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Sensation Seeking And Self-Efficacy Effect On Adolescents Risky Driving And Substance Abuse

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Abstract

Purpose of the article: to investigate the matching effect of self-efficacy and sensation seeking on three health risk behaviors in adolescents: risky driving, alcohol use, and marijuana use. *Methods* 330 Italian adolescents completed the Arnett Inventory of Sensation Seeking, Perceived Self-Regulatory Efficacy Scale, and Health Behavior Questionnaire (for risky driving, alcohol and marijuana use). *Results* Engagement in all health risk behaviors was statistically higher in adolescents with high level of Sensation Seeking and low level of Self-efficacy and was lowest in the group with low Sensation seeking and high Self-efficacy. *Conclusions* In adolescents it is likely that combination of high Sensation seeking and low Self-efficacy is a health risk factor, whereas low Sensation Seeking and high Self-efficacy is a health protective factor.

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Keywords: sensation seeking; self-efficacy; risky driving; risk behavior; drug use

Introduction

The likelihood that adolescents will engage in health risk behaviors is highly influenced by individual and environmental factors (Ahern, 2006). Risk factors increase the probability of engagement in health risk behaviors, whereas protective factors decrease that probability (Rutter, 1990).

Sensation seeking is a temperamental predisposition to risk-taking. Individuals high in sensation seeking appear to be drawn to activities that are high in risk such as reckless driving (Patil, Shope, Raghunathan, & Bingham, 2006), heavy alcohol use (Conrod, Castellanos, & Mackie, 2008), and use of illicit drugs (Cyders & Smith, 2008; Hoyle, Stephenson, Palmgreen, Lorch, &, Donohew, 2002). One explanation for these findings is that high sensation seekers underestimate the risks associated with such conducts (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002).

One counterpoint to sensation seeking is resistance to peer influence that acts as a protective factor in health risk behaviours. In fact, given that most risky behaviours that adolescents engage in take place in the presence of the peer group, susceptibility to peer influence is thought to encourage adolescents' tendency to engage in risky behaviours (Gardner & Steinberg, 2005) while resistance to peer influence reduces involvement in health risk

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behaviour (Gore, 2006) such as alcohol use (Watkins, Howard-Barr, Moore, & Werch, 2006), and illicit drug use (Barkin, Smith, & Durant, 2002). Data on resistance to peer influence and risky driving are scarce, particularly for the adolescent population. However, there is evidence that higher resistance to peer influence is related to higher rates of seat belt and helmet use (Conner & Norman, 2005).

Although several studies examined the unique contribute of sensation seeking and resistance to peer influence on different conduct disorders in adolescence (Smorti, Benvenuti, & Pazzagli, 2010), the combined effect of these variables on health risk behaviors is little known. The general purpose of the present study was to examine the combined effect that resistance to peer influence and sensation seeking have on the probability of engaging in risky driving, alcohol use (frequency and quantity), and marijuana use (frequency) among adolescents. We hypothesize that adolescents with high sensation seeking and low ability to resistance to peer influence are at higher risk, engaging more frequently in risky driving, alcohol and marijuana use.

Method

Sample

The initial sample consisted of 422 adolescents (222 males and 200 females) aged from 14 to 19 years (M =16.6; SD =1.5) attending secondary schools in a medium-sized town in central Italy. The requirements for participation in the present study were that respondents were drivers[*]. The final sample included 330 subjects (168 males; 162 females), aged from 14 to 19 years (M = 16.8; SD = 1.6).

Measures

Sensation seeking: The Italian version (Smorti, & Guarnieri, 2013) of the Arnett Inventory of Sensation Seeking (AISS) (Arnett, 1994) was employed. The scale consists of 17 items measuring the seeking of intensity and novelty in sensory experience. For each item participants rated on a 4-point Likert scale the extent to which the item describe them (1=*Don't describe me at all*; 4=*Describe me very well)*. Total score ranges from 17–68 with higher scores indicate of higher levels of sensation seeking (Cronbach's alpha = .74).

Resistance to peer influence. The Italian version (Pastorelli, & Picconi, 2001) of the Perceived Self-Regulatory Efficacy subscale of the Perceived Self-Efficacy Scale (Bandura, Barbaranelli, Caprara & Pastorelli, 1996) was employed. This scale consisted of 12 items assessing adolescents' perceived self-regulatory efficacy to resist peer influence to engage in high-risk activities involving risky driving, alcohol, drugs that can get them into trouble. For each item, participants rated on a 4-point Likert scale (1=*Totally unable*; 4=*Totally able)*. Total score ranges from 12–48 with higher scores indicate of greater self-efficacy (Cronbach's Alpha = .79).

Risky behavior. The Italian version (Bonino, 1995) of the scale on risky driving of the Health Behavior Questionnaire (Jessor, 1992) was employed. The questionnaire investigates various aspects of adolescents' daily lives. The present study was based on responses to selected questions regarding risky driving, alcohol use and marjuana use.

Risky driving was evaluated by considering the frequency of thirteen different traffic offences over the last 6 months (i.e. "Exceeding the speed limit by over 30 km/h"). For each item adolescents answered on a 4-point Likert scale (1=*Never*; 4=*Always*). Total score is derived by the sum of all items and could range from 13–52 (Cronbach's alpha= .76).

Alcohol use was evaluated by two questions considering the frequency of alcohol use in the last 6 months (1=*from one to four times;* 5=*two or more days a week)*. And the quantity of alcohol consumed (per event) (0 =*less than one drink*; 3=*four or more drinks*).

Marjuana use was evaluated assessing the frequency of marjuana use in the last 6 months (1 = *from one to four times;* 5 = *two or more days a week)*.

Procedure

In accordance with the American Psychological Association's guidelines for the ethical treatment of human

[*] By Italian law, mopeds (with piston displacement lower than 125 cc) can be driven from the age of 14 with a specific driving license. Motorcycles (with piston displacement higher than 125 cc) can be driven from the age of 16 with a specific driving license (type A). The license to drive a car (type B) can be obtained from the age of 18.

participants, formal consent from parents and educational authorities was obtained prior to starting data collection. After adolescents had agreed to participate in the study, they were asked to anonymously fill out the questionnaire.

Data analysis

To evaluate sensation seeking and self-efficacy, we considered the means and the standard deviations for the sample as a whole and then separately for males and females. To determine whether sensation seeking and self-efficacy differed in relation to sex, we performed univariate analysis of variance (ANOVA).

To distinguish between high and low levels of sensation seeking and self-efficacy, we stratified subject scores by percentile (total score ≥ or < the 50th percentile).

On the basis of the total scores for sensation seeking and self-efficacy, we divided the adolescents into four groups: those with low sensation seeking and low self-efficacy (LSS-LSE); those with low sensation seeking and high self-efficacy (LSS-HSE); those with high sensation seeking and low self-efficacy (HSS-LSE); and those with high sensation seeking and high self-efficacy (HSS-HSE).

To determine whether the four groups of subjects differed in relation to risky driving, alcohol, and marijuana use, we used univariate ANOVA, with Scheffé's post hoc test, as appropriate. We performed all statistical analyses using the Statistical Package for the Social Sciences, version 13.0 for Windows (SPSS Inc., Chicago, IL, USA).

Results

Table 1 shows the descriptives analysis of sensation seeking and self-efficacy by sex. The univariate ANOVA of those scores revealed statistically significant sex differences: males had higher sensation seeking ($F=12.44$, $p<.001$) and lower self-efficacy ($F=43.22$, $p<.001$).

Table 1
Descriptives analysis for Sensation Seeking and Self-Efficacy, by Sex

	Males		Females		Total		*P*
	M	SD	M	SD	M	SD	
Sensation seeking	37.19	5.80	31.97	5.56	34.58	5.78	<.001
Self-efficacy	34.73	5.79	38.65	5.99	36.65	5.75	<.001

To distinguish adolescents on lower and higher sensation seeking and self-efficacy, we sorted subjects, separately for males and females, by means of 50th percentile. We found that the scores for sensation seeking were below the 50th percentile in 167 adolescents (88 males; 79 females) and were at or above the 50th percentile in 163 (80 males; 83 females), whereas the scores for self-efficacy were below the 50th percentile in 168 adolescents (89 males; 79 females) and were at or above the 50th percentile in 162 (79 males; 83 females). On the basis of 50^{th} percentile, participants were divided into four groups:

I) low sensation seeking and low self-efficacy (LSS-LSE): 64 subjects (35 M; 29 F)
II) low sensation seeking and high self-efficacy (LSS-HSE): 103 subjects (53 M; 50 F)
III) high sensation seeking and low self-efficacy (HSS-LSE): 104 subjects (54 M; 50 F)
IV) high sensation seeking and high self-efficacy (HSS-HSE): 59 subjects (26 M; 33 F)

Table 2 shows the mean scores, by group, for risky driving, alcohol use, and marijuana use. The univariate ANOVA of those scores showed statistically significant differences among the groups in terms of the scores for risky driving ($F=1317.70$, $p<.001$), alcohol use (frequency: $F=53.16$, $p<.001$; quantity: $F=21.34$, $p<.001$), and marijuana use ($F=52.69$; $p<.001$).

Table 2
Scores for Risky Driving, Alcohol Use, and Marijuana Use in Adolescents

	Group				p^a
	LSS-LSE	LSS-HSE	HSS-LSE	HSS-HSE	
Risky driving	23.17 ± 7.82	18.57 ± 4.86*	27.31 ± 7.75**	22.41 ± 5.44	< .001

Alcohol frequency	2.47 ± 1.80	1.61 ± 1.44*	3.36 ± 1.31**	2.58 ± 1.66	< .001
Alcohol quantity	1.27 ± 0.38	0.94 ± 0.49†	2.02 ± 0.57**	1.63 ± 0.31	< .001
Marijuana frequency	0.89 ± 0.25	0.33 ± 0.05†	2.06 ± 0.16*	1.19 ± 0.11	< .005

Note. Results expressed as mean ± SD. LSS = low sensation seeking; LSE = low self-efficacy; HSE = high self-efficacy; HSS = high sensation seeking.
[a]Univariate analysis of variance.
*p < .005 vs. the other groups; **p < .001 vs. the other groups; †p < .001 vs. the HSS-LSE group and HSS-HSE group.

Scheffé's post hoc test revealed that:
- Adolescents in the HSS-LSE group were significantly more likely than were those in all other groups to engage in risky driving, to use alcohol (frequency and quantity), and to use marijuana frequently.
- Adolescents in the LSS-HSE group were significantly less likely than were those in all other groups to engage in risky driving and to use alcohol frequently, as well as being significantly less likely than were those in the HSS-LSE and HSS-HLE groups to consume larger quantities of alcohol and to use marijuana frequently.
- The scores for adolescents in the LSS-LSE group and the HSS-HSE group were moderate and presented no significant statistical differences.

Discussion

This study investigated the combined effect that sensation seeking and self-efficacy have on three health risk behaviors (risky driving, alcohol use, and marijuana use) in adolescents. In line with our hypothesis, our results show that adolescents in the LSS-HSE group less often engaged in risky driving, alcohol use, and marijuana use than did those in the other groups. Conversely, adolescents in the HSS-LSE group engaged in risky driving, alcohol use, and marijuana use more often than did those in the other groups. The differences between the LSS-HSE and HSS-LSE groups were statistically significant, indicating that the combination of low sensation seeking and high self-efficacy is a major protective factor against engaging in health risk behaviors, whereas the high sensation seeking-low self-efficacy combination constitutes a strong risk factor for engaging in such behaviors.

The results obtained for the LSS-LSE and HSS-HSE groups were intermediate between those obtained for the LSS-HSE group and those obtained for the HSS-LSE group. There were no statistically significant differences between the LSS-LSE and HSS-HSE groups, suggesting that the protective effect of self-efficacy and the detrimental effect of sensation seeking can counteract each other proportionately.

Our study has some limitations. All of the subjects attended school in the same city and lived in the same region. Therefore, our results could have been influenced by social and cultural variables specific to this city and region of Italy. Additional studies in different cities and countries could provide information regarding the impact of social and cultural variables, thereby illuminating any control bias that might have influenced the results obtained in the present study.

Conclusion

Although other studies have shown that sensation seeking and self-efficacy both correlate with the probability of an adolescent engaging in health risk behaviors, there have been no studies evaluating the interaction of these two personality features. This study is the first of its kind in that it evaluates the combined effect that sensation seeking and self-efficacy have on the frequency of health risk behaviors in adolescents.

Recent research of a brief intervention targeting personality risk factors for adolescent alcohol and substance use have obtained promising results (Conrod, Castellanos, & Strang, 2010). Appling self-efficacy and sensation seeking questionnaires in conjunction can be an interesting means of screening for higher risk conditions (low self-efficacy and high sensation seeking) in adolescents. Our results might also be beneficial to further studies of preventive interventions that address these specific groups. Increasing the perception of self-efficacy in adolescents with high sensation seeking and low self-efficacy might be effective in reducing their engagement in health risk behaviors. Further studies are needed in order to investigate this supposition.

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