2012

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Sensation Seeking, Early Pregnancy and Criminal Justice System Involvement Among Latino Youth

A Thesis Presented to

The Faculty of the Psychology Department

The City College of New York

In Fulfillment

of the Requirements for the Degree

Masters of Arts

By

Jillian Jankie
Abstract

The present study examined the relationship between the level of sensation seeking, early pregnancy, and criminal justice system involvement among Latino youth. It is a secondary analysis of data that comes from the Boricua Youth Study, an ongoing longitudinal study of Puerto Rican children and preadolescents living in the South Bronx and Puerto Rico. In the current analysis, data were analyzed on 69 participants who had completed measures of sensation seeking, pregnancy and arrests to predict whether sensation seeking would predict arrests and pregnancy at the second time period. Sensation seeking was evaluated at baseline. Early pregnancy and criminal justice system involvement were evaluated at a follow up period 10 years later. Results showed that sensation seeking did not predict pregnancy, but it did predict youth criminal justice involvement. Implications of the findings and future directions are discussed.
Sensation Seeking, Early Pregnancy and Criminal Justice System Involvement Among Latino Youth

Sensation Seeking (SS) is a personality trait defined by the need to seek new sensations and experiences, as well as the inclination to take on the risks these sensations and experiences pose (Zuckerman, 1979). Sensation Seeking is a normally distributed personality characteristic influenced by biological and environmental factors (Horvath & Zuckerman 1993; Zuckerman 1994). Sensation Seeking has been found to increase during adolescence (MacPherson, Magidson, Reynolds, Kahler & Lejuez, 2010; Stephenson, Hoyle, Palmgreen & Slater, 2003) and level off in young adulthood (Zuckerman, 1993). It is especially important to study sensation seeking and how it relates to risk behaviors in youth because of its increase in adolescence. Understanding how this trait is behaviorally expressed can help people who provide direct service to youth to prevent these behaviors from happening by channeling the need for novel experiences into positive pursuits.

Sensation seeking is a multifaceted trait, comprised of four basic components: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS) and Boredom Susceptibility (BS) (Zuckerman, 1979). The Thrill and Adventure seeking (TAS) component of sensation seeking is characterized by a desire to participate in activities that involve speed or physical risk taking, such as skateboarding. The Experience Seeking (ES) component of sensation seeking “reflects the need for new and different personal or inner experiences,” such as traveling around the world, interacting with people from different cultures and learning about different philosophies (Hittner & Swickert, 2006, p. 1384). The Disinhibition (DIS) component of sensation seeking reflects behavioral disinhibition and disregard for social norms. Individuals who score highly on the DIS dimension of the Sensation Seeking scale feel “less limited by
social constraints and more experimental in their behavior” (Hittner & Swickert, 2006, p. 1384).

Disinhibition is the trait most associated with drug use and risky sexual behaviors (Hittner & Swickert, 2006, Zuckerman, 1994). Lastly, Boredom Susceptibility (BS) is characterized as a distaste for monotony. Individuals who score highly on this dimension may seek out new activities and experiences to counter feelings of boredom. Many studies that employ the sensation seeking measure use a total score comprised of the sum score across all subscales.

These studies find that high sensation seekers are found to be more oriented to bodily sensations, more extroverted, more active, impulsive and less anxious than low sensation seekers (Cross, Copping & Campbell 2011; Zuckerman & Link 1968). These traits can be understood in conjunction with some other correlates of sensation seeking. High sensation seeking scores have been associated with the presence of Disruptive Behavior Disorders in children and adults (Russo et al. 1991; Martin et al. 2004). Disruptive Behavior Disorders are a group of disorders characterized by persistently defiant and aggressive behaviors and symptoms. Conduct Disorder, ADHD and Oppositional Defiant Disorder comprise the Disruptive Behavior Disorders (Merck Manuals, 2009). These disorders are associated with a host of delinquent behaviors, such as alcohol and substance use, sexual risk behaviors, and criminal justice system involvement (Kahn & Hanna, 2000; Ohannessian et al., 2005).

In addition, sensation seeking is the trait most associated with initiation of drug and alcohol use (Jaffe & Archer, 1987). High levels of sensation seeking have been correlated with greater quantities and frequencies of alcohol use (Zuckerman, 1994). In addition, sensation seeking has been consistently associated with an earlier age of initial use and abuse of a variety of drugs, such as marijuana, cocaine, ecstasy and poly drug use (Martins, Storr, Alexandre &

Biochemical reasons for sensation seeking have been proposed. Zuckerman’s early theory of sensation seeking implicated the need to maintain high cortical arousal as the motivation behind sensation seeking behavior, but in later versions, he rejected this view in favor of the theory that high sensation seekers may have heightened sensitivity to catecholamines and other enzymes. Human and animal subjects with high sensation seeking are also found to have highly reactive dopaminergic systems and weakly reactive serotonergic systems (Netter, Henning & Road, 1996). This combination may create strong approach and weak arousal to novel or risky situations which may contribute to the association between sensation seeking and delinquent behaviors (Zuckerman, 1990; Gerra et al., 1999).

**Delinquent Behaviors**

Delinquent acts rarely occur in isolation and those who engage in one of these behaviors are likely to engage in other forms of delinquent behavior. Specifically, drug and alcohol abuse, vandalism, disciplinary problems, sexual promiscuity and aggression often co-occur (Donovan & Jessor, 1985), and taken together, these behaviors have been termed “General Deviance” (Newcomb & McGee, 1991). Similarly, problem behavior is defined as behavior that departs from social and legal norms of the larger society. It elicits a form of social control response in the form of “mild reproof, social rejection or incarceration” (Jessor, 1987, p. 332).

Males are overrepresented in “socially problematic behaviors” that comprise the symptoms of Disruptive Behavior Disorders, namely, aggression, delinquency and impulsivity (Cross et al., 2011, p. 97). Males have also consistently scored higher on sensation seeking measures than females. Evolutionary, psychosocial and biological theories have been proposed
to explain the sex differences in impulsivity and sensation seeking. Zuckerman (2007) proposed that males developed a desire for risk in order to secure a large number of mates and be successful hunters. Cross et al. (2011) found in their meta-analysis of the gender differences in impulsivity that females have higher punishment sensitivity than males. Punishment sensitivity comes from Gray’s (1970) theory that impulsivity and anxiety arise from two systems of behavior, Behavioral Approach (BA) and Behavioral Inhibition (BI). Behavioral Approach regulates the response to rewarding stimuli and Behavioral Inhibition involves the inhibition of behavior in response to conditioned cues of punishment. Individuals with high BA sensitivity are more likely to exhibit impulsive and approach behavior as well as a higher response to reward in situations where there is a possibility for punishment. Individuals with high BI sensitivity, however, exhibit more behavioral inhibition in situations where there is a potential for punishment (Loxton & Dawe, 2000). The higher punishment sensitivity in females may partially explain why females have lower sensation seeking and impulsivity than males. Biologically, testosterone levels may also explain sensation seeking. Testosterone levels are associated with “sensation seeking, prioritization of short term goals, impulsivity, competition and dominance” (Archer, 2006, as cited by Cross et al., 2011, p. 98).

Adolescent males and females differ in the way they engage in delinquent behaviors. As previously stated, males tend to be higher sensation seekers and predominate in the diagnoses of Disruptive Behavior Disorders (Kahn & Hanna, 2000, Cross et al. 2011). Females engage in delinquent acts that may drastically differ from male delinquent acts (Zoccolillo, Tremblay & Vitaro, 1996). For example, males are more likely to physically act out and engage in physical aggression. Females tend to engage in indirect or relational acts of aggression (Crick & Grotpeter, 1995), which makes it more difficult for parents and teachers to observe their
maladaptive behaviors, and when it is observed it is often not interpreted as maladaptive. Examples of relational aggression include social exclusion, humiliation in front of others and gossiping (Swearer, 2008). Engaging in delinquent behaviors may reflect personality and individual differences and sensation seeking may be the personality trait underlying these behaviors. Two types of delinquent behaviors that will be discussed in more detail here are risky sexual behavior and criminal justice system involvement (i.e., arrest history).

**Sexual Risk Behaviors**

Zuckerman (1976), using the original sensation seeking scale, found that among college students, high sensation seekers engaged in a wider variety of sexual behaviors and with more partners than lower sensation seekers. Other, more recent research corroborates this finding (e.g., Guillamo-Ramos et al., 2009). Kalichman and colleagues (1994) have developed and validated a specific sexual sensation seeking scale (SSSS) in order to better evaluate sexual sensation seeking. The SSSS asks questions related to sexual risk behaviors not found in other scales of sensation seeking. Sample items include: “Stopping to use a condom during sex takes the fun out of sex,” and “I enjoy the thrill of having sex in public places” (DiClemente et al., 2010, p. 251). It was initially validated for gay men, but has since been validated for heterosexual individuals as well (DiClemente et al. 2010). DiClemente et al. (2010) used an abbreviated version of the scale in a sample of African American adolescent and young adult girls ranging in age from 15-21. They found that SSSS was associated with a larger number of sexual partners, increased likelihood of ever engaging in vaginal and anal sex, having sex while under the influence of drugs or alcohol, and trading sex for money. High scores on the SSSS are associated with more
Sensation Seeking in Latino Youth

one night stands, having a high number of partners in the previous three months and engaging in vaginal intercourse at a younger age (Diclemente et al., 2010).

Although there are a few studies about Latinas and sexual behaviors, there is a lack of studies exploring the association between sensation seeking and sexual behavior in this population. The 2007 CDC Youth Risk Behavior Survey finds that 3.7% of Latina females in grades 9-12 report engaging in sex before the age of 13. This statistic is lower than the rate reported for African Americans (5.6%), but higher than the rate reported for White females (2.2%). Females who initiate sex at an early age are likely to have older partners, have multiple partners and are less likely to use condoms (Pequegnat & Szapocznik, 2000, as cited by Hutchinson, et al, 2003). The survey also found that 52% of Latino high school students have had vaginal intercourse and 17% have had more than four sexual partners in their lifetime (CDC, 2008b, as cited by Guillamo-Ramos et al. 2009). In addition, nationally representative samples have shown that 47% of Latina females and 53% of Latino males ages 15-19 engage in oral sex (Guillamo-Ramos et al., 2009). Latinas have shown lower rates of condom use than other racial groups (Kahn et al., 1999; Pequegnat & Szapocznik, 2000, as cited by Hutchinson, et al, 2003).

These sexual risk behaviors increase the risk for early pregnancy, and STDs, including HIV and HPV, which in turn increases risk for cervical cancer (Hall, 2008). Although recent CDC reports show that pregnancy rates for Hispanic females are decreasing, pregnancy among Non-Hispanic whites and Hispanic adolescents are more likely to end in a live birth and less likely to end in induced abortion than Non-Hispanic black adolescents (Ventura et al., 2011). Given these findings, it is important to investigate the possible link between sensation seeking and sexual behaviors among Hispanic females.
Early Pregnancy. Giving birth during adolescence is associated with a myriad of adverse outcomes for mother and child, such as poverty, lack of social support (Martin et al. 2007; Matthews & MacDorman, 2006; Hamilton, Martin & Ventura, 2008, as cited by Ventura et al., 2011) and decreased educational attainment. In one study, by age 22, 50% of teen mothers had a high school diploma compared with 90% of women who did not give birth during adolescence (Perper, Peterson, Manlove, 2010). In addition, babies born to adolescent women are more likely to be pre-term, have low-birth weight and die during infancy (Martin et al., 2007).

According to the CDC, pregnancy rates among females, ages 15-19 dropped to 39.1 per 1000 (a 2% decrease) in 2008. The birth rate among this age group declined in 31 states. Among females 10-14, the rate dropped to 0.6% per 1000. This rate has declined 8% from 2007 to 2009. Despite declines in pregnancy rates, the rate for Hispanic adolescent pregnancy remains higher than other racial groups (77.4 per 1,000 females aged 15–19 years), which was approximately five times the rate for Asian/Pacific Islander adolescents (16.2), approximately three times the rate for non-Hispanic white adolescents (26.7), and somewhat higher than the rates for non-Hispanic black adolescents (62.9) and American Indian/Alaska Native adolescents (58.4). These statistics highlight a need to investigate the motivations behind sexual risk behaviors so that they can be prevented or reduced.

One such motivation may be sensation seeking. Turchik, Garske, Probst & Irvin (2010) found that for college aged women, sensation seeking mediated the relationship between substance use and personality and sexual risk taking variables such as sexual inhibition; however, they did not ask questions about pregnancy. Donohew et al. (2000) evaluated pregnancy, sexual risk behaviors, drug use, sensation seeking and impulsivity among ninth graders, but did not find that sensation seeking was associated with pregnancy. However, this
study was cross-sectional and ethnicity was not reported. Therefore, the current study addresses this by using longitudinal data on Puerto Rican adolescents and young adults.

Pregnancy during adolescence is often unintended, and a consequence of engaging in sexual delinquent behavior (i.e. sex at an early age, or without a condom). Given that sexual delinquent behavior is associated with sensation seeking, it is hypothesized that females who have had an early pregnancy will have higher sensation seeking scores than females who did not have an early pregnancy.

*Criminal Justice System Involvement.* According to Katz (1993) people who engage in crimes like theft are “seduced” by objects and then the act of crime itself (as cited by McCarthy, 1995, p. 521), also known as the “sneaky thrill.” The thrill of concealing the crime and appearing innocent, as well as the euphoria that comes when the crime has gone undetected are the major aspects of the sneaky thrill. Baldwin (1985) posits that illegal behavior is one source of “thrill and adventure” sought by adolescent sensation seekers. Criminal behavior may provide sensory rewards to high sensation seekers. Thrill and adventure seeking and disinhibition are two sensation seeking domains found to be associated with general deviance (Newcomb & McGee, 1991; Lynne-Landsman et al., 2011). Zuckerman’s early theory of sensation seeking implicated the sensation seeker’s need for “optimal arousal” as the motivation behind their risk taking behaviors (Zuckerman, 1979). Adolescents may engage in delinquent behaviors like risky sex and criminal activities to achieve a level of optimal arousal by appeasing their need for novel, intense and complex experiences. His later biochemically based theory, mentioned earlier, supports the same premise, specifically, that exposure to risks of criminal behavior provides chemical and sensory rewards to sensation seekers.
Thorne (1971) found age related differences among sensation seeking offenders. The sample ranged in age from adolescent juvenile delinquents to older adult felons. Although the sensation seeking scores of juvenile delinquents were similar to normal college students, juvenile delinquents were more likely to commit impulsive criminal acts that could be described as thrilling or exciting, such as car theft accompanied by high speed chase, shoplifting, running away and doing drugs. The older offenders had longer arrest records and lower sensation seeking and Thorne theorized that their motivation for criminal acts was not sensation seeking because crime was a normal part of their lives and not an activity they engaged in for the excitement. For younger inmates, sensation seeking was more of a motivation for criminal activity than for older inmates.

Among studies of sensation seeking among offenders, there are few studies comparing offenders to non-offenders. Herrero & Colum (2008) compared offenders to non-offenders using Zuckerman’s theory of “unsocialized, impulsive sensation seeking (ImpUSS).” They evaluated ImpUSS using the 40 item Sensation Seeking measure and the Eysenck Personality Revised Short Scale. They found that offenders scored higher on all dimensions of sensation seeking (Disinhibition, Experience Seeking, Boredom Susceptibility, Thrill and Adventure Seeking), as well as neuroticism and psychoticism when compared to the general population. However, other researchers found that engaging in delinquent behaviors including criminal activities was associated with high scores on the Disinhibition scale only (White, Labouvie & Bates, 1994).

Gender differences in sensation seeking patterns and criminal behavior also have been found. Males, who are higher in measures of sensation seeking and impulsivity than females, tend to be overrepresented in crime statistics (Cross et. al, 2011). Studies investigating females and sensation seeking often focus on sexual risk behaviors instead of crime, so there is a lack of
studies focusing specifically on sensation seeking and criminal justice involvement for females. One early exception, Farley & Farley (1972) found that female and male incarcerated juveniles with higher sensation seeking scores engage in “impulsive behaviors, such as fighting and escape attempts more often than lower scoring counterparts” (as cited in Zuckerman, Buchsbaum & Murray, 1980, p. 192). The rates of Disruptive Behavior Disorders are lower in females, however, it is well established that they act out in ways that the stringent DSM-IV criteria may not capture. Females may display the symptoms of Disruptive Behavior Disorders at a lower threshold or act out in a different way. Therefore, it is important to understand the gender differences in sensation seeking and delinquent behavior to understand the ways females and males act out. Therefore, the current study will investigate criminal justice system involvement and pregnancy in an attempt to understand the gender differences in sensation seeking and delinquent behavior.

In addition to the scarcity of research on gender, sensation seeking and the criminal justice system, there are also fewer studies investigating Latinos, sensation seeking and criminal justice system involvement. For example, although there are studies investigating delinquent behaviors such as drug use and physical attacks as well as crime rates among Latinos (Alvarez-Rivera & Fox, 2010; McGee, Barber, Joseph, Dudley, Howell, 2005), there are fewer studies investigating sensation seeking and Latino arrests. Maldonado-Molina, Piquero, Jennings, Bird & Canino (2009), using data from the Boricua Youth Study, found that at baseline, Puerto Rican samples in the South Bronx and San Juan with high delinquency (such as stealing, trespassing and violence against authorities) also had higher sensation seeking compared to the non-offending group. The non-offending group had more females than the high offending group. However they did not analyze how sensation seeking and gender differences might affect
differences in delinquent behaviors. Females may act out sexually instead of criminally.

Therefore the current study is a secondary analysis of the data from the Boricua Youth Study, looking at gender, sensation seeking and criminal justice system involvement among Latinos to address the gaps in the literature.

**The Current study**

Given that there might be differences in the ways that males and females engage in delinquent behaviors, this study will investigate the impact of sensation seeking on two factors, pregnancy and arrests. The current study fills gaps in the current literature. One gap is a lack of questions about pregnancy and arrests in measures of delinquency, particularly in Latino youth samples. In addition, many studies reviewed above have employed cross-sectional designs. This study addresses that limitation by using a longitudinal design to evaluate whether sensation seeking during childhood (ages 5 – 13) predicts pregnancy and criminal justice system involvement in adolescence/young adulthood (at ages 15 – 23) among Puerto Rican youth.

The data from the Boricua Youth Study is unique because it investigates differences over time between two cohorts of Puerto Rican youth, in San Juan (N=1,526) and the South Bronx (N=1,414). It is the only study to date that investigates various psychosocial characteristics, such as acculturation, cultural stress, sensation seeking, alcohol and drug use among the same ethnic group in two distinct cultural contexts (Duarte et al., 2008). The current study uses data from a subsample of South Bronx participants, assessed in both childhood and adolescence/young adulthood to investigate sensation seeking’s longitudinal impact on early pregnancy and criminal justice system involvement. Sensation seeking was assessed at baseline, and in this study, the term “follow-up” refers to the most recent time point where questions about pregnancy and arrests were asked. See Table 1 for a breakdown of the subsample used in this study.
Hypotheses

1. Higher sensation seeking scores at baseline are expected to be associated with pregnancy at follow up.
2. Higher sensation seeking scores at baseline are expected to be associated with arrests at the second time point.
3. Sensation seeking is expected to be a stronger predictor of arrests for boys than for girls.

Methods

Data

Data from this study came from a subsample of youth from the South Bronx, New York participating in the Boricua Youth Study (BYS). The BYS is a longitudinal study of children aged 5-13 at baseline, drawn from the South Bronx in New York and San Juan, Puerto Rico. The study was designed to look at the correlates of Disruptive Behavior Disorders (Bird et al. 2009). The samples were assessed three times between 2000 and 2004 (Bird et al., 2007, Maldonado-Molina et al. 2009). There was significantly more delinquency in the South Bronx on average in each of the three waves and a general decline across waves, over time and age in self-reported delinquency (Bird et al. 2009). The sensation seeking data used here is from baseline. The pregnancy and arrests data is from pilot study data, where participants were interviewed.
approximately 10 years later. Table 1 provides more information about the subsample used in this study.

**Participants**

Of the 1,414 subjects, 1,138 from the Bronx sample were eligible for inclusion, i.e., they were not developmentally delayed and lived with at least one parent. Boys (n=589) and girls (n=549) ages 5 through 13 years as well as their parents were recruited; however, the analyses in this study are being conducted on a subset of 69 participants (boys, n=44; girls, n=25) who had both baseline and follow up data available for analysis at this point in time. The average age of this subsample, at baseline was 9.65 (SD=2.44). At follow up the average age was 18.5 (SD=2.44).

A detailed report of recruiting procedures has been published previously (Bird et al., 2006). In summary, the sample was determined by using multistage probability representing the target population of Bronx area households. Households were deemed eligible for the study if there was at least one child living in the household age 5-13 and identified by the family as being of Puerto Rican ethnic background, at least one of the child’s parents or guardian living in the household self-identified as being of Puerto Rican background. Families were sent letters inviting them to participate and contacted two weeks later via phone. Children identified by parents during the phone screen as mentally or developmentally delayed were excluded to ensure that the participants could answer the questions and to avoid this factor as a confound.
Procedure

Baseline

Parents signed informed consent forms and children over age 7 signed assent forms. Procedures were approved by the Institutional Review Board at the New York State Psychiatric Institute. Interviews were conducted in the family’s home by trained interviewers. The interviews took place simultaneously, but in separate locations in the home. Interviews were programmed into laptops in English and Spanish. Participants had the option of answering interview questions in English or Spanish, or switching between English and Spanish. Digital audio recordings via external microphone were taken for quality control if parent and child permitted them. Each parent-child dyad received $75.00 for their participation.

Interviewers were bilingual lay people with at least a high school education. They were trained or two weeks on the study protocol, confidentiality and reporting procedures.

Follow up procedures

At the follow up period, when questions about pregnancy and arrests were asked, re-contact letters were sent to participants. They contained a brief explanation of the current purposes of data collection and a reminder of the previous study. Participants were contacted two weeks after re-contact letters were sent if they did not return the letter with the indication that they did not want to be contacted. Procedures were approved by the Institutional Review Board at the New York State Psychiatric Institute. Interviews were conducted either by telephone or in the participants’ homes. The interview consisted of questions about school, work, pregnancy, arrest history and contact information. Parents, adolescent/young adults, and children received gift cards in the amounts of $15.00, $10.00 and $5.00 respectively.
Measures

*Sensation Seeking.* Sensation seeking (SS) was assessed at baseline using an abbreviated 10-item scale, with 7 items from the Thrill and Adventure Seeking subscale and 3 items from the Social Disinhibition subscale (Russo et al., 1991, 1993, as cited by Bird et al., 2006). Depending on the type of study, the abbreviated scale may be used, or the subscales only. The abbreviated scale is used in large scale studies, and it has been found to have high reliability. Similarly, the current study uses the abbreviated Sensation Seeking scale for children (SSSC) because it is administered as part of a larger battery of measures. Sample items from this measure include: “Riding a bike fast down a big hill would be very scary for you”, OR “You would enjoy the feeling of riding a bike fast down a big hill.” Participants were read both statements and asked to choose the statement that best applied to them. Each question has yes, no, refused and don’t know answer choices. A total SS score for each participant was created by summing their responses to the yes items, for a possible total score of 10. The internal consistency (Cronbach’s $\alpha$) of the scale for this sample is .72, which is acceptable (Nunnally, 1978) Sensation seeking was only assessed in the baseline data collection.

*Pregnancy/having at least one child.* To determine pregnancy rates, all female participants were asked “Have you ever had children of your own?” Responses were coded as “no children = 0, or “yes, at least one” = 1. They were also asked, “How old were you when you had your FIRST pregnancy?” Questions related to pregnancy were self-reported and asked at baseline and follow up. There was a question related to males and pregnancy, “Have you ever fathered a child” but it was not used in this analysis because the sample was very small and no gender differences would have been inferred from this result.
Criminal Justice Involvement. For the purpose of this study, criminal justice involvement was operationalized as history of arrest. It was assessed as a yes (1) or no (0) response to the question: “In the past year have you been arrested or picked up by the police for anything other than a minor traffic offense?” The question was asked of the child in the follow up data collection. When asked of the parent, the question was reworded as, “has _______ ever been arrested?” In this study, the parent report data on criminal justice system involvement is used because it is deemed more reliable than the child’s self-report, given the young age of the participants. Younger children may not recall or may not disclose this information due to social desirability (Ganster et al. 1983, as cited by Podsakoff, McKensie, Lee, & Podsakoff, 2003, p. 881).

Results

Descriptives

Sensation Seeking scores at baseline ranged from 0 to 10. The average sensation seeking score for the sample was 4.26 (SD=2.34). There were 44 males in the sample. The mean sensation seeking score for male participants was 4.29 (SD 2.40). There were 25 females in the sample. The mean sensation seeking score for female participants was 4.20 (SD 2.27). These averages were not significantly different, t(52)= .164, p=0.87.

Pregnancy. Of the 25 females, 9 reported ever being pregnant. The mean sensation seeking score for participants reporting early pregnancy was 4.00 (SD= 2.26), the mean score for participants who did not report early pregnancy was 4.56 (SD= 1.81). These scores were not statistically different, t(23)= -.578, p=0.57. See Table 2.
Criminal justice system involvement. For criminal justice system involvement, 45 participants were used in the analysis, 26 males and 19 females. The sample is smaller because the question was added later in the study, and therefore, asked of a smaller number of participants. This smaller sample reflects those participants who answered the question at both time points. The mean score on sensation seeking for participants who reported criminal justice system involvement was 5.3 (SD = 2.36). The mean score for participants who did not report criminal justice system involvement was 3.64 (SD = 1.87). See table 4. The means were significantly different, t(35) = -2.56, p = .015. See Table 4. The mean sensation seeking score for males reporting criminal justice system involvement (n = 11) was 5.5 (SD = 2.34). The mean sensation seeking score for males not reporting criminal justice system involvement (n = 15) was 3.60 (SD = 1.99). The means were significantly different, t(24) = -2.29, p = .031. The mean sensation seeking score for females reporting criminal justice system involvement (n = 9) was 5.0 (SD = 2.50). The mean sensation seeking score for females not reporting criminal justice system involvement (n = 10) was 3.70 (SD = 1.77). The means were not significantly different, t(17) = -1.32, p = .204.

Sensation Seeking As A Predictor of Pregnancy and Arrest

Logistic regression analyses were used to test the hypotheses because the variables of arrests and pregnancy were dichotomous (0 = no, 1 = yes). Table 2 reports the sensation seeking means and standard deviations of those reporting pregnancy versus no pregnancy. Table 3 reports the statistical tests of Sensation Seeking as a predictor of pregnancy. Sensation seeking scores at baseline did not predict pregnancy at the time of the follow up, which occurred approximately 10 years later.
The results of the statistical tests of sensation seeking as a predictor of criminal justice system involvement appear in Tables 5 and 6. Sensation seeking at baseline predicted history of arrest, as reported by parent. Participants with a history of arrests had sensation seeking scores 1.46 points higher than those not reporting history of arrests. When separated by gender, higher sensation seeking scores did not predict arrests among females, but did predict arrests among males.

**Discussion**

In the current study, sensation seeking in early childhood was hypothesized to predict pregnancy and arrests at 10 year follow up. The first hypothesis was not supported by the data; sensation seeking did not predict early pregnancy. There are several reasons why this may be the case in this sample. First, many other psychosocial factors that were not assessed in this study may play a greater role in predicting pregnancy among Latina youth than sensation seeking. Socioeconomic status may be a factor in preventing access to healthcare, condoms and education and these factors have an impact on pregnancy rates (Philliber et al., 2002). In addition other considerations, such as acculturation, family structure and discipline may have played a role. Sensation seeking might not be a factor in pregnancy rates for Latina youth because of normative and family structures. For example, Guillamo-Ramos et al. (2009) found that the concept of *familismo*, which is a multifaceted concept of connectedness to family, was associated with female sexual behavior but not male sexual behavior in a Latino sample. That is, the higher the level of familismo, the lower the incidence of sexual behavior. Familismo may moderate the impact of sensation seeking by providing guidance and support within the family structure to prevent early initiation of sexual activity. The family structure may also provide support in the
event of an early pregnancy. However, it is not known if sensation seeking is indeed not related to pregnancy in this sample or if results were not found because the sample size was quite small (N=25 total with N=9 pregnant). There may not have been enough power to detect the impact of sensation seeking on pregnancy rates over time.

As was hypothesized, sensation seeking in early childhood predicted criminal justice system involvement for the boys, but not for the girls. That is, the higher the sensation seeking score, the more likely they were to be arrested during the 10 year interval. Males tend to have higher sensation seeking scores than females (Zuckerman, Bucksbaum & Murphy, 1980) and are more likely to become involved with the criminal justice system than females in general (Cross, et. al, 2011) so it was not surprising to find this result in a Latino sample. In this subsample, there was no significant gender difference. There is a possibility that gender differences would become apparent with a larger sample size. In addition, it was not surprising that sensation seeking did not predict arrests for girls, since arrests are usually lower among girls (Zoccolillo, Tremblay & Vitaro, 1996).

**Limitations**

The key limitations of this study were limited sample size, social desirability, and the use of an abbreviated scale. The small sample size used in the analysis is a major limitation to the study because there may not have been enough power to detect the influence of sensation seeking on pregnancy. However there was a significant finding for arrests in boys. Further research using larger samples will be necessary to test the reliability and replicability of these results. Furthermore, as is the case in self-reporting sensitive information, some participants may have denied having been pregnant because of the negative stigma attached to early pregnancy
and parents may not want to admit that their children have been arrested. Thus, the number of pregnancies and arrests may be underestimated in this study and the lack of variability may decrease the likelihood of finding differences on sensation seeking. Although using parent’s data was deemed to be more reliable than the child’s data, the use of parent self-report for criminal justice system involvement may have also been susceptible to social desirability effects. In the future, actual arrest data from police agencies may be collected to compare against reported information.

Another issue is that the arrests of males may be higher in the South Bronx than in other areas of New York due to increased police presence (Diaz, 2011). The results found here, that sensation seeking predicts arrests for boys could be partially explained by that bias and may confound the findings. Future studies can use samples drawn from different parts of New York with comparisons of arrests rates by county to partial out the predictors of arrest and test for the unique contribution of sensation seeking.

The use of an abbreviated scale is a limitation to the study because it may not accurately measure the motivations behind each type of risk behavior. While many large studies opt for the abbreviated Sensation Seeking Scale, information about the impact of specific subscales gets lost. It is known as a “typical and necessary trade-off in population-based studies with a large sample size” (Harden, Quinn & Tucker-Drob, 2012). However, use of the full scale enables generalizations and comparisons to be made on the different dimensions of sensation seeking related to criminal justice system involvement. For example, some studies find that females score much lower on the subscales of Thrill and Adventure Seeking and Disinhibition, which are related to criminal justice system involvement. Perhaps the addition of Boredom Susceptibility and Experience Seeking would yield different results for females. The addition of questions
related to the Boredom Susceptibility and Experience Seeking scales may have resulted in additional variability in sensation seeking scores, which in turn may have led to significantly different means for the variables of female arrests and early pregnancy (Harden, Quinn & Tucker-Drob, 2012). In addition, using the recently validated Sexual Sensation Seeking Scale may be more helpful in understanding how sensation seeking translates into sexual risk because the questions are specific to sexual behaviors.

**Future Directions**

Most studies have focused on sensation seeking as it relates to deviant behaviors. However, future studies can also focus on the positive aspects of this trait. Sensation seeking tendencies can be channeled into positive pursuits such as travelling and learning about new cultures, or taking on challenging or ambitious prospects, such as career choices and difficult coursework (Zuckerman, 1994). Young people with high sensation seeking scores can be encouraged by parents and teachers to seek novelty in positive and creative ways. Educators can also capitalize on the sensation seeking trait by creating a curriculum that is intense, evocative and sensory impactful. For example, sensation seeking has been used to tailor anti-drug messages to high sensation seekers. Morgan, Palmgreen, Stephenson, Hoyle & Lorch (2006) found that PSAs coded as having high sensation seeking scores had more of an impact on high sensation seekers than PSAs coded as having low sensation seeking scores.
Conclusion

Despite the limitations described above, this study also has several notable strengths. It is based on a subsample, drawn from a parent study of Puerto Rican children and youth in two distinct cultural contexts, using a longitudinal design, where measures of sensation seeking and delinquent behaviors were included. In subsequent work with the larger dataset, comparisons can be made across these two groups to see if the patterns of sensation seeking and types of delinquent behaviors are similar or different across cultures.

The results of this study may have implications for educators and clinicians providing direct service to youth. Identifying individuals who are more likely to engage in delinquent behavior earlier may allow clinicians and educators to create programs to prevent these behaviors from occurring. For example, exploring the sensation seeking motivations for engaging in sexual risk behaviors could result in more education and outreach programming for adolescents most at risk.

Sensation seeking is a personality trait that has been researched for more than 30 years, however, there are still questions about the ways that males and females engage in delinquent behaviors, and how exactly females differ from males in their sensation seeking needs. This research could add to the knowledge about etiology and psychopathology of Disruptive Behaviors Disorders in females.
References


Sex Differences in Trajectories of Offending Among Puerto Rican Youth. *Crime & Delinquency*, 56(3), 327-357.


Table 1

**Baseline**
Puerto Rico = 1353
F=658  M= 695
South Bronx = 1138
F= 549  M =589

For waves 1-3 all interviews are done 1 year after previous interview
3 assessments took place between summer 2000 and fall 2004.

*Current study uses baseline (2000) and pilot study data, which is 10 years after baseline, collection of this data started in 2010.*

**South Bronx data used:**
n = 1138

**Current study:**
Uses complete data for the baseline and pilot time points.

**Pregnancy** = 69
Missing = 1069

**Criminal Justice System Involvement** = 45
Missing = 1093

**Females only** = 25

Question asked later on, therefore asked of a smaller number of people
Table 2

Mean Sensation Seeking Pregnancy

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
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<td>15</td>
<td>4.867</td>
<td>2.264</td>
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<tr>
<td>No</td>
<td>54</td>
<td>4.093</td>
<td>2.357</td>
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Table 3

Logistic Regression of Sensation Seeking on Early Pregnancy

<table>
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<tr>
<th>B</th>
<th>Walds</th>
<th>Odds Ratio</th>
<th>SE</th>
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</thead>
<tbody>
<tr>
<td>0.144</td>
<td>1.276</td>
<td>1.155</td>
<td>0.127</td>
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Table 4

Mean Sensation Seeking Scores
Criminal Justice System Involvement

<table>
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<th>N</th>
<th>Mean</th>
<th>SD</th>
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<td>5.3</td>
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<td>No</td>
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<td>3.64</td>
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p<0.05, means are significant

Table 5

Logistic Regression of Arrests on Sensation Seeking
Males

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<th>Sensation Seeking</th>
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<td>0.38</td>
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p<0.05, means are significant

Table 6

Logistic Regression of Arrests on Sensation Seeking Females

<table>
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