

# Assessing Protective Factors Against Drug Abuse Among High School Students: Self-Control and the Extended Parallel Process Model

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The aim of this study was to assess determinant behavioral factors for drug abuse among high school students based on the Extended Parallel Process Model (EPPM). Self-control components were also assessed. A sample of 176 governmental high school students participated in this survey. Information was collected individually through completion of a researcher-designed questionnaire. The results suggested that the EPPM theoretical variables of perceived severity and perceived self-efficacy and an additional variable, self-control, were related to behavior intentions against substance abuse ( $r^2 = 0.35$ ;  $F = 17.99$ ;  $p = 0.000$ ). Self-control, perceived self-efficacy, and perceived susceptibility were related to attitudes against substance abuse ( $r^2 = 0.27$ ;  $F = 9.09$ ;  $p = 0.000$ ). This study showed that self-control; attitudes against drug abuse, and peer resistance skills were related to adapting the protection motivation process ( $X^2 = 21.15$ ;  $P < 0.001$ ). Including self-control as a complementary factor within the EPPM could be effective for designing primary drug abuse prevention programs and predicting pre drug abuse related behaviors. More work is needed to determine whether designs for drug abuse resistance

education might be improved if measures of self-control were integrated into EPPM.

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**Keywords** Adolescence, Extended Parallel Process Model, Self-Control, Substance Abuse

## INTRODUCTION

Pumariega, Kilgus, and Rodriguez (2005) argue that adolescents are confronted with a variety of issues including school, peer pressure, and conflicting emotions including both a sense of isolation and sensation seeking behaviors. Adolescents may abuse drugs for a variety of reasons and their personality, attitudes, and resiliency affect the extent to which they are able to maintain levels of self-control that are protective against drug abuse. Gottfredson and Hirschi's (1990) theory of crime asserts that people lacking in self-control are predisposed toward imprudent behavior such as drug abuse, excessive alcohol consumption and speeding.

Self-control has been defined as an interpersonal conflict between reason and passion, between cognition and motivation (Shefrin & Thaler, 1992) and between an internal planner and an internal doer (Rachlin, 1995). Self-control is often approached in terms of freeing a behavior from the effects of immediate consequences and forcing it under the control of long-term

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This research was carried out by a grant from Dariush Institute and United Nation Office on Drug and Crime (UNODC), office for the I.R of Iran.

contingencies that tend to protect one from imprudent behaviors (Logue, 1988).

Since the publication of Gottfredson and Hirschi's (1990) general theory of crime, studies have reported a significant relationship between low self-control and behaviors that were offending or deviant (Arneklev, Grasmick, Tittle, & Bursik, 1993; Burton, Evans, Cullen, Olivares, & Dunaway, 1999; Evans, Cullen, Burton, Dunaway, & Benson, 1997; Sellers, 1999; Wright & Cullen, 2000). Studies evaluating self-control theory indicate that low self-control has direct and indirect effects on drunk driving (Keane, Maxim, & Teevan, 1993; Piquero & Tibbetts, 1996), and excessive alcohol consumption (Gibbes & Giever, 1995). Lack of self-control is known to be a risk factor or centrally related with substance abuse (Gottfredson & Hirschi, 1990; Jackson, Sher, & Wood, 2000). Lack of self-control among youths is a strong predictor of heavy drinking, tobacco use, other substances use, risk taking, high level of novelty seeking and other imprudent behaviors (Griffin, Botvin, Epstein, Doyle, & Diaz, 2000; Longshore, Turner, & Stein, 1999; Sawadi, 1999). Moreover a higher incidence of drug abuse has been reported among individuals with low self-control (Wills, Vaccaro, & McNamara, 1994). Understanding low self-control as a predisposing factor for drug abuse and improved self-control as a protective factor against drug abuse could facilitate designs for more effective drug resistance health education programs.

Messages designed to create a fear of drugs are one effective means to inoculate adolescents against drug abuse. "Fear appeal" messages attempt to arouse the emotion of fear by depicting a personally relevant and significant threat—e.g., abusing drugs damages my brain—and outlines feasible and effective recommendations to deter that threat—e.g., refusing drugs will lead to a successful life (Witte, 1992a, 1998). Fear appeal messages are effective when they contain an efficacy component and are designed according to a theoretical framework (Beck & Frankel, 1981; Dillard, 1994; Glanz, Lewis, & Rimer, 1997; Rogers, 1983; Witte, 1992a). Furthermore, there is a well-established and extant body of literature in the disciplines of social psychology and communication that considers fear appeal messages as an effective form of persuasion (Dillard, 1994; Stiff, 1994). According to Biener and Taylor (2002) many studies report that fear appeal messages are associated with desired changes in attitudes, intentions, and/or behavior. Other researchers and practitioners argue that fear appeal messages often backfire (Covello, von Winterfeldt, & Slovic, 1986; Geller, 1988). Hastings and MacFadyen (2002) note that repeating fear appeal messages related to tobacco control may decrease their efficiency. Still, many studies report that fear appeal messages are associated with a decrease in risky health behaviors (Glanz, Lewis, & Rimer, 1997; Kline & Mattsom, 2001; Moscato et al., 2001; Ruitter, Kok, Verplanken, & Brug, 2001; Witte, 1992b; Witte and Donohue, 2000).

One theory emerging from fear appeal research is the Extended Parallel Process Model (EPPM) (Witte, 1992a). According to the EPPM, fear appeals initiate two appraisals. The first

appraisal is of the threat itself and the second evaluates the efficacy of the recommended response (Witte, 1998; Witte, Meyer & Martell, 2001). The theoretical tenants of the EPPM have been empirically tested and validated in several health contexts. The initial test of the model was employed in the context of HIV/AIDS (Witte, 1994). Additionally, the EPPM has been employed to prevent the spread of sexually transmitted disease (Witte, Berkovitz, Cameron & McKeon, 1998), and skin cancer (Stephenson & Witte, 1998).

### Extended Parallel Process Model

The Extended parallel process model was designed to explain when and why fear appeals work and fail (Witte, 1992a). Levental (as cited in Witte, 1998) provides an overall explanatory framework for the EPPM which includes the concepts of fear control and danger control. To explicate fear control, the EPPM uses portions of the fear-as-acquired-drive model (Janis, 1967).

To explicate danger control, the EPPM uses protection motivation theory (Rogers, 1975, 1983, as cited in Witte, Meyer, & Martell, 2001). The EPPM depicts fear arousing messages as having the potential to initiate two appraisals—one of the threat and one of the efficacy of the intended response (Witte, 1992a, 1998). These appraisals, in turn, produce one of three possible responses: no response to the message, acceptance of the message, or rejection of the message.

First, people appraise the threat of the hazard presented in the message. The greater and more relevant the threat depicted in a message, the more people believe they may be susceptible to a serious threat. This belief in susceptibility to a serious threat determines how motivated people are to begin the second appraisal, in which they evaluate the efficacy of the response recommended by the message. If the threat is perceived as irrelevant or insignificant, then there is no motivation to process the message further, and people simply ignore the fear appeal (Witte, 1992a, 1998; Witte & Allen, 2000; Witte, Meyer, & Martell, 2001). However, when the threat is perceived and believed to be serious and relevant (e.g., "I'm susceptible to substance abuse"), individuals become fearful. Fear motivates people to take some sort of action—any action—that will reduce the fear.

There are two general paths people take when they get frightened due to a fear appeal. They can become motivated to control the danger inherent in the threat or they can become motivated to control their fears about the threat. When motivated to control the danger, they contemplate ways to remove or reduce the threat. People also think carefully about the responses advocated in a persuasive message. The act of thinking about recommended responses can lead to adopting them as a means to control the danger. Alternatively, when people are motivated to control their fear, they no longer think about the danger of the threat and instead focus on how frightened they feel. They may attempt to control their fear denial (e.g., "I'm not at-risk for using drugs, it won't happen to me"), defensive avoidance (e.g., "This is just too terrible, I'm simply not going to think about it"), or reactance

(e.g., “They’re just trying to manipulate me, I’m going to ignore them” (Witte, 1998; Witte & Allen, 2000; Witte, Meyer, & Martell, 2001).

The EPPM includes a concept of “Perceived efficacy” that incorporates measures of self-efficacy and appraisals of response efficacy. In the EPPM, perceived efficacy determines whether people will engage in danger control or fear control processes. People engage in danger control processes when they believe messages that emphasize how easy, feasible, and effective the recommended response is in averting a serious and relevant threat. Thus, high efficacy messages (that make people feel able to perform an effective recommended response) coupled with high threat messages (that make people believe they are vulnerable to a significant threat) promote danger control responses such as adoption of the message’s recommendations, e.g., “I know I can use resistance skills to protect me from drugs,” and “I am going to keep my friend from drug abuse” (Witte, 1998; Witte, Meyer, & Martell, 2001).

### Status of Drug Abuse in Iran

Iran is one of many countries where prevalence of drug abuse is increasing, especially among adolescents. Opium, heroin, and marijuana are the common illicit drugs in Iran (Ahmadi & Hasani, 2003; The Cultural and Prevention Department of Welfare Organization in Iran, 1999). The Cultural and Prevention Department of Welfare Organization in Iran (1999) reported that 4% of prisoners have declared that they had begun drug abuse before the age of 15 years old and 24.4% of prisoners had begun at the age of 15–19 years. Ahmadi and Hasani report that 23.5% of male students in Shiraz-Iran had used substances one or more times. Allahverdipour, Hidarnia, Kazemnegad, Shafii, Azad fallah, and Emami (2006) report that 6.9% of Iranian high school students had used illicit drugs. In spite of the increased prevalence of illicit drug abuse in Iran, no theoretically based study of possible cognitive factors related to drug abuse among Iranian adolescents was found in the literature.

As this project was performed in Iran, alcohol was excluded. Islamic rules and the Islamic Republic of Iran (IRI) policy ban the sale and consumption of alcoholic beverages. Because of normative beliefs and customs surrounding tobacco, this substance was assessed separately. In addition to opium, heroine, and cannabis, the common illicit drugs used in Iran, we also included LSD, ecstasy, and cocaine.

### Present Study

The present study is an attempt to improve the efficiency of the EPPM for preventing risky behaviors. The EPPM is a comprehensive and effective model for designing interventions that improve healthy behaviors (Witte, 2001; Witte, Berkovitz, Cameron, & McKeon, 1995). Because low self-control can predispose adolescents to engage in high-risk behaviors, the usefulness of the EPPM in designing programs to prevent risky behaviors, especially among adolescents, is limited. Including

self-control as a factor in the EPPM could improve the model’s usefulness for designing effective programs to reduce high-risk behaviors such as drug and alcohol abuse and reckless driving among adolescents.

## METHODS

### Participants

This study was a part of a large project conducted among male high school students in Tehran during 2002–2004, the main goal of which was to provide knowledge for the prevention of drug abuse among high school students. All subjects were selected from Tehran’s No: 10-district area where there were six state high schools. Two high schools were chosen based on randomized selection. The sample consisted of 203 persons among whom 189 students participated in this study with the average age of 16. Of these, 176 students had not used drugs.

The age range of students was between 15 and 18 years, 15 (14.3%), 16 (61.4%), 17 (19.6%) and 18 (4.8%). Regarding the domain of educational courses, 35.4% of students were studying mathematics, 31.2% natural sciences and 33.3% human sciences. Of the students, 15.9% had failed in previous school years and 31.2% reported that they used or were using tobacco. Students also reported that 24.3% of their friends used or were using drugs and 49.7% of the students reported that their friends were using tobacco. Of the participating group, 16.9% indicated that friends offered them substances and 13.8% were under pressure to use substances. About 34.9% of the students reported that they were offered tobacco and 13.8% of the students pressured by friends to use tobacco. Moreover, students reported that opium and marijuana were used much more than other substances among high school students.

### Measures

#### *Demographics*

Background data collected in this research include: age, educational course (mathematics; natural sciences; human sciences), having friends who had experiences with substance abuse (never; occasionally; always), having friends who smoked (never; occasionally; always), peer pressure to smoke (yes/no), persuasion enticement from friends to use drugs (yes/no), history of failing in school (yes/no), common drugs among adolescents including: opium, cannabis and heroine.

#### *EPPM Theoretical Variables*

Witte’s EPPM scale (Witte, McKeon, Cameron, & Berkowitz, 1995; Witte, Meyer, & Martell, 2001) was modified for drug abuse and 25 items were composed under four major constructs, (1) severity of threat; (2) susceptibility to threat; (3) assessment of self-efficacy; (4) evaluation of response efficacy. Seven items were designed to measure perceived severity of threat (e.g., “I believe using drugs is a serious threat to my brain evolution”). Six items were designed to measure perceived susceptibility of

the threat (e.g., "I feel that I am at risk to use drugs"). Seven items were designed to assess self-efficacy (e.g., "I believe that I can resist pressure from my friends"). Five items were designed to evaluate response efficacy (e.g., "Preventive programs will help me to improve my resistance skills"). Each of these items was measured on an ordinal 7-point Likert-type scale with 1 = strongly disagree, 7 = strongly agree (at opposite ends of the continuum), and 4 = neutral (in the middle). Estimated reliability coefficients for each EPPM variables were as follows: perceived susceptibility ( $\alpha = 0.66$ ); perceived severity ( $\alpha = 0.74$ ); perceived response efficacy ( $\alpha = 0.74$ ); and perceived self-efficacy ( $\alpha = 0.77$ ), indicating internal consistency.

### *Self-Control*

Self-control was measured by a modified set of 12 items based on Grasmick, Tittle, Bursik, & Arneklev (1993) self-control scale. Several studies indicate that this scale is a psychometrically appropriate measure of self-control (Burton et al., 1999; Gibson & Wright, 2001; Piquero & Tibbetts, 1996). Responses to items such as "Excitement and adventure are more important than security" were coded from 1 to 7 (strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, strongly agree). Reliability coefficients were calculated for the self-control scale ( $\alpha = 0.80$ ) and demonstrate internal consistency.

### *Negative Attitudes Toward Drug Abuse*

A 16-item rating scale was used to gauge student attitudes on drug abuse. Examples of items include (1) "I believe that recreational drug use will not lead to addiction"; (2) "I believe that using drugs removes physical pains"; and (3) "I will ignore my friend if s/he wants to use drugs." Each of these items was measured on an ordinal 5-point Likert-type scale (9 items, 1 = certainly agree, 5 = certainly disagree and 7 items, 5 = strongly agree, 1 = strongly disagree) and reliability coefficients were calculated for the attitude scale ( $\alpha = 0.83$ ). This result revealed that the measure of attitude was internally consistent. Negative attitudes toward drug use were found by taking the mean scores from the scale. Higher scores on the scale indicated more negative attitudes.

### *Behavior Intentions to Avoid Drug Abuse*

Behavioral intention to avoid drug abuse was measured with a 15 item rating scale. Examples of items include (1) "I intend to avoid places where I know that my friends are abusing drugs, for at least 6 months"; (2) "I intend to learn drug abuse resistance skills during the next 6 months"; and (3) "I intend not to experience any drugs for at least 6 months." Response categories were coded from 1 to 7 (strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, strongly agree). An estimated reliability coefficient ( $\alpha = 0.82$ ) indicated that the measure of behavior intentions to avoid drug abuse was internally consistent.

### *Peer Resistance Skills (PRS)*

PRS was measured by a modified set of 4 items based on Hansen's (1989) PRS scale. Students responded to four hypothetical situations in which either their best friend or an acquaintance offered them cigarettes or drugs. They then rated their ability to "say no" on a four-point scale ranging from "Not sure at all" to "Very sure." The four items were summed, with a higher score indicating greater confidence in one's ability to resist peer pressure to use substances. An estimated reliability coefficient ( $\alpha = 0.62$ ) indicated that the measure of PRS was internally consistent.

### *Drug Abuse*

To assess whether the adolescents had experimented with illicit drugs, we used their responses to three questions about the prevalence of using of opium, marijuana, or other illicit drugs. For the item, "have you ever used drugs?" the response category was "Yes" or "No." If "Yes," the next questions focused on whether the students had taken drugs either just once or several times. The last question focused on the kind of drugs that were used. Opium and marijuana are the most widely used illicit drugs in Iran (Ahmadi & Hasani, 2003) and the current study supports this trend as well.

### *Smoking*

In order to assess the participants' history of smoking, students were asked, "have you ever smoked cigarettes or hookah?" and response categories included "Never," "Sometimes" or "Often." Smokeless tobacco is not common among Iranians.

## **DESIGN AND PROCEDURE**

This study evaluates self-control along with EPPM variables to predict adoption of the danger control process, negative attitude toward drugs, and intentions to avoid drug abuse. After receiving approval from the relevant university ethics committee and permission from the students' parents, this project was carried out.

Prior to completing the questionnaire, the students were given instructions on how to complete it. In the following session, students completed the questionnaire in each class. Students who were absent were given the opportunity to complete the questionnaire a few days later. No members of school staff were present while students completed the questionnaires. After excluding incomplete questionnaires the response rate was 98.9%.

## **RESULTS**

Of the respondents, 31.2% reported that they used or were using tobacco, 49.7% reported that their friends were using tobacco, and 24.3% reported that their friends used or were using drugs. In addition, 34.9% reported that friends offered them tobacco and 13.8% reported pressure to use tobacco by friends.

The offering of substances by friends was reported by 16.9% of the respondents and 13.8% felt pressure to use substances.

TABLE 1  
Instrument construction

Concept	# of items	Example	Reliability coefficient
Self-control	12	Excitement and adventure are more important than security	$\alpha = 0.80$
Perceived severity	7	I believe using drugs is serious threat to my brain evolution.	$\alpha = 0.66$
Perceived susceptibility	6	I feel that I am at risk to use drugs	$\alpha = 0.74$
Self-efficacy	7	I believe that I can resist pressure from my friends.	$\alpha = 0.77$
Response efficacy	5	Preventive programs will help me to improve my resistance skills.	$\alpha = 0.74$
Negative attitude toward drugs	16	I believe that recreational drug use will not lead to addiction	$\alpha = 0.83$
Intention to avoid drug abuse	15	I intend to avoid places where I know that my friends are abusing drugs, for at least 6 months	$\alpha = 0.82$
Peer resistance skills	4	What will you do when your friends offer you drugs?	$\alpha = 0.62$ (estimated)
Smoking	1	Have you ever smoked (never; sometimes; often)	N/A

Students reported that opium and marijuana were used much more than other substances among high school students.

**Bivariate Relationships**

Table 2 shows the Zero-order correlations. A two-tailed test at the significance levels of 0.01 and 0.05 were the criteria for the analysis. The bivariate assessment of variables revealed that there were signs of multicollinearity among EPPM variables, self-control, behavioral intention to avoid drug abuse and attitude against drug abuse (ADA), and PRS. There are significant relationship between perceived severity and susceptibility of threat, perceived response efficacy, perceived self efficacy, self-control, behavioral intentions to avoid drug abuse and attitude ADA, PRS. The findings indicate that for the sample, self-control was significantly related to perceived response efficacy ( $r = 0.16$ ), perceived self-efficacy ( $r = 0.16$ ), attitude ( $r = 0.28$ )

and behavioral intention ( $r = 0.29$ ). In addition, behavioral intention to avoid drug abuse was significantly related to perceived severity ( $r = 0.42$ ), perceived response efficacy ( $r = 0.29$ ), perceived self-efficacy ( $r = 0.43$ ), Negative attitude toward drugs ( $r = 0.57$ ), and PRS ( $r = 0.32$ ). In addition, perceived susceptibility was inversely and significantly related to behavioral intention to avoid drug abuse ( $r = -0.29$ ) and self-control ( $r = -0.22$ ).

Calculation of EPPM theoretical variables and self-control mean scores (min score = 1 and max score = 7) showed perceived severity of threat in the highest level (average score = 5.89, SD: 0.83). Self-efficacy was also high (average score = 5.40; SD: 0.97). However, perceived susceptibility was in the lowest level (average score = 2.3; SD: 0.93) indicating that students did not believe they were vulnerable to drug abuse. The average score for perceived response efficacy was 4.9; SD: 0.87 and the average score for self-control was 4.6 (SD: 0.97),

TABLE 2  
Intercorrelations between severity, susceptibility, response efficacy, self-efficacy, attitude, and behavior intention to avoid drug abuse; self control; PRS (n = 176)

Variables	X1	X2	X3	X4	X5	X6	X7
X1. Perceived severity							
X2. Perceived susceptibility	-.11						
X3. Perceived response efficacy	.42**	-.18*					
X4. Perceived self-efficacy	.35**	-.21**	.39**				
X5. Attitude ADA	.18*	-.31**	.23**	.35**			
X6. Intention to avoid drug abuse	.42**	-.29**	.29**	.43**	.57**		
X7. Self-control	-.03	-.22**	.16*	.16*	.28**	.29**	
X8. PRS	.12	-.20**	.16*	.20**	.32**	.34**	.11

\*p < .05, \*\*p < .01.

TABLE 3  
Summary of average response for EPPM variables and self-control

EPPM variables and Self Control average response	Average Score (range 1–7)	SD
Perceived severity	5.89	.83
Self-efficacy	5.40	.97
Perceived response efficacy	4.9	.87
Self control	4.6	.97
Perceived susceptibility	2.3	.93

reflecting a medium level of self-control among the respondents (Table 3). Based on calculated EPPM critical value of efficacy-threat, 85.2% of the respondents are in the protection motivation or danger control process and 14.8% of the respondents are in the defensive motivation process.

Logistic regression was conducted to represent the influence of self-control, PRS, attitude and intentions to avoid drug abuse on adapting protection motivation. Table 4 illustrates the results of logistic regression results for predictors of adapting the protection motivation process. Attitude against drug abuse, PRS, and self-control were the three factors that predicted adapting protective motivation ( $p < 0.001$ ).

Multiple regression analysis was calculated for predictability of EPPM theoretical variables and self-control on attitudes against drug abuse. Table 5 displays the results for attitudes against drug abuse. Perceived susceptibility of threat, perceived self-efficacy, and self-control all predicted attitudes against drug abuse, account for 23% of the variance at  $p < 0.000$ .

Assessing EPPM theoretical variables and self-control as predictors for intentions to avoid drug abuse indicates that perceived severity and susceptibility of threat, perceived self-efficacy, and self-control are predictors for intention to avoid drug abuse. These variables account for 35% of the variance and are statistically significant ( $p < 0.000$ ). The effect of predictors on intentions to avoid drug abuse is presented in Table 6.

TABLE 4  
Logistic regression model for self-control, PRS, and attitude as three predictors for adapting protective motivation process (n = 176)

Variables	Beta	Odds Ratio	95% Confidence Intervals	
			Lower	Upper
Self-control	1.428***	4.96	1.46	11.93
Attitude ADA	0.061*	1.06	1.00	1.12
PRS	0.47*	1.64	1.04	2.58

Model  $X^2(3, N = 176) = 21.15, p < .001$ .

TABLE 5  
Summary of regression analysis for EPPM theoretical variables and self-control as a predictor for attitude ADA (n = 176)

Variable	B	SE B	$\beta$	t	Sig
Severity	0.72	0.82	0.06	0.88	0.380
Susceptibility	-1.92	0.66	-0.20	-2.89	0.004
Response efficacy	0.37	0.64	-0.06	0.58	0.565
Self-efficacy	2.22	0.71	0.24	3.14	0.002
Self-control	0.15	0.06	0.19	2.70	0.008

Note. Standard values used. Final statistics for three predictors:  $r$  squared: 0.23,  $F(5, 170) = 9.90, (p = .000)$ .

Assessing attitude, PRS and self-control as predictors for behavior intentions to avoid drug abuse indicates that perceived attitudes against drug abuse, PRS, and self-control are predictors for behavioral intention to avoid drug abuse. These variables account for 37% of the variance and statistically significant ( $p < 0.000$ ). The effects of predictors of behavioral intentions to avoid drug abuse are presented in Table 7.

## DISCUSSION

The findings of the current study suggest that self-control is a supportive and synergetic factor within EPPM that could be incorporated to improve drug abuse prevention programs. By focusing on building self-control skills, drug abuse prevention programs might better promote behaviors consistent with the protective motivation process. When both EPPM theoretical variables and self-control are assessed, the average response to perceived severity of threat reached the highest level. In other words, students believe that illicit drugs seriously affect health status.

The perceived severity of a threat is very important where when people believe they are susceptible to that threat. However, the low “perceived susceptibility” score indicates these students did not perceive they were at high risk for drug abuse. Research in psychology reports that people tend to believe they

TABLE 6  
Summary of regression analysis for EPPM theoretical variables and self-control as a predictor for behavior intentions to avoid drug abuse (n = 176)

Variable	B	SE B	$\beta$	t	Sig
Severity	4.96	1.09	0.32	4.55	0.000
Susceptibility	-1.95	0.87	-0.14	-2.24	0.026
Response efficacy	-1.52	0.84	-0.001	-0.18	0.986
Self-efficacy	3.57	0.92	0.25	3.61	0.000
Self control	0.25	0.07	0.22	3.39	0.001

Standard values used. Final statistics for three predictors:  $r$  squared: 0.35,  $F(5, 170) = 17.99, (p = .000)$ .

TABLE 7

Summary of regression analysis for attitude, PRS, and self-control as predictors for behavior intention to avoid drug abuse (n = 176)

Variable	B	SE B	$\beta$	t	Sig
Attitude ADA	0.67	0.09	0.47	7.07	0.000
PRS	2.12	0.71	0.19	2.97	0.003
Self-control	3.71	1.76	0.20	0.31	0.037

Standard values used. Final statistics: r squared:0.37; F (2,172) = 32.95 (p < .000).

are less likely to experience negative events and more likely to experience positive events than other people. This phenomenon has been named "optimistic bias" (Fontaine & Smith, 1995; Weinstein, 1980, 1987). Adolescents may engage in more risk related behaviors, such as the consumption of alcohol and drugs, cigarette smoking, or unprotected sexual intercourse for two major reasons. First, adolescents may have feelings of invulnerability to harm, thus promoting risky behavior. Second, adolescents sometimes do not perceive their actions as unsafe and engage in risky behaviors out of ignorance of the consequences (O'Brien, VanEgeren, & Mumby, 1995; Seppa, 1997; Weinstein, 1980, 1987). Both a sense of invulnerability and low perceived susceptibility to danger are instances of optimistic bias. In both instances, individuals perceive they are less likely than others to be afflicted with poor health outcomes, such as drug addiction.

Lack of perceived susceptibility to drug abuse among these participants may be due to a lack of knowledge about the role and the effect of peer pressure. It may also be due to normative beliefs about opium in the Iranian culture. Many people think that opium is an analgesic (like aspirin and acetaminophen) and are less aware of the dangers of analgesics than they may be of illegal drugs. This result suggests that health educators may need to emphasize perceived susceptibility in drug abuse preventive programs.

The average "perceived self-efficacy" score in these students is high, but the perceived response efficacy average score is low. The lack of effective drug abuse resistance programs in Iran may be a part of the reason that perceived response efficacy scores are low. According to the Extended Parallel Process Model, high-perceived self-efficacy and high response efficacy motivate individuals to refuse drugs actively (Witte, 1992a, 1998). The critical value calculation (perceived efficacy—perceived threat) showed that 85.2% of students were ready to engage in the danger control process. However, this is due to low perceptions of susceptibility and does not indicate high self-efficacy or high-perceived response efficacy. Self-control scores in the median range indicate that students are at high risk for drug abuse.

Based on these results, it is necessary to emphasize perceived susceptibility, perceived response efficacy, and self-control in drug abuse resistance programs. Precautionary behaviors are

partly a function of perceptions of vulnerability to the negative consequences that would result if one did not take preventive action (Rogers, 1975; Rosenstock, 1966; Weinstein, 1988).

Zero-order correlations showed that self-control was inversely and significantly related to perceived susceptibility, which could be due to feelings of invulnerability. EPPM theoretical variables related to efficacy (perceived self-efficacy and perceived response efficacy) were significantly related to self-control, suggesting that self-control and efficacy have a synergetic effect that could increase the likelihood of adapting danger control behaviors.

Two EPPM theoretical variables (perceived susceptibility to threat, perceived self-efficacy) and self-control were predictive for attitudes against drug abuse. When people are motivated to control the danger, they change their attitudes, intentions, and behaviors (Witte, 1992a). In Ajzen's words, intentions are "behavioral plans that, in combination with appropriate opportunities and resources, enable attainment of a behavioral goal" (Ajzen, 1999, p. 112).

Perceived severity of threat together with perceived self-efficacy and self-control were predictors of intentions against drug abuse. In addition, perceived susceptibility was inversely and significantly predictor for intentions against drug abuse. This inverse relation between perceived susceptibility to drugs and intentions against drug abuse is due to the student's sense of invulnerability. There is considerable debate about unintentional and unplanned behavior among adolescents (Gerrard, Gibbons, & Gano, 2003; Gibbons, Gerrard, & Lane, 2003). Generally speaking, the relation between intentions to avoid drug abuse and behavior is lower among young people, and it increases over time, up to about age 19 or 20 (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Chassin, Presson, Sheeran & Orbell, 1998; Chassin, Presson, Sherman, & Curran, 1992). Gibbons et al. stated that adolescents' decision-making strategies often do not follow a deliberative sequence outlined by reasoned action or planned behavior. In other words, adolescents' risky behaviors are frequently not planned or intentional, but rather, a reaction to a social situation in which there was an opportunity to do something risky. In spite of Gibbons et al.'s opinion; other studies suggest that predicting intentions would be more effective than behavior, especially when the behavior involves substance use (Morojele & Stephenson, 1994), smoking (Stacy, Bentler, & Flay, 1994), and excessive drinking (Schlegel, D'Avernas, Zanna, DeCourville, & Manske, 1992).

This study shows that students with low self-control are at a higher risk for drug abuse than high self-control students and is consistent with findings in numerous other studies (Adalbjarnardottir & Rafnsson, 2002; Sawadi, 1999; Sussman, Dent, & Leu, 2000). Sawadi and Burton et al. (1998) reported that low self-control was believed to be a trait which could increase the rate of risky behaviors. High self-control has a predictive and determinant role in adapting drug resistance behaviors. Thus, self-control shows promise as a complementary factor for EPPM which could help improve the efficiency

of fear appeal messages for primary prevention of drug abuse. Including self-control within EPPM could be efficient for designing preventive drug abuse resistance education programs, but this would require further empirical testing and theoretical elaboration.

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