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To Examine the Relationships Between Emotional Intelligence, Locus of Control and Smoking in Adolescents

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Abstract: Smoking is the biggest threat to public health and it remains a serious cause of death in the world. Remarkably, the age of the onset of cigarette smoking is decreasing. Therefore, it is essential to increase the knowledge concerning the attitudes among adolescents towards cigarette smoking. The present study, sought to examine the associations among emotional intelligence and locus of control with attitudes towards cigarette smoking in adolescents. The participants, comprising 550 high school students (aged between 16-19 years old, M = 17.1, SD = 0.93) from Tehran completed the assessing emotions scale, locus of control of behavior and attitudes towards smoking scale. The Structural Equation Modelling (SEM) estimated that adolescents with a high ability foremotional intelligence and internal locus of control were more likely to report negative attitudes towards cigarette smoking. This study showed that greater emotional intelligence and internal locus of control for adolescents were protective factors against smoking. Therefore, these findings reinforce the importance of emotional intelligence training and locus of control training in preventing cigarette smoking in adolescents.

Key words: Emotional intelligence, locus of control, attitudes towards cigarette smoking, adolescents, smoking scale

INTRODUCTION

Cigarette smoking has become one of the biggest threats to public health the world has ever faced (Moxham *et al*., 2012). Because cigarette smoking, obesity and diabetes are responsible for 59% of mortality in the world (Haenle *et al*., 2006). It is associated with life-threatening illnesses, such as cancer, cardiovascular and respiratory (Filion and Luepker, 2013). The coronary heart disease risk in smokers is 2-3 times higher than for non-smokers (Moxham *et al*., 2012). It is noteworthy that passive smokers are exposed to deadly diseases, such as serious cardiovascular, respiratory diseases and lung cancer. More than 4,000 harmful chemicals are present in tobacco and at least 50 of these harmful chemicals are known to cause cancer. Consequently by breathing in harmful chemicals, non-smokers become vulnerable to dangerous diseases. According to the world health organization, 6 million people have died due to cigarette smoking annually and 1 million second hand smokershave died due to smoke inhalation. It is expected that the mortality rate would rise to >8 million by 2030, if urgent action is not taken. Remarkably, several studies have revealed that the age for the onset of cigarette smoking is decreasing in the world (Babanov, 2006; Ramlau *et al*., 2004). In Iran, >12 million people are cigarette smokers, the age for the onset of cigarette smoking is under 18 years and the prevalence for cigarette smoking is higher among the boys (Riahi *et al*., 2009). In this study, attitudes towards cigarette smoking were applied because attitudes reflect evaluative associations to objects and are helpful in predicting behaviours towards those objects (Sherman *et al*., 2009).

A myriad psychological factors have been identified with cigarette smoking, such as depression, anxiety, shyness, emotional dysregulation, stress and poor interpersonal communication (Duncan *et al*., 2013; Gonzalez *et al*., 2008; Hagger-Johnson *et al*., 2012; Hill and Maggi, 2011; Rivers *et al*., 2012). Recently, several studies from around the world have shown that emotional intelligence as an important factor may have an influence on cigarette smoking (Duncan *et al*., 2013; Hill and Maggi, 2011; Trinidad *et al*., 2004, 2005). The term emotional intelligence was defined as a kind of social intelligence including the ability of monitoring one's emotions and other's emotions and manipulating the information for managing one's thoughts and actions and regulating emotion in self and others and utilizing suitable emotion for solving daily difficulties and obstacles (Mayer *et al*., 2004). Both intrapersonal and interpersonal emotional

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intelligence abilities are protective factors towards the onset of cigarette smoking in adolescents (Kun and Demetrovics, 2010; Trinidad *et al*., 2004). Therefore, emotional intelligence is an ability that prepared adolescents to cope with negative emotions and deal with undesirable pressures from peers to cigarette smoking (Hill and Maggi, 2011; Kun and Demetrovics, 2010). Based on the mental ability model created by Mayer *et al*. (2004) that focus of emotional management and interaction between emotion and cognition, individuals with greater emotional intelligence reported better emotion regulation, effective problem-solving skills and appropriate management towards irrational peer pressure to cigarette smoking (Kun and Demetrovics, 2010; Limonero *et al*., 2006; Trinidad *et al*., 2004). However, much of the research up to now has relied solely on university students and if any, limited studies have been done on high school students or individuals with less education while studies have revealed that smoking onset is under 18 years old (Hammond, 2005; Trinidad *et al*., 2004). According to the literatures and Mayer's theory, it seems conceivable that a high ability of emotional intelligence would be negatively associated with positive attitude towards cigarette smoking. Thus, researchers hypothesize that a high ability of emotional intelligence is negatively correlated with positive attitude towards cigarette smoking.

The locus of control was introduced by Rotter (1990) from experience in social-learning theory. Rotter (1990) postulated that individuals with an internal locus of control are more likely to believe that they can control affairs in their life. Conversely, individuals with an external locus of control are more likely to believe that external powers, such as destiny, chance and luck, influence affairs in their lives (Rotter, 1990). Individuals with an internal locus of control typically show responsibilityfor their healthand persistence from peer presures (Lindqvist and Aberg, 2002; Reitzel *et al*., 2013). Previous study showed that belifs concerning internal and external locus of control are with health-related behaviors (Reitzel *et al*., 2013). When individuals have control over the environment and the self, the environment and the self could be changed to the best condition. Previous study reported that an external locus of control related to the smoking and alcohol consumption (Chiteji, 2010; Lindqvist and Aberg, 2002). Therefore, the locus of control can influence on attitudes towards smoking. Therefore, researchers are particularly interested to examine the relationship between perceptions of control and attitude towards cigarette smoking. Thus, researchers hypothesize that external locus of controlis positively correlated with a positive attitude towards cigarette smoking.

MATERIALS AND METHODS

Ethical considerations: The ethics committee of Tehran University of Psychology (Tehran, Iran) approved the study. The participants were informed about the aims of the research. They were also informed that participation in the study was voluntary and anonymous and that they could withdraw from the study at any time.

Participants: The total number of students in the target population was 3500 high school male students in 2012 and after calculating using the Cochran formula, approximately 550 high school students (ages were from 16-19 years old, M = 17.1, SD = 0.93) were chosen. For SEM studies, Kline (2005) suggested equal or >200 participants would be adequate. Of the 550 students, 30% (n = 165) were in the freshmen year, 23% (n = 126) were in the sophomore year, 25% (n = 137) were in the junior year and 22% (n = 121) were in the senior year. About 72% of the students reported that they lived with both their parents. The rest of students reported they lived with their mother (14%), father (8%) and others (6%).

Procedure: The Iranian Ministry of Education, Tehran, region 15, obtained permission for gathering data from seven high schools. The school principal from each school agreed to collect the data. Then, school principal obtained permission for the researchers to collect data from students. Each student was chosen as a participant for this study. Data collected in 2 sessions during a single class period (45-50 min). Students were identified only by a code number and the student's name and other personal information were not identified. Attitudes towards smoking was measured during the first session in each classroom and after 1 day, they completed the assessing emotions scale and locus of control of behaviour. About 650 questionnaires were distributed by hand among students and 550 (84%) usable questionnaires were returned. As a thank you for participating in the study, each participant was given a book featuring the disadvantages of smoking.

Instruments

Assessing Emotions Scale (AES): This is a 33-item that measures emotional intelligence. All questions are in 5-point Likert scales from 1 (strongly disagree) to 5 (strongly agree). Total scores can be calculated by reverse coding items 5, 28 and 33 and then summing all items. The total score is from 33-165. A high score indicates greater ability of emotional intelligence and vice versa. AES was divided into 3 sub scales, appraisal of emotions, utilization of emotions and regulation of

emotions. Schutte *et al.* (1998) suggested using the total scores of AES rather than scores of sub scales. The AES had a good internal consistency with α: 0.90 and test-retest reliability was α: 0.87 (Schutte *et al.*, 1998). Several studies have reported that this questionnaire has powerful convergent and divergent validity (Bastian *et al.*, 2005; Brackett and Mayer, 2003). In the present study, the reliability of AES was α: 0.88. In addition, the convergent validity (AVE) was α: 0.60 and the Construct Reliability (CR) was α: 0.73.

Locus of Control of Behaviour scale (LCB): This section contains 17 items that measure the locus of control (Craig *et al.*, 2009). All questions are based on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Total scores can be calculated by reverse coding items 2, 3, 4, 6, 9, 10, 11, 12, 14 and 17 and then summing all the items. The total score is from 0-85 a higher score indicates an external locus of control and a lower score indicates an internal locus of control. The LCB had a good internal consistency from α: 0.75-0.79 (Taiwo *et al.*, 2005). In the present study, the reliability LCB was α: 0.73, the convergent validity (Average Variance Extracted) was 0.56 and the Construct Reliability (CR) was 0.70.

Attitudes Towards Smoking Scale (ATSS): This section has 32 items that measure attitudes towards cigarette smoking. All the questions are based on a 3-point Likert scale from 1 (negative attitude) to 3 (positive attitude). This questionnaire contains 3 aspects: The cognitive aspect with 9 items (for example, smoking is the first step to addiction), the affective aspect with 11 items (for example, smoking is an interesting and exciting experience) and the behavioural aspect with 12 items (for example, I prefer to smoke at a feast with friends to feel a sense of belonging with them). Riahi *et al.* (2009) suggested using the total scores of ATSS rather than the scores of sub scales. A lower score in ATSS indicates negative attitudes towards smoking and vice versa. The ATSS had a good reliability with α: 0.87 (Riahi *et al.*, 2009). In the present study, the reliability of ATSS was α: 0.74 the convergent validity (Average Variance Extracted) was α: 0.53 and the Construct Reliability (CR) was α: 0.74.

Translation of the questionnaire: The questionnaires were translated from the English version to Persian version. In order to ensure that Persian translation properly reflected the meaning of the English version, back-translation was used with the help of 3 experts in English language and necessary modifications were made by them.

Pilot study: A pilot study was conducted on 55 students. A pilot study was conducted to determine the reliability of the tools. Necessary modifications were made based on analysis of the pilot results. Those students who participated in the pilot study were excluded from the main study sample.

Analysis: Researchers employed Structural Equation Modelling (SEM) mainly because it provides a balance of type I error rates and statistical power when testing the relationships among variables (MacKinnon *et al.*, 2002). In addition, Structural Equation Modelling (SEM) makes it possible for researchers to estimate relations among constructs that are corrected for bias attributable to random error and construct-irrelevant variance by providing separate estimates of relations among latent constructs and their manifest indicators (Tomarken and Waller, 2005). Furthermore, the multigroup (SEM) was performed for comparing between male and female samples (Kline, 2005). Moreover, Convergent Validity which includes Average Variance Extracted (AVE) and Construct Reliability (CR) was performed. Convergent Validity refers to a set of indicators (items) that are intended to measure a construct (Kline, 2005).

Missing data for parcels and items (range from 0.81-3.08%) were addressed with the series mean method in SPSS software. The data were considered to be normal because the skewness values were from -0.1.32 to 1.29 and the Kurtosis values were from -1.73 to 2.88 for all variables. Byrne (2010) stated that if the skewness value is between -2 to +2 and the Kurtosis value is between -7 to +7, the data are considered to be normal. For a model fit, the goodness of fit indices Chi square/degree of freedom ratio (CMIN/DF), the Comparative-Fit Index (CFI), the Goodness-of-Fit Index (GFI) and the Tucker-Lewis Index (TLI) were used. The indices have to be equal or >0.90 (Kline, 2010). Furthermore, when the Root Mean Squared Error of Approximation (RMSEA) is between 0.03 and 0.08 (Kline, 2010) the model has an acceptable goodness of fit. The AMOS 20 software was used for analysing the data.

RESULTS

Descriptive statistic: The descriptive results showed that 20% of parents were smokers and 28% of students reported friends who smoke. Also, the descriptive results indicated that 12% of students reported a positive attitude towards smoking 20% reported a neutral attitude towards smoking and 68% reported a negative attitude towards smoking. The means, actual range, possible range and standard deviations for all variables are presented in Table 1.

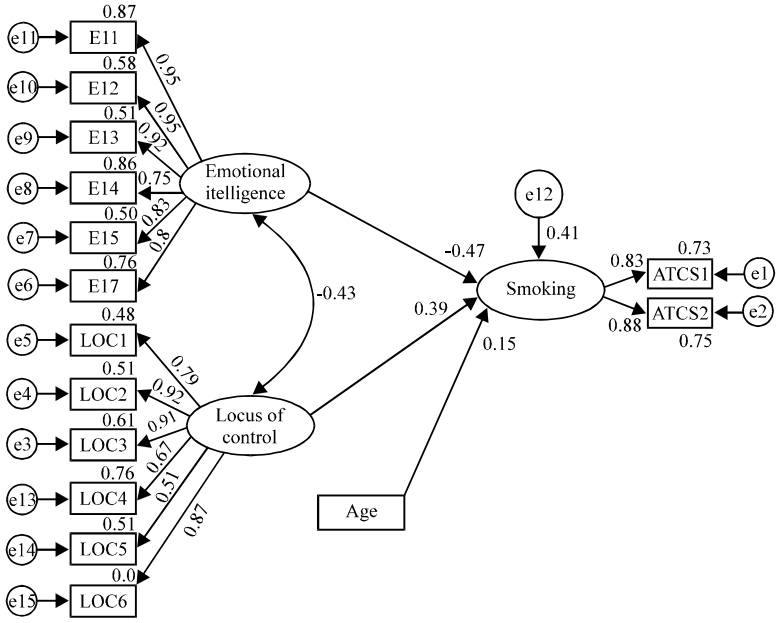

Fig. 1: Path analysis of all the study variables

Table 1: Means, actual and possible range and standard deviations for all variables

Variables	Actual range	Possible range	Mean	SD
Emotional intelligence	48-135	33-165	87.33	14.31
Locus of control	11-76	0-85	50.13	11.56
Attitudes toward cigarette smoking	36-78	32-96	50.13	15.37
Age	16-19	-	17.10	0.93

Goodness of fit: This model included attitudes toward cigarette smoking, emotional intelligence and locus of control as latent variables and age as an observed variable. The model showed good fit indices: CMIN/DF = 3.86, $p<0.01$, CFI = 0.925, GFI = 0.923, TLI = 0.912, RMSEA = 0.068. According to Kline (2010), the model provided acceptable fit for sample.

Structural equation model: This model included emotional intelligence locus of control and age as exogenous variables and attitudes toward cigarette smoking as an endogenous variable. As can be seen from Fig. 1, age had no significant effect on attitudes toward cigarette smoking while emotional intelligence, locus of controlhad significant effect on attitudes toward cigarette smoking. It can be seen from the data in Fig. 1 that the internal locus of control was associated with negative attitudes toward cigarette smoking and high ability of emotional intelligence was associated with negative attitudes toward cigarette smoking. These variables explained 41.0% of the variance in attitudes toward cigarette smoking.

DISCUSSION

The findings of this study demonstrated that emotional intelligence and locus of controlare valuable predictors of attitudes toward cigarette smoking. Emotional intelligence, locus of control and age explained 41.0% of the variance in attitudes toward cigarette smoking. Particularly, the findings demonstrated that higher emotional intelligence and locus of control significantly predicted negative attitudes toward cigarette smoking. The findings indicated that a positive association existed between high ability of emotional intelligence with negative attitudes toward cigarette smoking. This finding is consistent with previous emotional intelligence researches reporting that emotional intelligence is a significant determinant of negative attitudes toward cigarette smoking (Hill and Maggi, 2011; Trinidad *et al*., 2004, 2005). The present study also showed that internal locus of control positively associated with negative attitudes toward cigarette smoking. The present findings seem to be consistent with other research which suggesting that internal locus of control positively influence on negative attitudes towards cigarette smoking (Jaffee and D'Zurilla, 2009; Triplett and Payne, 2004; Vidrine *et al*., 2013).

The number of adolescents who smoke, not only in Iran but also in many other countries is increasing, thereby causing cigarette smoking to become a serious social problem. Therefore in order to provide effective solutions to prevent smoking in adolescents, cigarette

smoking should be deemed a multifactorial phenomenon and for its prevention, biological, psychological and social factors must be considered. The current findings suggest that internal locus of control and emotional intelligence are protective factors against smoking behaviours. Therefore, the following suggestions are presented for the prevention of cigarette smoking.

According to reviewed studies, adolescents have low awareness concerning the harmful effects of cigarette smoking. Hence, designing a long-term plan to increase their awareness about the harmful and dangerous effects of cigarette consumption is necessary. Educational and cultural institutions, such as families, schools, universities and the mass media, particularly television, play a key role in educating adolescents about the harmful effects of cigarette consumption.

According to, the findings with emotional intelligence training, life skills will be improved in adolescents. Therefore, the acquisition of this skill can help to prevent smoking in adolescents. In addition, given that stress is considered as one of the risk factors in smoking and stress management is originated by emotion management (Hill and Maggi, 2011). Therefore, emotional intelligence training may act as a protective and a preventive factor against stress and smoking.

CONCLUSION

In conclusion, the findings of this study contribute to an increasing body research which suggest that the inclusion of emotional intelligence training and internal locus of control training as tools to help students and even smokers to address obstacles to treatment and can increase the efficiency of behavioral interventions for the prevention and treatment of smoking.

LIMITATIONS

Several limitations to this study need to be acknowledged. This study is cross-sectional design and not allow for causal interpretation about relationships between variables. Another limitation concerns the sample gender because this study was done only on male and researchers could not generalize the findings to female. This study is a self-reported method and participants may overstate to answer the self-report questionnaires for reasons of social desirability. It is plausible that interview with each participant enable us to delete mentioned limitation.

RECOMMENDATIONS

Researchers suggest for future studies the longitudinal methods because responses are more reliable and closer to reality. Another interesting suggestion for future studies is a comparative study between adolescents with positive attitudes towards cigarette smoking and adolescents with negative attitudes towards cigarette smoking about their emotional intelligence and locus of control. Also, future research would study on emotional intelligence training as protective factor samong smokers.

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REFERENCES

Babanov, S.A., 2006. The epidemiological characteristics of tobacco smoking. Vestnik Rossiiskaia Akademiia Meditsinskikh Nauk, 8: 27-29.

Bastian, V.A., N.R. Burns and T. Nettelbeck, 2005. Emotional intelligence predicts life skills but not as well as personality and cognitive abilities. Personality Individual Differences, 39: 1135-1145.

Brackett, M.A. and J.D. Mayer, 2003. Convergent, discriminant and incremental validity of competing measures of emotional intelligence. Personality Soc. Psychol. Bull., 29: 1147-1158.

Byrne, B.M., 2010. Structural Equation Modeling with AMOS: Basic Concepts, Applications and Programming. 2nd Edn., Taylor and Francis Group, New York, USA., ISBN-13: 978-0805863734, Pages: 416.

Chiteji, N., 2010. Time preference, noncognitive skills and well being across the life course: Do noncognitive skills encourage healthy behavior? Am. Econ. Rev., 100: 200-204.

Craig, A., Y. Tran, G. Hermens, L.M. Williams, A. Kemp, C. Morris and E. Gordon, 2009. Psychological and neural correlates of emotional intelligence in a large sample of adult males and females. Personality Individual Differences, 46: 111-115.

Duncan, L.R., M.C. Bertoli, A.E. Latimer-Cheung, S.E. Rivers, M.A. Brackett and P. Salovey, 2013. Mapping the protective pathway of emotional intelligence in youth: From social cognition to smoking intentions. Personality Individual Differences, 34: 542-544.

Filion, K.B. and R.V. Luepker, 2013. Cigarette smoking and cardiovascular disease: Lessons from Framingham. Global Heart, 8: 35-41.

Gonzalez, A., M.J. Zvolensky, A.A. Vujanovic, T.M. Leyro and E.C. Marshall, 2008. An evaluation of anxiety sensitivity, emotional dysregulation and negative affectivity among daily cigarette smokers: Relation to smoking motives and barriers to quitting. J. Psychiatric Res., 43: 138-147.

Haenle, M.M., S.O. Brockmann, M. Kron, U. Bertling and R.A. Mason *et al*., 2006. Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults. BMC Public Health, Vol. 6. 10.1186/1471-2458-6-233

Hagger-Johnson, G., S. Sabia, H. Nabi, E. Brunner, M. Kivimaki, M. Shipley and A. Singh-Manoux, 2012. Low conscientiousness and risk of all-cause, cardiovascular and cancer mortality over 17years: Whitehall II cohort study. J. Psychosomatic Res., 73: 98-103.

Hammond, D., 2005. Smoking behaviour among young adults: Beyond youth prevention. Tobacco Control, 14: 181-185.

Hill, E.M. and S. Maggi, 2011. Emotional intelligence and smoking: Protective and risk factors among Canadian young adults. Personality Individual Differences, 51: 45-50.

Jaffee, W.B. and T.J. D'Zurilla, 2009. Personality, problem solving and adolescent substance use. Behav. Ther., 40: 93-101.

Kline, R.B., 2005. Principles and Practice of Structural Equation Modeling. 3rd Edn., Guilford Press, New York, Pages: 366.

Kline, R.B., 2010. Principles and Practice of Structural Equation Modeling. Guilford Press, New York.

Kun, B. and Z. Demetrovics, 2010. Emotional intelligence and addictions: A systematic review. Subst. Use Misuse, 45: 1131-1160.

Limonero, J.T., J. Tomas-Sabado and J. Fernandez-Castro, 2006. Perceived emotional intelligence and its relation to tobacco and cannabis use among university students. Psicothema, 18: 95-100.

Lindqvist, R. and H. Aberg, 2002. Locus of control in relation to smoking cessation during pregnancy. Scand. J. Public Health, 30: 30-35.

MacKinnon, D.P., C.M. Lockwood, J.M. Hoffman, S.G. West and V. Sheets, 2002. A comparison of methods to test mediation and other intervening variable effects. Psychol. Methods, 7: 83-104.

Mayer, J.D., P. Salovey and D.R. Caruso, 2004. Emotional intelligence: Theory, findings and implications. Psychol. Inquiry, 15: 197-215.

Moxham, L., T. Dwyer and K. Reid-Searl, 2012. Graduate nurses and nursing student's behaviour: Knowledge and attitudes toward smoking cessation. Nurse Educ. Today, 33: 1143-1147.

Ramlau, R., J. Didkowska, U. Wojciechowska and W. Tarkowski, 2004. Tobacco smoking in Wielkopolska towards the end of 20th century. Pneumonol. Alergol. Pol., 73: 128-134.

Reitzel, L.R., S. Lahoti, Y. Li, Y. Cao, D.W. Wetter, A.J. Waters and J.I. Vidrine, 2013. Neighborhood vigilance, health locus of control and smoking abstinence. Am. J. Health Behav., 37: 334-341.

Riahi, M.E., A. Aliverdinia and M.R. Soleiman, 2009. Attitude of the boy's students toward the cigarette smoking in Ghaemshar city. Iran. J. Epidemiol., 5: 44-54.

Rivers, S.E., M.A. Brackett, M.R. Reyes, J.D. Mayer, D.R. Caruso and P. Salovey, 2012. Measuring emotional intelligence in early adolescence with the MSCEIT-YV psychometric properties and relationship with academic performance and psychosocial functioning. J. Psychoeducational Assess., 30: 344-366.

Rotter, J.B., 1990. Internal versus external control of reinforcement: A case history of a variable. Am. Psychol., 45: 489-493.

Schutte, N.S., J.M. Malouff, L.E. Hall, D. Haggerty, J.T. Cooper, C.J. Golden and L. Dornheim, 1998. Development and validation of a measure of emotional intelligence. Personality Individual Differences, 25: 167-177.

Sherman, S.J., L. Chassin, C. Presson, D.C. Seo and J.T. Macy, 2009. The intergenerational transmission of implicit and explicit attitudes toward smoking: Predicting adolescent smoking initiation. J. Exp. Soc. Psychol., 45: 313-319.

Taiwo, A.O., P.O. Olapegba and G.A. Adejuwon, 2005. Psychosocial factors associated with smoking behavior among secondary school adolescents in Ibadan metropolis. Afr. J. Psychol. Study Soc. Issues, 8: 264-279.

Tomarken, A.J. and N.G. Waller, 2005. Structural equation modeling: Strengths, limitations and misconceptions. Annu. Rev. Clin. Psychol., 1: 31-65.

Trinidad, D.R., J.B. Unger, C.P. Chou and C.A. Johnson, 2004. The protective association of emotional intelligence with psychosocial smoking risk factors for adolescents. Personality Individual Differences, 36: 945-954.

Trinidad, D.R., J.B. Unger, C.P. Chou and C.A. Johnson, 2005. Emotional intelligence and acculturation to the United States: Interactions on the perceived social consequences of smoking in early adolescents. Subst. Use Misuse, 40: 1697-1706.

Triplett, R. and B. Payne, 2004. Problem solving as reinforcement in adolescent drug use: Implications for theory and policy. J. Crim. Justice, 32: 617-630.

Vidrine, J.I., L.R. Reitzel, P.Y. Figueroa, M.M. Velasquez, C.A. Mazas, P.M. Cinciripini and D.W. Wetter, 2013. Motivation and Problem Solving (MAPS): Motivationally based skills training for treating substance use. Cognit. Behav. Pract., 20: 501-516.