questions, drug abuse questionnaire comprised of 105 questions and alcohol – 115 questions. The questions were distributed in 7 different units: demographics, self concept, social norms, beliefs and expectancies, emotions, self-effectiveness and attitude. In addition, all questionnaires included likert type questions regarding adolescent's self-confidence and current and future happiness.

Behavior. Tobacco smoking as well as binge drinking behavior are measured by the statements: "If I had the opportunity, I would smoke cigarettes now" and "If I had the opportunity, I would get drunk now"; For marijuana smoking we used the question "Have you ever smoked marijuana even just one or two puffs"; All they required dichotomous answers "yes" or "no";

Behavioral Intentions. Behavioral intention to engage in risk taking behavior was assessed based on responses ("yes" or "no") to the statement "I plan to smoke tobacco, marijuana or get drunk" in the next six months. Responses were scored dichotomously reflecting whether the

adolescent have planned risk taking behavior.

Expectancies. It combined of an equal number of positive and negative statements of expectancies. Adolescents responded to statements using a 5 point agree-disagree scale. Example items include (1) If I had smoked cigarettes (or marihuana or alcohol) at this time in my life, I would feel more "grown up," (2) If I had smoked cigarettes (or marihuana or alcohol) at this time in my life, I would be more popular with the opposite sex, (3) If I had smoked cigarettes (or marihuana or alcohol) at this time in my life, it would be morally wrong, (4) If I had smoked cigarettes (or marihuana or alcohol) at this time in my life, it would interfere with school, etc.

Social Norms. To assess descriptive norms (base rates), respondents were asked to name how many close friends they had and then to estimate how many of these friends had engaged in risk taking behaviors. They were also asked to define whether their parents, mother and father were actually involved in risk taking behaviors. Respondents also estimated the number of teens in their grade who had engaged in risk taking behaviors. Injunctive norms were assessed by asking respondents to rate how strongly specific referents would approve or disapprove of them engaging in risk taking behaviors at this time in their life, using a five point scale from 1=strongly disapprove, 2=moderately disapprove, 3 – neither, 4- moderately approve and 5 = strongly approve. The referents were (1) mother, (2) father, (3) friends, (4) close friends, (5) boyfriend or girlfriend, (6) a relative other than one's parents. If a referent was not relevant (e.g., boyfriend/girlfriend), the respondent was instructed to skip the item.

Self Concept. It combined of an equal number of positive and negative statements of self concept. The prototype of an adolescent who engages in risk taking behavior was assessed by asking respondents to indicate their agreement or disagreement (on a five point scale) with statements about "girls" (or "boys" in the case of male respondents) who are engaged in risk taking behaviors. The example statements were (1) Girls who have smoked marihuana are confused about what is right and wrong, (2) Girls who have smoked marihuana are popular with boys, etc. An overall evaluation of the prototype was obtained by asking respondents to respond to the following item on a five point negative to positive scale: "Overall, my impression of girls who have engaged in risk taking behavior is...."

Self-Efficacy. Self efficacy was measured using four items, each responded to on a five point agree-disagree scale: (1) It would be easy for me to smoke a cigarette (smoke marihuana or using alcohol) if I wanted to, (2) It would be easy for me to get a cigarette (marihuana or alcohol), if I wanted to. (3) if one of my friends offered me a cigarette (smoke marihuana or using alcohol), it would be easy for me to say no. (4) if my girl-friend (or boy-friend) offered me a cigarette (marihuana or alcohol) it would be difficult to say no.

Affect and Emotion. Mainly our emotional reactions were assessed, each using a five point agree-disagree scale: (1) When I think about smoking cigarettes, I feel scared, (2) When I think about smoking cigarettes, I feel nervous, (3) When I think about smoking cigarettes, I feel happy, and (4)The thought of smoking cigarettes is disgusting. For using marijuana, we added (5) When I think about smoking marijuana, I get feeling of protest.

Attitude: 2 Attitudes were assessed by 5 point scale (strongly negative – strongly positive); (1) Overall, how would you describe your attitude toward you smoking cigarettes, using marihuana, or drinking at this time in your life, (2) Overall, how would you describe your attitude toward you NOT smoking cigarettes, using marihuana, or drinking at this time in your life.

2.3 Procedure

Trained instructors conducted self-administered "paper and pencil" format survey. Classes (9th and 11th graders' classes) in the selected schools were chosen randomly. Instructors reviewed instructions orally in order to eliminate warm-up effects and ensure scale understanding. In order to encourage truthful responding, instructors assured adolescents that their responses would be confidential and explained to them the difficulty in linking a name to a questionnaire.

All participants were informed that participation was voluntary and they could choose to withdraw from the study at any time and they could choose not to answer any question they would prefer not to answer.

2.4.Analysis methods

The results were analyzed using statistical package for social science (SPSS.18). Logistic Regression Analysis was used for assessing the relationship between dependent variable (intention to risk taking behavior and risk taking behavior itself) and other factors such as self-concept, social norms, beliefs and expectancies, affect, self-effectiveness and attitude. In addition, descriptive statistics, crosstabulation (Chi-Square analyses) as well as parametric and nonparametric correlations were used to prepare data for performing Logistic Regression.

3. Results

Our results basically support our hypotheses. There are factors identified as having the most influence on adolescent intention to perform risk taking behaviors, e.g. tobacco smoking, drug and alcohol abuse, and risk taking behavior is always determined by his/her behavioral intention to perform this risk taking behavior. In addition, gender, grade and region may have impact on risk taking behavior; however, in our research they do not have the role of moderator for behavioral intention to smoking tobacco and marijuana. Only grade has moderating effect on adolescent's behavioral intention to binge drinking.

3.1. Tobacco smoking

Self-concept. The first analysis examined only the behavioral intention to smoking tobacco associated with twenty one self-concept variables. The analysis was significant ($X^2 (3)=35,071$, $p=0,000$, $R^{2 \text{ Nagelkerke}}=0.393$) and three of the variables were found to be significant predictors (1) "Girls/Boys who smoke cigarettes can control themselves well" ($B=1,289$, $p=0.000$); (2) "Girls/Boys who smoke cigarettes are addicted to cigarettes" ($B=-0,615$, $p=0,002$) and (3) "Girls/Boys who smoke cigarettes have weaker health" ($B=-0,594$ $p=0,005$). In this case, the model three variables can predict that risk taking behavior is observed in the data 92% of the time. Thus, adolescents who have intention to smoke cigarettes are more likely to have self concept that underlines the following characteristics: smokers have a good self-control, are not addicted to cigarettes, and are healthy.

Social Norms. The first analysis examined only the behavioral intention to smoking tobacco associated with six social norm variables. The analysis was significant ($X^2(2)=38,649$, $p=0,000$, $R^{2}_{\text{Nagelkerke}}=0.398$) and two of the variables were found to be significant predictors (1) "Of your close friends, how many have smoked cigarettes" ($B=1,136$, $p=0.000$) and (2) "How much would your close friend approve or disapprove of you smoking cigarettes at this time in your life" ($B=1,111$, $p=0.001$). In this case, the model two variables can predict that risk taking behavior is observed in the data 92% of the time. Thus, adolescents who have intention to smoke cigarettes are more likely to live in the social environment where their close friends smoke cigarettes and the best friends would totally approve their smoking behavior.

Expectancies. The first analysis examined only the behavioral intention to smoking tobacco associated with twenty two expectation variables. The analysis was significant ($X^2 (5)=34,304$, $p=0,000$, $R^{2 \text{ Nagelkerke}}=0.470$) and five of the variables were found to be significant predictors (1) "I would feel guilty and embarrassed" ($B=-1,119$, $p=0.000$); (2) "My teeth would turn yellow" ($B=-0,632$, $p=0,001$); (3) "I would be starting smoking marijuana soon" ($B=-0,524$, $p=0,007$), (4) "My father would punish me" ($B=-0,385$, $p=0,020$) and (5) "I would feel more grown up" ($B= 0,484$. $p=0,029$). In this case, the model five variables can predict that risk taking behavior is observed in the data 94% of the time. Thus, adolescents who have intention to smoke cigarettes would have the following expectancies and beliefs: (1) they would not feel guilty or embarrassed because of smoking cigarettes, (2) they would not expect that their teeth would turn yellow, (3) they would not probe to smoke marijuana as well, (4) they would not expect that their fathers would punish them

because of smoking, and (5) they would feel more grown up.

Affect. The first analysis examined only the behavioral intention to smoking tobacco associated with two affect variables. The analysis was significant (X^2(1)=53,088, p=0,000, R^2 Nagelkerke=0.351) and one variable was found to be significant predictor "I feel scared when I think about smoking cigarettes now" (B=-1,390, p=0.000). In this case, the model one variable can predict that risk taking behavior is observed in the data 91% of the time. Thus, adolescents who have intention to smoke cigarettes would not be scared while thinking about smoking cigarettes.

Self-effectiveness. The first analysis examined only the behavioral intention to smoking tobacco associated with four self-effectiveness variables. The analysis was significant (X^2(2)=14,757, p=0,000, R^2 Nagelkerke=0.168) and two of the variables were found to be significant predictors (1) "If one of my friends offered me a cigarette it would be easy for me to say no" (B=-0,452, p=0.000) and (2) "It would be easy for me to get cigarettes if I wanted to" (B=0,438, p=0.004). In this case, the model two variables can predict that risk taking behavior is observed in the data 91% of the time. Thus, adolescents who have intention to smoke cigarettes would find it difficult to say "no" to someone who offers cigarettes and it would be easy for them to smoke cigarettes if they like to do so.

Attitude. The first analysis examined only the behavioral intention to smoking tobacco associated with two attitude variables. The analysis was significant (X^2(1)=41,905, p=0,000, R^2 Nagelkerke=0.281) and one variable was found to be significant predictor "Overall, how would you describe your attitude toward you smoking cigarettes at this time in your life?" (B=1,199, p=0.000). In this case, the model one variable can predict that risk taking behavior is observed in the data 91% of the time. Thus, adolescents who have intention to smoke cigarettes would have very positive attitude toward smoking.

Relationship between the factors affecting behavioral intention and a risk taking behavior-tobacco smoking – an integrated model for prediction of tobacco smoking. All variables having high prediction value for behavioral intention to smoke cigarettes participated in the final regression model. In addition, correlations between predictors were also calculated. Between attitude toward smoking and one of the social norm variables (the best friend's approval/disapproval) were found high correlation (r=0,504), for this reason the last one was excluded from the analysis.

Logistic regression analysis examined 14 predictors in the model and three of the variables were found to be significant (X^2(3)=85.613, p=0,000) after controlling for all the other variables in the model: gender, grade and region. Behavioral intention is a mediator for adolescent's attitude and expectancies to affect smoking behavior as behavioral intention itself is highly correlated with tobacco smoking (X^2(1)=94.596, B=2,358, p=0.000). The model three variables can predict that risk taking behavior is observed in the data 97% of the time. There are no moderating effects of gender, grade and region on behavioral intention to tobacco smoking affecting risk taking behavior – tobacco smoking. See table #1.

Table #1: Integrated Model for Prediction of adolescent's smoking behavior.

Items of Intention, Attitude, Expectancies	B	S.E.	Sig	Direct Effects of Distal Factors	
Intention to smoke cigarettes	2,420	.205	0,000		X^2 (3)=85,613 p= 0,000 2 log Likelihood =107 R^2 Cox-Snell =0,343 R^2 Nagelkerke =0,702
Positive attitude toward smoking cigarettes	1,366	.183	0,000	1,649	
If I smoked cigarette, my father would	-0,648	.162	0,002	-0,731	

punish me					

Thus, app. 10.9% of adolescents are regular smokers of tobacco. Adolescents who smoke cigarettes have a high behavioral intention to smoke cigarettes, they have positive attitude toward smoking and they are not afraid of their fathers' punishment in the case if they smoke (expectancies and beliefs).

3.2. Marijuana smoking

Self-concept. The first analysis examined only the behavioral intention to marijuana smoking associated with twenty self-concept variables. The analysis was significant (X^2 (2)=27,388, p=0,000, $R^{2\ Nagelkerke}$=0.354) and two of the variables were found to be significant predictors (1) "Girls/boys who smoke Marijuana are cool." (B=1,062, p=0.000); (2) "Girls/boys who smoke marijuana are regular people" (B=0,766, p=0,010). In this case, the model two variables can predict that risk taking behavior is observed in the data 96% of the time. Thus, adolescents who have intention to smoke marijuana are more likely to have self concept that underlines that they are cool and are alike to others who do not smoke (in other words, girls and boys who smoke marijuana are regular people, not different from their mates);

Social Norms. The first analysis examined only the behavioral intention to marijuana smoking associated with four social norm variables. The analysis was significant (X^2 (2)=31,353, p=0,000, $R^{2\ Nagelkerke}$=0.335) and two of the variables were found to be significant predictors (1) "How much would your friends approve or disapprove of you smoking marijuana at this time in your life" (B=1,367, p=0.000) and (2) "Of your school mates, how many think that it is OK to smoke marijuana" (B=0,822, p=0.004). In this case, the model two variables can predict that risk taking behavior is observed in the data 95% of the time. Thus, adolescents who have intention to smoke marijuana are more likely to live in the social environment where their friends approve smoking marijuana and the majority of schoolmates think that it is acceptable to smoke marijuana.

Expectancies. The first analysis examined only the behavioral intention to marijuana smoking associated with thirteen expectation variables. The analysis was significant (X^2(3)=37,580, p=0,000, $R^{2\ Nagelkerke}$=0.501) and three of the variables were found to be significant predictors (1) "It would be common thing" (B=1,071, p=0.000); (2) "I would get pleasure" (B=0,895, p=0,005); and (3) "I would be less stressed" (B=0,469, p=0,039). In this case, the model three variables can predict that risk taking behavior is observed in the data 97% of the time. Thus, adolescents who have intention to smoke marijuana would have the following expectancies and beliefs: (1) they would think that it is a common thing (2) they would get pleasure (3) they would be less stressed.

Affect. The first analysis examined only the behavioral intention to marijuana smoking associated with two affect variables. The analysis was significant (X^2 (1)=25,789, p=0,000, $R^{2\ Nagelkerke}$=0.218) and one variable was found to be significant predictor "Thought of smoking marijuana is disgusting" (B=-0,855, p=0.000). In this case, the model one variable can predict that risk taking behavior is observed in the data 95% of the time. Thus, it would not be disgusting to think about smoking marijuana for adolescents who have intention to smoke marijuana.

Self-effectiveness. The first analysis examined only the behavioral intention to marijuana smoking associated with four self-effectiveness variables. The analysis was significant (X^2 (2)=15,615, p=0,000, $R^{2\ Nagelkerke}$=0,196) and two of the variables were found to be significant predictors (1) "If one of my friends offered me marijuana it would be easy for me to say no " (B=-0,582, p=0.000) and (2) "It would be easy for me to get marijuana if I wanted to" (B=0,425, p=0,022). In this case, the model two variables can predict that risk taking behavior is observed in the data 95% of the time. Thus, adolescents who have intention to smoke marijuana would find it difficult to say "no" to someone who offers marijuana and it would be easy for them to get marijuana if they like to do so.

Attitude. The first analysis examined only the behavioral intention to smoking tobacco associated with two attitude variables. The analysis was significant (X^2(1)=39,791, p=0,000, $R^{2\ Nagelkerke}$=0.329) and one variable was found to be significant predictor "Overall, how would you

describe your attitude toward you smoking marijuana at this time in your life?" (B=1,195, p=0.000). In this case, the model one variable can predict that risk taking behavior is observed in the data 95% of the time. Thus, adolescents who have intention to smoke marijuana would have very positive attitude toward marijuana smoking.

Relationship between the factors affecting behavioral intention and a risk taking behavior– marijuana smoking – an integrated model for prediction of marijuana smoking. All variables having high prediction value for behavioral intention to smoke marijuana participated in the final regression model. In addition, correlations between predictors were also calculated. Between adolescent self-concept – "marijuana smokers are cool" and attitude toward smoking and one of the social norm variables (the friends' approval/disapproval) were found high correlations (r=0,561 r=0,501) and for this reason, this self-concept variable was excluded from the analysis.

Logistic regression analysis examined 11 predictors in the model and four of the variables were found to be significant (X^2(4)=46.891, p=0,000) after controlling for all the other variables in the model: gender, grade and region. Behavioral intention is a mediator for adolescent's attitude, self concept and expectancies to affect marijuana smoking behavior as behavioral intention to marijuana smoking itself is highly correlated with marijuana smoking (X^2(1)=53.985, B=1,625, p=0.000); The model four variables can predict that risk taking behavior is observed in the data 91% of the time. There are no moderating effects of gender, grade and region on behavioral intention affecting risk taking behavior. See table #2.

Table #2: Integrated Model for Prediction of adolescent's marijuana smoking behavior.

Items of Intention, Attitude, Self concept, Expectancies	B	S.E.	Sig	Direct Effects of Distal Factors	
Intention to smoke marijuana	1,929	.305	0,000		X^2(4)=46,891 p= 0,000 2 log Likelihood =197 R^2 Cox-Snell =0,245 R^2 Nagelkerke =0,456
Positive attitude towards smoking marijuana	0,865	.164	0,000	1,051	
Girls/boys who smoke marijuana are regular people	0,468	.112	0,002	0, 699	
If I smoked marijuana, It would be common thing	0,320	.107	0,036	0, 404	

Thus, app. 12.5% of adolescents have ever smoked marijuana even just one or two puffs. Adolescents who smoke marijuana have a high behavioral intention to smoke marijuana, they have positive attitude toward smoking marijuana, they have self concept which highlights that they are regular people, they expect that it would be a common thing to smoke marijuana (expectancies).

3.3. Binge drinking

Self-concept. The first analysis examined only the behavioral intention to binge drinking associated with twenty seven self-concept variables. The analysis was significant (X^2(3)= 59,459, p=0,000, R^2 Nagelkerke=0.329) and three of the variables were found to be significant predictors (1) "I am like girls/boys who drink " (B=1,189, p=0.000); (2) "Girls/Boys who drink are traditionalists" (B=0,447, p=0,000) and (3) "Girls/Boys who drink are braggarts" (B=-0,237, p=0,045). In this case,

the model three variables can predict that risk taking behavior is observed in the data 73% of the time. Thus, adolescents who have intention to binge drinking are more likely to have self concept that underlines the following characteristics: they identify themselves as drinkers, traditionalists and do not think that they are "show off" people.

Social Norms. The first analysis examined only the behavioral intention to binge drinking associated with six social norm variables. The analysis was significant (X^2 (4)= 74, 416, p=0,000, R^2 $_{Nagelkerke}$=0.383) and four of the variables were found to be significant predictors (1) "Of your close friends, how many addicted to binge drinking " (B=1,053, p=0.000), (2) "How much would your friends approve or disapprove of your binge drinking" (B=0,579, p=0.002), (3) "Of your school mates, how many think that binge drinking is accepted" (B=0,367, p=0.041) and (4) "How much would your father approve or disapprove of your binge drinking." (B=0,376, p=0.045). In this case, the model four variables can predict that risk taking behavior is observed in the data 75% of the time. Thus, adolescents who have intention to binge drinking are more likely to live in the social environment where their close friends are addicted to binge drinking, their friends would totally approve their drinking behavior, their schoolmates think that binge drinking is accepted, and their fathers would approve their binge drinking.

Expectancies. The first analysis examined only the behavioral intention to binge drinking associated with twenty four expectation variables. The analysis was significant (X^2 (4)= 31,145, p=0,000, R^2 ^{Nagelkerke}=0.255) and four of the variables were found to be significant predictors (1) "I would feel less stressed" (B=0,627, p=0.000); (2) "I would have bad reputation" (B=-0,388, p=0,000); and (3) "I would have fun" (B=0,301, p=0,013) and (4) "I would have difficulties to control myself" (B=-0,262, p=0,029); In this case, the model four variables can predict that risk taking behavior is observed in the data 71% of the time. Thus, adolescents who have intention to binge drinking would have the following expectancies and beliefs: (1) they would feel less stressed, (2) they would not have bad reputation, (3) they would have fun and (4) they would not have difficulties in self-control.

Affect. The first analysis examined only the behavioral intention to binge drinking associated with two affect variables. The analysis was significant (X^2 (2)=52,363, p=0,000, R^2 ^{Nagelkerke}=0.248) and both variables were significant predictors (1) "Thought of binge drinking is disgusting" (B=-0,622, p=0.000) and (2) "I feel happiness when I think about binge drinking now" (B=0,408, p=0.002). In this case, the model one variable can predict that risk taking behavior is observed in the data 70% of the time. Thus, adolescents who have intention to binge drinking would not feel disgusting and they would feel happy while thinking about binge drinking.

Self-effectiveness. The first analysis examined only the behavioral intention to binge drinking associated with four self-effectiveness variables. The analysis was significant (X^2 (2)=10,678, p=0,001, R^2 ^{Nagelkerke}=0.071) and two of the variables were found to be significant predictors (1) "It would be easy for me to get drunk if I wanted to" (B=0,290, p=0.001) and (2) "If one of my friends offered me beverage it would be easy for me to say no " (B=-0,201, p=0,022). In this case, the model two variables can predict that risk taking behavior is observed in the data 60% of the time. Thus, adolescents who have intention to binge drinking would find it difficult to say "no" to someone who offers beverage and it would be easy for them to get drunk if they like to do so.

Attitude. The first analysis examined only the behavioral intention to binge driniking associated with two attitude variables. The analysis was significant (X^2(1)=71,459, p=0,000, R^2 $_{Nagelkerke}$=0.280) and one variable was found to be significant predictor "Overall, how would you describe your attitude toward you binge drinking at this time in your life?" (B=1,131, p=0.000). In this case, the model one variable can predict that risk taking behavior is observed in the data 73% of the time. Thus, adolescents who have intention to binge drinking would have very positive attitude toward binge drinking.

Relationship between the factors affecting behavioral intention and a risk taking behavior-binge drinking – an integrated model for prediction of binge drinking. All variables having high prediction value for behavioral intention to binge drinking participated in the final regression

model. In addition, correlations between predictors were also calculated. Attitude toward binge drinking is negatively correlated with emotion (feel disgusting) (r=-0,589); Self concept (I am like girls/boys who drink) is highly correlated with social norms (Of your close friends, how many addicted to drinking binge) $r = 0,560$ and with attitude toward binge drinking $r = 0,506$; Thus, we excluded from the analysis the above-mentioned attitude and social norm variables.

Logistic regression analysis examined 19 predictors in the model and four of the variables were found to be significant (X^2(4)=63,519, p=0,000) after controlling for all the other variables in the model: gender, grade and region. Behavioral intention is a mediator for adolescent's self concept, emotion and social norms to affect binge drinking behavior as behavioral intention to binge drinking itself is highly correlated with binge drinking behavior (X^2(1)=66,170, B=2,633, p=0.000). The model four variables can predict that risk taking behavior is observed in the data 84% of the time. See table #3.

Table #3: Integrative Model for Prediction of adolescent's binge drinking.

Items of Intention, Self concept, Emotion, Social Norms	B	$S.E.$	Sig	Direct Effects of Distal Factors	
Intention to binge drinking	1,350	.206	0,000		$X^2(4)=63,519$ $p= 0,000$ 2 log Likelihood =223 R^2 Cox-Snell =0,291 R^2 Nagelkerke =0,456
I am like girls/boys who drink	0,734	.308	0,000	1,064	
Thought of binge drinking is disgusting	-0,503	.312	0,002	-0,621	
My father approves my binge drinking	0,433	.107	0,026	0,564	

There are no moderating effects of gender and region on behavioral intention affecting risk taking behavior. Adolescent grade has moderating effect on adolescent' drinking intention affecting behavior (product value = intention*grade, omnibus tests of model coefficients, X^2=79.645, R^2 = 37%, Prediction percentage correct =83%, B=1,876, SE=0,847, p=0,027); This unstandardized regression coefficient is a mean difference comparing the predicted mean for the group of 9th graders with the predicted mean for the 11th graders. It can be interpreted that behavioral intention to drink is more likely to affect drinking behavior in early ages, for 9th graders than for 11th graders.

Thus, app. 20.3% of adolescents drink alcohol regularly. Adolescents who like to drink often have a high behavioral intention to binge drinking, they identify themselves as drinkers (self concept), do not feel that drinking is disgusting (emotion) and their fathers would approve their binge drinking (social norms).

4. Discussion and recommendations

All predictors as well as the behavioral intention to the particular risk taking behavior are important in predicting whether adolescent would follow risk taking behavior or not. Behavioral intention is mediating the relationship between these distal variables and a risk taking behavior. It can be estimated as partial mediation. Only relationship between the intention to binge drinking behavior and the behavior itself is moderated by grade. In other words, the nature of the relationship between behavioral intention to binge drinking and drinking behavior varies, depending on the value of grade. 9th graders will drink as a result of their decision or intention to drink. However, 11th graders may drink without intention to drink. It may be caused by unintended, unplanned situations in which she or he participates involuntarily.

Overall benefits of this research include recommendations to educational policy-makers, administrators, and educators, school social workers about the strategies to reduce risk taking behaviors among adolescents. It will also allow for a better understanding of how prevention programs can be developed based on local research findings. Schools and communities may benefit from the future implementation of the intervention that is tailored at the factors that influence intention to risk taking behaviors such as tobacco and marijuana smoking and binge drinking and the actual risk taking behavior.

Tobacco smoking. According to the research data, adolescents engage in tobacco smoking because they have positive attitude toward smoking. All interventions should be tailored toward decreasing their positive attitudes. In fact, their positive attitude may be caused by a various reasons such as advertisements, approval of smoking among adults, teachers and other referents in the society widely, etc. In fact, adolescent smokers are not afraid of their fathers' punishment in the case if they smoke and their close friends not only approve smoking (normative norms) but also are actual smokers (descriptive norms). It is easy to get cigarettes as there are no existing restrictions in the country that may interfere with adolescents' willingness to smoke. For decreasing adolescents' positive attitude toward smoking all negative effects of smoking should be highlighted such as (1) health problems, (2) teeth yellowness, (3) addiction and self-control problems. All should be done in order to cause negative emotions (to be scared) toward smoking as well.

In addition, it is found that some adolescent engage in tobacco smoking as a result of peer pressure, thus, they should be told some assertiveness strategies that teach students not to be influenced by the others and freely express their opinion. It is found that many adolescent engage in smoking behavior because they want to feel more "grown up". The schools need to have such programs that engage students in variety of activities that underline that students are grown people and they are accepted and trusted by adults.

Marijuana smoking. According to the research data, adolescents engage in marijuana smoking because they have positive attitude toward marijuana smoking, they have developed prototype that does not differ marijuana smokers from others (they are regular people) and they expect that it would be a common thing to smoke marijuana. The positive attitudes toward marijuana smoking can be caused by normative pressure that is caused not only by close friend's approval of smoking marijuana, but also by their perception that the majority of adolescents consider marijuana smoking as a normal behavior. In addition, it is easy to get marijuana even though it can be obtained only by illegal sources. Marijuana smokers are perceived as cools and they just want to get pleasure, get fun and way to spent free time. In order to address it, schools need to have extra curriculum activities that engage students in variety of sport and cultural activities.

This research shows that adolescents who are disposed to smoking marijuana are not familiar with the consequences of marijuana smoking. Consequently, interventions should be tailored at underlining the negative effects of marijuana smoking (health problems, addiction, etc.). All should be done in order to cause negative emotions (marijuana smoking is disgusting) toward smoking as well.

In addition, it is found that some adolescent engage in marijuana smoking as a result of peer pressure, consequently, they should be told some assertiveness strategies (how to say "no") that teach students not to be influenced by the others and freely express their opinion. It is found that many adolescents engage in marijuana smoking because of stress that may be related to their adolescent stage of development; consequently, it is important to teach them strategies that are used for stress management.

Binge drinking. According to the research data, adolescents engage in binge drinking because they identify themselves as drinkers, do not feel that drinking is disgusting and there is a high social pressure (father would approve adolescent's binge drinking) that instigates adolescent to drink. Drinking is considered as a traditional behavior and binge drinkers as traditionalists, not being "show off" people who want to attract others' attention. Injunctive norms (approval of father and friends) as well as descriptive norms (high prevalence and acceptance of drinking behavior

among schoolmates) cause high social normative pressure and positive attitude toward binge drinking. It is easy to have access to drinking in the wide society. It causes positive emotions to get drunk. Drinkers are not considered as having bad reputation because of binge drinking.

To take into account all above mentioned, intervention should be tailored at underlining the negative effects of binge drinking (health problems, alcohol abuse, self-control problems, etc.). All should be done in order to cause negative emotions toward binge drinking (thinking of binge drinking is disgusting). It is found that many adolescents engage in drinking behaviors because of stress that may be related to their adolescent stage of development; thus it is important to teach them strategies that are used for stress management.

In addition, it is found that many adolescent engage in binge drinking because it is fun and entertaining and the way to spent free time. It means that schools need to have extra curriculum activities that engage students in variety of sport and cultural activities. Research showed that some adolescent engage in drinking behaviors as a result of peer and social, normative pressure; thus, they should be told some assertiveness strategies that teach students not to be influenced by the others and freely express their opinion.

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