

Sensation Seeking Tendency and its Correlates in Adolescents and Young Adults- A Developmental Study

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ABSTRACT

Sensation seeking is a personality trait expressed in the generalized tendency to seek varied, novel, complex, and intense sensations and experiences and the willingness to take risks for the sake of such experiences (Zuckerman, 1979,1994,2007). The objective of the present study was to assess the sensation seeking tendency of male adolescents in the age group 16-17 (G1=25) and young adults in the age group 20-21 (G2=25). Zuckerman's sensation seeking scale (SSS-V) was used to assess sensation seeking tendency of the participants. The value of $t_{obtained}$ for Sensation Seeking tendency, Thrill and Adventure Seeking, Disinhibition, Experience Seeking, Boredom Susceptibility is -0.25, -0.07, -0.073, 0.098, -2.53, respectively. The value of $t_{critical}$ is 1.676 at 0.05 level of significance. The value of $t_{obtained}$ is less than $t_{critical}$ indicating that adolescents have higher sensation seeking tendency, thrill and adventure seeking tendency, Disinhibition, Experience Seeking tendency, Boredom Susceptibility tendency than young adults because of which they engage in high physical, social, legal and financial risky behaviors which includes activities like sky diving, mountain climbing, more of alcohol use, social non-conformity and risky sexual behavior.

Key Words: *Sensation seeking tendency, adolescents, young adults*

Introduction

Sensation seeking reflects the desire for new and exciting personal experiences in the physical, mental and social domains (Zuckerman, 1990). It is the need for varied novel and complex sensation and experiences and the willingness to take physical and social risk for the sake of such experiences (Zuckerman, 1984). Sensation seeking represents the response to intense or new stimuli. It is not a dichotomous category rather it exists as a continuum. Individual's reactions to intense or new stimuli range from sensation approach on the one

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end to sensation withdrawal on the other. Major characteristic of high sensation seeking individuals is the engagement in the new and intense stimuli. Low sensation seeking individuals show sensation withdrawal and engage in avoidance behavior. One interesting thing about Sensation seeking trait is that it explains a range of human behaviors that are not necessarily rational in modern societies including thrill seeking hobbies such as sky-diving and base-jumping, bungee-jumping, parachuting, hand-gliding, rock-climbing, fast and risky driving (including driving while intoxicated), gambling, and attending x rated movies and horror films. Sensation seeking is associated with wide array of thrill seeking activities often defined as problem behaviors including sexual risk taking, unprotected sex, alcohol use, tobacco use and drug use (Reniers, Murphy, Lin, Bartolome, & Wood, 2016). Since sensation seeking trait has a potential for explaining a very wide range of human behaviors developmental researchers have been interested in its etiology.

According to Smith and Bird (2000) have proposed an evolutionary explanation for Sensation seeking. They propose that hunter-gatherer societies had to explore opportunities for mating and child rearing. Activity of hunting large animals entailed a lot of risk. Successful hunting was associated with superior fitness and ability to have healthier offspring (Smith & Bird, 2000). Though in modern societies, human beings no longer need to compete to fulfill their basic needs but contemporary societies pose many challenges like legal, economic, social and political risks which may have lead to sustenance of such traits in human beings. (Goma-i-Freixanet, 2004).

Sensation seeking is conceptualized as a trait with underlying biological mechanisms (Zukerman, 1979). Individual differences in one's biological composition explain why some individuals prefer more stimulation than others do. Biological explanation of sensation seeking is that thrill seeking experiences activate the release of dopamine and, along with serotonin and norepinephrine, provide the chemical reward that produces a positive emotional response among high sensation seekers. For sensation seekers, participating in these thrill seeking activities elicits a "transient and rapid surge" of dopamine and "points to an enhanced functioning of mesolimbic DA (dopamine) reward pathway in the brain of high novelty responders." (Reniers, Murphy, Lin, Bartolome, & Wood, 2016). Sensation seeking has been found to be related to augmenting neurological responses, lower platelet monamine oxidase (MAO) levels (Schooler, Zahn, Murphy, & Buchsbaum, 1978) and higher testosterone levels (Daitzman, Zuckerman, Sammelwitz, & Ganjam, 1978).

Arnett (1992) has emphasized the role of socialization in modifying any biological and/or genetic propensity for sensation seeking. According to him

Sensation seeking has been conceived as being influenced by biological predispositions in interaction with the social environment. In this model, socialization is at least as important as biology; the form of expression of Sensation Seeking depends on the nature of the socialization environment (Farley, 1973), and the tendency may even be suppressed if the socialization environment is highly narrow and restrictive (Arnett, 1992). It is considered to be a predisposition, a potential, which may be expressed in a variety of ways depending on other aspects of individual's personality and depending on how the social environment guides, shapes, or suppresses that predisposition. Positive expressions of Sensation seeking may be manifested if a person has been socialized in such a way that Sensation seeking trait has been disciplined and directed by conscience and impulse control.

People often believe that adolescents engage in risky behavior because they are not good at evaluating risk but early research in this area demonstrated that adolescents are just as good as adults at evaluating risks across a broad range of risky behavior. So, teens know that the behaviors are risky, but they still engage in them. The research on peer relationships and brain development throws some light on this issue. Researchers have found several changes in the brain during puberty (Blackmore, 2014) that are important in explaining risky behavior. During the adolescence period, there is an increased interest in peer relationships (Larson, 1991), and susceptibility to peer influence increases during the early teen years and peaks at about age 14 (Burnett & Dahl, 2014). Consistent with these readily observable changes in peer relationships, brain imaging studies have shown that several areas of brain make adolescents more sensitive to the rewards of peer relationships than adults (Albert, 2013) This motivates teens to focus on their peers in decision making situations that involve risky behavior. The adolescents are more distressed than adults when excluded by peers. A brain region known as the right ventro-lateral prefrontal cortex (PFC) might be important in helping people cope with negative evaluation from peers by reducing distress. Research shows that this brain region is used more heavily by adults when being socially excluded than by adolescents (Sebastian, 2011) When teens do use this area of brain during peer exclusion, they report lower levels of distress (Masten, 2009). During the adolescent years, this brain region is still developing (Blackmore, 2014), so adolescents may not be as effective at controlling distress during peer social exclusion. This likely contributes to engaging in risky behaviors to prevent being excluded by their peers. Third, another area of the brain, the lateral pre-frontal cortex (PFC), is responsible for mature self-regulation and develops gradually over the adolescent period (Albert, 2013). In one study, early adolescents, late adolescents and adults behaved similarly on a computerized driving task when they were by themselves (Steinberg, 2005). However, when they were paired with two same

aged friends, clear differences emerged. Early adolescents were more likely to engage in risky driving when friends were present. Late adolescents were somehow riskier in their driving when they were with friends. The presence of friends had no impact on adult's driving. Using the computerized driving task in conjunction with an fMRI, researchers found that, in contrast to adults, adolescents were more likely to engage in risky driving when they knew their friends were observing them than when they were alone (Albert, 2013). The area of the brain that was used by the adults, the Prefrontal Cortex helps with decision making and self regulation in tasks such as driving. In contrast, adolescents used areas of the brain that are more closely associated with rewards when completing the driving tasks. So we have changes in brain during early adolescents that makes teens more focused on the rewards of peers and being included in peer activities. This increased focus on peers during a time when the Prefrontal Cortex is not yet ready to assist in mature self regulation. These factors provide a 'perfect storm' of opportunities for risky behavior.

Prospect theory in the field of international relations and politics gives new insight into risky decision making which is also related to sensation seeking tendency. According to this theory, decision makers accept risks in order to avoid losses rather than to make comparable gains. Thus, this theory says that our willingness to take risks depends on how problems are framed. Therefore, our decisions are shaped by the situation. Another theory given by (Weinstein, 1980) draws attention to risk perception and how it may be mediated by experience. He emphasized that people underestimate the likelihood that they will experience adverse events in their lives, known as optimism-bias.

Apter (1975) developed reversal theory which strives to provide a systematic structure in order to explain the connection between arousal level, the subjective perception of emotion and the influence of social context and behavior. The concept of paradoxical behavior, which refers to conduct that is not essential for human survival but is voluntarily undertaken even though it might negatively effect the health, well-being and survival of the individual, is explained in this theory.

Sensation seeking has been applied in relation to risk behavior (Arnett, 1994). The desire for intensity and novelty of experience is one motivation for norm breaking and anti-social behavior (Zuckerman, 1984). Sensation seeking has been associated with participation in a number of risky activities (Zuckerman, 1990) including unhealthy behaviors such as smoking, heavy drinking, criminal behavior, risky sexual behavior, drug abuse, driving under the influence of alcohol, high risk sports, etc. High and low sensation seekers tend to appraise risk differently (Horvath & Zuckerman, 1993). High sensation

seekers seek out that provide a greater arousal and they will experience less anxiety than low sensation seekers if they were in risky situations (Zuckerman, 1979).

Gender. Males were found to be higher in Sensation seeking than females, among both adolescents and adults (Zuckerman, 1983). It may be tempting to suggest a biological basis for this difference, as testosterone is higher among males. However, from infancy onward, biological differences between males and females are inextricable from socialization. One area for future research on sensation seeking is the examination of the ways in which boys and girls may have their sensation seeking tendencies socialized into different avenues, resulting in the expression of sensation seeking in gender-related types of behavior.

Age. Age differences were also found in Sensation Seeking with adolescents reporting higher levels of Sensation Seeking than adults in general (Zuckerman & Arnett, 1978,1994). This is because parents design the environment for adolescents. The adolescents are not allowed by their parents to engage in adventures. So their thrill seeking level is increased since it not fulfilled. They lack experiences in life. However, adolescent's disinhibition is low since parents have a control on them. While, young adults are able to fulfil their adventure and thrill seeking intentions when they move out of their houses for their college. They are being exposed to such adventures so they are more satisfied in life. However, young adults are not able to control their disinhibition as no one is there to guide them.

Alcohol. Sensation seeking has been related with alcohol use (Schwartz, 1985). According to Magdid (2007) disinhibition is a strong correlate of alcohol use. Sensation-seeking and impulsivity are associated with alcohol use through different mediational pathways. There were some evidence for gender moderating these pathways. The findings indicate alcohol prevention and intervention programmes should be tailored to specifically target individuals elevated on impulsivity and sensation-seeking.

Sexuality. Sensation-seeking is a potential mediating factor in sexual risk for human immunodeficiency virus infection (HIV) which is the cause of acquired immunodeficiency syndrome (AIDS) (Kalichman, 1994). Zuckerman, Tushup, & Finner (1976) have related sensation seeking with variety of sexual experiences.

Smoking. Sensation-seeking is one factor which has been associated with smoking in adolescents (Doran, 2011). High school students in high Sensation seeking reported heavier cigarette smoking. This effect was noted particularly for males. They further suggested the need for increasing the sensation value for anti-tobacco messages.

Substance abuse. High sensation seeking in adolescence was associated with risk taking behaviour especially substance use (Ana Ortim, 2012). Satinder & Black (1984) have related sensation seeking with drug use.

Suicidal ideation. Sensation seeking had significant correlation with suicidal ideation and it remained significant even after controlling for depression and substance abuse. Screening for sensation seeking may contribute to the reduction of adolescent's suicide risk. (Ana Ortim, 2012).

Dangerous driving practices. Sensation seeking has been suggested to be related to risky behaviour like dangerous driving practices. (Neeb, 1980).

Criminality and Psychopathy. Sensation seeking tendency has been suggested to be highly associated with minor criminalities and psychopathy. (Perez & Torrubia, 1985). Lykken (1969,1982) have noted that Sensation Seeking and other related qualities like 'stimulus seeking', 'fearlessness', and "the search for excitement and tension" are the basis for many types of anti-social behavior, even to the extreme of psychopathy (Cleckley, 1976).

Aggression. Sensation Seeking was found to be related to aggressiveness at least amongst adolescents (Arnett, 1992). It may also be related to other personality traits like extraversion, psychoticism and impulsivity (Eysenck & Eysenck, 1975).

While the focus of much research on Sensation Seeking has been its relation to risk behavior, other manifestation of the Sensation Seeking trait should be also explored (Arnett, 1993).

Leadership. Sensation Seeking could be related to attaining positions of leadership as such positions often involve high intensity of experience (Arnett & Lykken, 1991,1982).

Creativity. It also may be one of the factors involved in high achievement in some fields, because the enjoyment of intensity can be reflected in the ability to remain poised in high stress situations, and the desire for novelty can be expressed as creative, divergent thinking (Domangue, 1984).

Present Study

The study aims to explore sensation seeking tendency in adolescents and young adult males, using Sensation Seeking Scale (Form V). Sensation seeking reflects the desire for new and exciting personal experiences in the physical, mental and social domains (Zuckerman, 1990). In our day to day life, we keep hearing media reports and reading articles about adolescents and young adults engagement in behaviors such as increased use of alcohol, drug abuse, drunk driving, risky sexual behaviors, rape and molestation, with blue whale

challenge being the latest one. As indicated by the review very few studies have been carried out in Indian context on this topic. Zuckerman (1990) suggested that the desire for intensity and novelty of experience is one motivation for norm-breaking and anti-social behavior. It is intriguing to understand why people in this age group engage in such activities despite being aware of the risks associated with it.

The objective of the study was to make a comparison between male adolescents and young adults on their sensation seeking tendency. Sensation seeking tendency was assessed on based on four factors namely- Thrill and Adventure Seeking (TAS), Disinhibition (Dis), Experience Seeking (ES), and Boredom Susceptibility (BS).

The following hypotheses were proposed-

- (i) Adolescents will have a greater sensation seeking tendency than young adults
- (ii) Adolescents will have a greater a thrill and adventure seeking than young adults
- (iii) Adolescents will have a greater in disinhibition than young adults
- (iv) Adolescents will have a greater in experience seeking than young adults
- (v) Adolescents will have a greater in boredom susceptibility than young adults

Method

Research Design

A cross-sectional study was carried out to assess the sensation seeking tendency in two groups of male adolescents and young adults. A quantitative approach was used for data collection (self-report questionnaire) and analysis (mean and t-test).

Participants

Participants were selected using purposive and convenience sampling. The sample for pilot study consisted of 12 male participants (G1 = 6; G2 = 6). The sample size for final study was 50 male participants (G1 = 25; G2 = 25). Each investigator collected data from two respondents - one from each group and the data was pooled. Two age groups: Group 1 (G1): 16-17 years (class XI and XII), Group 2 (G2): 20-21 years (higher studies) were included in the study. The inclusion criteria were that all the participants were male, single, and

living with their families in Delhi. G1 participants were studying in school in 11th /12th standard and G2 participants were pursuing higher studies. Participants in both the groups had adequate level of comfort in reading and writing English language.

Procedure

All the available tools, such as Sensation Seeking Scale Form V (Zuckerman & Arnett, 1978,1994) , shortened version of Zuckerman's scale, Sensation Seeking Scale Form VI, for gathering information about sensation seeking tendency of adolescents and young adults were reviewed. Sensation seeking scale Form V was selected, being one of the most popularly used scale. Sensation Seeking scale Form V consists of 40 items and is revised version of Zuckerman's (1964) original measure. It enables assessment of an individual's sensation seeking tendency in totality as well as in terms of four sub-scales- Thrill and Adventure Seeking (Antecedent of indulgence in risky behaviours), Disinhibition (lack of restraint manifested in disregard for social conventions, impulsivity, and poor risk assessment), Experience seeking (tendency to take risks in the pursuit of exciting experiences) , Boredom susceptibility (Dislike of repetition, routine and other people who are not stimulating). Form V, has shown good psychometric properties. Males and females from both England and America yielded high estimates of reliability and the same reliable factor structure of four moderately inter correlated factors: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS), and Boredom Susceptibility (BS). Internal consistency reliability for males has been found to be ranging from 0.48 to 0.69 and for females - 0.44 to 0.67 (Cronbach, 1951).

Pilot study was carried out on a sample of 12 participants. Consent was taken from the participants aging 20-21, and from primary care givers of the participants aging 16-17, before administering the scale (Sensation Seeking Scale Form V) on them. On the basis of responses gathered, the scale was used in its original form. The same Sensation Seeking scale Form V was used for carrying out the main study. Consent was taken and rapport was established to make the participants feel at ease. Scale was administered in a well-lit environment, with minimized distractions. Participant was informed beforehand that the results obtained will be kept confidential and will be used only for research purposes.

Scoring of the individual responses was done using Table I in the appendices.

After gathering individual responses, where each investigator gathered a response from one adolescent and one young adult , data was pooled. t-test was calculated for all the sub-categories and Sensation-seeking tendency as a

whole. $t_{obtained}$ value was compared with $t_{critical}$ value, keeping p as 0.05 and hypotheses were accepted/rejected.

Results

Table 1
Sensation-seeking tendency and its sub-categories

Categories	Adolescents (Means)	Young Adults (Means)	t_{obt} ($df=48$)	$t_{critical}$	p
Sensation-Seeking tendency	21.16	20.6	-0.25	1.676	0.05
Thrill and Adventure seeking	7.56	7.52	-0.07	1.676	0.05
Disinhibition	5.28	4.8	-0.073	1.676	0.05
Experience seeking	4.64	4.72	0.098	1.676	0.05
Boredom Susceptibility	4.24	3.00	-2.53	1.676	0.05

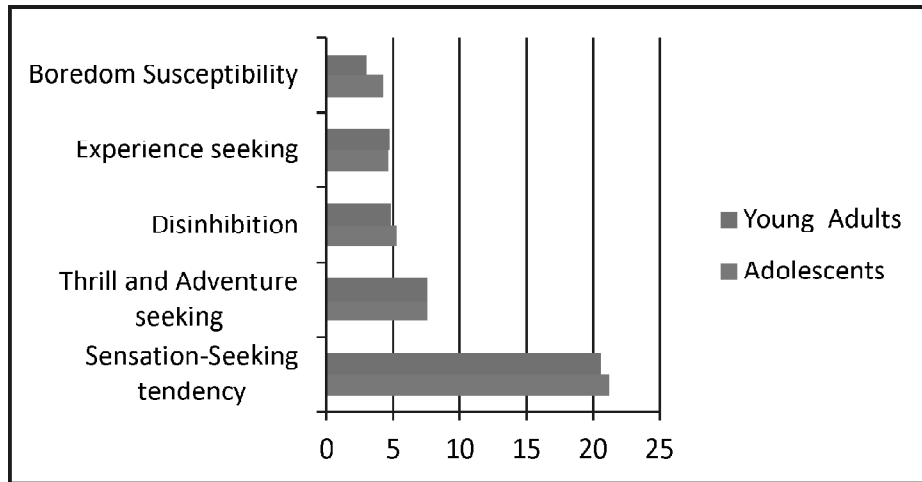


Figure 1: Bar diagram to show mean scores of sensation seeking tendency and its sub-categories

Discussion

The aim of this investigation was to assess the sensation seeking tendency and its correlates in adolescents and young adults. Sensation seeking existing as a continuum represents the response to intense or new stimuli. Individual’s reactions to intense or new stimuli range from sensation approach on the one end to sensation withdrawal on the other. Major characteristic of high sensation seeking individuals is the engagement in the new and intense stimuli. Low sensation seeking individuals show sensation withdrawal and

engage in avoidance behavior. Sensation seeking is not only a potential for taking risks, but is more generally a quality of seeking intensity and novelty in sensory experience, which may be expressed in multiple areas of a person's life. We should not presuppose that Sensation Seeking trait must be expressed in a norm breaking or anti-social ways. Sensation Seeking can be expressed in a variety of ways, some anti-social and some socially acceptable depending on the extent to which the individual's socialization environment guides or suppresses the SS tendency (Arnett, 1992).

On pooling the data with $N_{\text{total}} = 50$ ($G1=25, G2=25$), referring to Table 1 and Figure 1 in the Result section, the value of mean calculated on sub-category-Thrill and Adventure Seeking - for Adolescents is 7.56; for Young Adults is 7.52. Higher value of mean for Adolescents has been obtained in comparison to young adults. The value of t_{obtained} is -0.07 and with the value of $p=0.05$, the value of t_{critical} is 1.676. Using these results obtained, null hypothesis can be retained, i.e. Adolescents thrill and adventure seeking tendency is not significantly different than young adults. These results help us to infer that adolescents as likely to engage in behaviors that might be frightening such as learning how to fly an airplane, engage in skydiving as compared to young adults. The value of mean calculated of sub-category- Disinhibition for Adolescents is 5.28 and for Young Adults is 4.8 (table 1 and figure 1). The value of t_{obtained} is 0.073 (referring to table 1) and that of t_{critical} with $p=0.05$ is + 1.676. Since the value of t_{obtained} is less than the value of t_{critical} , null hypothesis that their will be no significant difference can be retained. It can be stated that Adolescents disinhibition is not significantly different than young adults. Schwartz and Torrubia (1985) have related sensation seeking with alcohol use. According to Magid (2007) disinhibition is a strong correlate of alcohol use. Young adults and adolescence are equally likely to engage in alcohol related risky behaviors such drinking and driving. The value of mean calculated of sub-category-Experience Seeking for Adolescents is 4.64 and for Young Adults is 4.72 (Table 1 and figure 1). The value of t_{obtained} is 0.098 and that of t_{critical} with $p=0.05$ is + 1.676. Since the value of t_{obtained} is less than the value of t_{critical} , null hypothesis stating that there is no significant difference can be retained. Adolescents will not be significantly different in their experience seeking tendency than young adults. Generally, adolescents and young adults want want to seek a new experience with every step they keep in life. Increasing involvement of adolescents and young adults in risky behaviors such as blue whale challenges is an apt example of this. In order to seek validation from the social world, they go to the extent of risking their own life and thereby bringing it to an end. It can be proposed that the results of the study are not in conjunction with the proposed hypothesis pertaining to experience seeking, disinhibition and thrill and adventure seeking because of the different child rearing practices in the Indian context. Indian parents

still largely adhere to collectivist value system with much stricter control and supervision in the adolescent years. This could explain that in comparison their counter parts in the west, the Indian adolescents do not get the opportunity to realize their sensation seeking tendency. As far as value of mean calculated of sub-category-Boredom Susceptibility for Adolescents is 4.24 and for Young Adults is 3.00 (Table 1 and figure 1). The value of $t_{obtained}$ is 2.53 and that of $t_{critical}$ with $p=0.05$ is 1.676. Since the value of $t_{obtained}$ is more than the value of $t_{critical}$, null hypothesis stating that there is no significant can be rejected. It can be stated that Adolescents will have greater boredom susceptibility tendency than young adults. Adolescents have an increased tendency to get bored with their everyday behaviors and practices. In comparison to young adults, they have increased quest for exploration. This search for excitement related activities has its basis for many anti-social behaviors, even to the extreme of psychopathy (Cleckley, 1976). The value of mean calculated of Sensation-Seeking Tendency of Adolescents is 21.16 and for Young Adults is 21.60 (Table 1 and figure 1). The value of $t_{obtained}$ is -0.25 and that of $t_{critical}$ with $p=0.05$ is 1.676. Since the value of $t_{obtained}$ is less than the value of $t_{critical}$, null hypothesis stating that their will be no significant difference is accepted. Adolescents will not have significantly greater sensation seeking tendency than young adults. (Arnett, 1993) has stated that age differences have been found in Sensation Seeking with adolescents reporting higher levels of SS than adults in general. Steinberg (2008) has linked pubertal maturation, following a curvilinear pattern, to age differences. Heightened vulnerability to risk-taking in middle adolescence may be due to the combination of relatively higher inclinations to seek excitement and relatively immature capacities for self-control that are typical of this period of development (Albert & Ortim, 2008,2012). However, our results are not in conjunction with the previous research because of the childrearing practices in Indian context which are very different from the western counterparts in terms of parental control, supervision and less importance being given to personal freedom and more importance being given to adherence to the group.

There were various limitations of the study. The instrument used-Sensation Seeking Scale Form V was not adapted according to Indian conditions. Due to logistical difficulties, convenience and incidental sampling were used. The study was carried out in a urban metropolitan settings, as a result the findings obtained cannot be generalized to rural settings. The sample included only one particular gender that were males, one cannot give any generalization about females on the basis of results obtained. All the participants belonged to socio-economically sound background and were also exposed to public school education. It would be interesting to carry out such studies involving participants from socio-economically weaker sections of the society.

Possibilities for future research include the relation between Sensation Seeking and other types of behaviour other than risk behaviour, and the relationship between Sensation Seeking and socialization. The research can be carried out on diverse sample. One area for future research on Sensation seeking is the examination of the ways in which boys and girls may have their sensation seeking tendencies socialized into different avenues, resulting in the expression of Sensation Seeking in gender-related types of behavior.

There are a several approaches that parents can use more effectively manage teens' peer relationships (Mounts, 2004,2008). For the younger adults, parent(s) might design the environment to provide safe activities that focus on young teens need for sensation seeking. For example, adult- supervised outdoor activity with peers such as rock climbing and zip lining can provide a great context for providing the excitement and social relationships needed for young teens. Supervised teens' interaction with peers and providing rules for peer interactions can limit opportunities for risky behaviour (Mounts & Steinberg, 2002,2004,2008,2010). Parents also should know and enforce graduated driving laws. Very often these laws limit the number of peers that are allowed in a vehicle when teens are driving. For older adults, parents can consult with teens about teens. Consulting can build on (Blackmore, 2012) teens growing ability to self regulate and encourage them to identify and develop strategies for navigating peer situation where risky activity is likely to occur (Mounts & Blakemore, 2004,2008,2012).

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