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Sensation seeking, message sensation value and sexual risk taking: Implications for teen pregnancy prevention campaigns

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Sensation seeking, message sensation value and sexual risk taking: Implications for teen pregnancy prevention campaigns

by

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A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Journalism and Mass Communication

Program of Study Committee

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Ames, Iowa

2011

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TABLE OF CONTENTS

ABSTRACT	iii
CHAPTER 1. INTRODUCTION AND STATEMENT OF THE PROBLEM	1
CHAPTER 2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK	5
CHAPTER 3. METHOD	20
CHAPTER 4. RESULTS AND DISCUSSION	25
CHAPTER 5. CONCLUSIONS	40
REFERENCES	45
APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL	52
APPENDIX B: THE STUDY QUESTIONNAIRE	53

ABSTRACT

This study evaluated the relationship between the personality trait sensation seeking and sexual risk taking behaviors. It aimed to determine whether high sensation seekers prefer poster presentations that differ in message sensation value (MSV). The goal was to inform the design and evaluation of sex education and teen pregnancy prevention campaigns. A random sample of 151 undergraduate students from a Midwestern university was surveyed to evaluate young people's sensation seeking tendencies and risky sexual behaviors. The respondents were exposed to two posters, one low in MSV and another high in MSV, to ascertain their preference. The findings suggest that sensation seeking does predict some risky sexual behaviors, but no relationship was found between sensation seeking and MSV. However, respondents expressed a preference for and demonstrated more elaborated message processing after exposure to the high MSV poster, indicating that future campaigns should consider using high MSV materials to target teenagers.

CHAPTER 1

INTRODUCTION AND STATEMENT OF THE PROBLEM

The success of sex education programs and campaigns is often impeded by social discomfort with the topic of sex and sexuality, political wrangling, and the religious beliefs of various stakeholders. Despite the challenges, it is important to provide information to adolescents so that they are able to make informed decisions that will directly affect their lives. The politics of sex education has led to a funding contest between abstinence-only and comprehensive sex education at the federal level; however, there has been little research that examines why some programs were successful and others were not regardless of message or content.

The National Campaign to Prevent Teen and Unplanned Pregnancy published one of the most comprehensive reviews of sex education research so far in a volume titled *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases* (Kirby, 2007). The study provides an overview of teen sexuality research and interventions. The review examined more than 115 studies involving sex education, STD/HIV intervention initiatives, and similar programs targeting a young audience segment, 12-18 year olds, and/or their parents. Its aim was to provide an overview of sex education research and to supply the context for future program design, implementation, and evaluation. Among others, the author calls for more rigorous evaluation methods and for more programs that use an evidence-based paradigm. In the study, Kirby (2007) emphasizes that message consistency, quality of delivery, and cooperation between

and among educational programs are more important than whether a program promotes abstinence-only or comprehensive sex education.

The Consequences and Costs of Teen Sex

In 2009 (the most recent year for which there is available data), there were 3,446 live births to mothers under the age of 20 in the state of Iowa (*Vital Statistics of Iowa in Brief, 2009*). This figure suggests that approximately nine percent of all births in Iowa were to teenage mothers, a phenomenon consistent with the records of the previous five years, according to the Iowa Bureau of Health Statistics (2009). Teen pregnancies and parenting exacts an emotional and physical toll on teenage parents and their families as well as financial costs to taxpayers. In the most recent Iowa report, *Demographic Characteristics: Medicaid Births* (2009), the costs of approximately 82% of births among women less than or equal to 19 years of age were reimbursed by Medicaid. According to the report, *Births to Women on Medicaid: Infant Low Birth Weight Among Medicaid Recipients* (2009), women 18 and younger gave birth to more low birth weight infants than women 20 and older. Both low birth weight and pre-term labor can result in increased Medicaid expenses because such babies are often re-hospitalized at a greater rate than normal-term and normal-weight babies. “Initial hospital charges are inversely related to both infant birth weight and gestational age” (p. 1, *Births to Mothers on Medicaid, 2007*).

The National Campaign to Prevent Teen and Unplanned Pregnancy estimates that taxpayers paid nearly \$9.1 billion nationally for teen pregnancy-related expenses in 2004 (NCPTP, 2006). That figure reflects only the cost of pregnancies and does not estimate the amount spent to cure or curb sexually transmitted diseases (STDs). According to Kirby

(2007), the direct taxpayer cost for all curable STDs (including Americans of all age groups) may be as high as \$8.4 billion per year. The human and emotional costs of pregnancy and STDs are also high. Teen mothers are less likely to graduate from high school, go to college, and are more likely to be single than older women (Kirby, 2007).

What triggers dangerous and risky sexual behaviors? Previous research has shown that teenagers derive unrealistic views of sexual norms from commercial television (Greenberg et al., 1983). This increases the need for effective educational programs to balance what are often seen as part of regular media fare. Studies that looked at educational programs, however, have produced results that have limited generalizability and focused more on the effects of young people's exposure to specific sex education programs (e.g., Marsiglio and Mott, 1986). The present study examines techniques for targeting a particular personality trait—sensation seeking—that is highly predictive of future risky sexual behavior. Sensation seeking is a personality trait that is expressed as a need for novel stimulation and a willingness to take risks to achieve these experiences. Teenagers as an audience segment possess high sensation seeking tendencies.

High levels of sensation seeking have been shown to predict drug use in adolescents (Stephenson et al., 2003). Sensation seeking has been shown to forecast people's predisposition to drug use and smoking (Palmgreen et al., 2001; Stephenson et al., 2002; Zuckerman et al., 1993). The findings of previous studies in this area may suggest a framework for targeting adolescent audiences about a sensitive topic such as healthy sex practices. Thus, the current study examines whether sensation seeking correlates with increased risky sexual behaviors, including earlier adolescent sexual debut (e.g., "going all

the way”). The goal is to provide insights that will help formulate strategies for interventions that target adolescent audiences. For example, the findings of this study may offer benchmark data that can be used in evaluating the Iowa Attorney General’s ongoing teen pregnancy reduction program called *Parenting: It’s a Life*.

The findings of this study are expected to provide stronger evidence that sensation seeking influences adolescents’ propensity to engage in non-healthy sexual practices, including experimenting with sex at a very young age. If such a link is supported, then the implications are clear. It means, for example, that those who design intervention programs may want to reach high sensation seekers with tools that have already been developed and tested in previous campaigns. This can reduce the cost of developing sex education curricula and their accompanying materials, and provide educators and administrators with a non-judgmental vocabulary (e.g., personality traits, audience targeting) with which to engage students and parents. Any delay in sexual debut, increase in condom use and other means of birth control would likely reduce the rate of teen pregnancy and the incidence of STDs. These, in turn, may lead to reduced Medicaid costs, less stress on community medical clinics, and higher rates of high school graduation.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This study evaluates how sensation seeking, a personality trait, relates to a host of risky sexual behaviors or sexual risk taking, and how messages can be crafted to target individuals that demonstrate this particular trait. The intent of the present study is to draw generalizations that can help guide the development, implementation, and evaluation of future sex education programs, and provide guidelines for developing communication materials in support of such initiatives. This chapter reviews the literature in persuasive communication, especially studies that target health behavior interventions, such as anti-drug campaigns, the role of sensation seeking in fostering risky habits, and adolescents' preferences for visual message presentation. Specifically, this study examines the ways by which the visual presentation of abstinence from early sex influences audience's risk taking behaviors.

Prevention Competence and the Hierarchy of Campaign Effects

Prevention competence for sexual risks, or the ability to reduce or prevent the unwanted consequences of sexual risk taking behaviors, such as a teen pregnancy, is likely to increase to the extent that young people (1) are more fully aware of effective prevention techniques, (2) hold positive attitudes about the effectiveness of prevention activities and about their own responsibility in relation to prevention, (3) are concerned about protecting themselves, and (4) actually engage in actions aimed at reducing the incidence of teen pregnancy (Ray, 1973). Thus, prevention competence includes the same general constellation of dependent variables often found in communication effects and persuasion studies. With

varying degrees of conceptual sophistication, persuasion is usually seen as at least a four-step process involving (1) the building of awareness or knowledge, (2) the inducement of attitude change, (3) motivating individuals toward particular behaviors by generating interest or concern, and (4) effective behavioral change (e.g., Bettinghaus, 1986; O'Keefe et al., 1996).

Although this sequence of events has a nice logic about it, even well designed and carefully targeted education and media campaigns do not get consistent and uniform results at each stage. For one thing, according to Tanner et al. (1991), the degree to which persuasion may occur is highly dependent upon existing audience dispositions concerning the topic or issue at hand. Arriving at the same conclusion, Schoenbachler and Whittler (1996) found that social context, prior knowledge, and prior experience influence how a person responds to particular messages. This study examines the mitigating influence of four individual-related variables on the usual grouping of the intended effects of mediated or interpersonal information campaigns—knowledge gain, attitude and behavioral change.

A spate of studies (e.g., Rice and Foote, 2001; Snyder, 2001) have shown that if media campaigns are effective to any degree, it is more likely to be in terms of providing increased knowledge or perhaps, in changing attitudes. Scholars have offered several reasons for this. As Bandura (1977) has cogently theorized and as Maccoby and Solomon (1981) have demonstrated empirically, people are more likely to act on information acquired from a variety of sources when appropriate social and environmental support is present.

Moreover, the sequence of events that lead to behavioral change may not neatly follow the traditional hierarchy of effects model. It is possible that media messages may induce action-taking without necessarily bringing about congruent cognitive or attitudinal

changes. This would seem particularly true of actions requiring little rationalization, cost or effort (e.g., Ray, 1973). It is reasonable to assume that any educational campaign would have scattershot influences on various types of people depending upon their existing orientations toward indulging in risky sexual activities at a young age—perhaps simply informing some, changing selected attitudes in others, making others more concerned, and maybe triggering some into action. For example, for a student who is already concerned about teen pregnancy and who already feels that self-prevention techniques may be effective, the educational program may provide information about specific prevention techniques and how to use them, prompting action.

Teenagers, Sex Education, and the Media

Marsiglio and Mott (1986) suggest that by the age of 19, only “60% of women and 52% of men have taken a [sex education] course in school” (p. 153). They also found that a significant proportion of men and women have had intercourse before they ever receive any sex education. These results are disturbing because they show that education efforts are often offered too late to provide the full benefit to intended recipients. The authors note that the biggest obstacle to providing quality sex education is the subject matter’s controversial—or taboo—nature.

Some scholars have evaluated the viability of potential sex education delivery mechanisms. Troth and Peterson (2000), for example, attempted to identify the predictors of safe sex practices, including consistent condom use. They did not explore standardized curricula, choosing instead to focus on parent-child communication. They found that despite

a lack of programmed sex education, young adults with strong relationships with parental figures were likely to follow recommended safe sex practices.

Keller and Brown (2002) examined the most appropriate media channels to deliver educational content about a sensitive topic such as safe sex practices, and explored the potential impediments for deploying these media channels as part of broader educational strategies. Their work suggests that safe sex campaigns are most effective when they are “repeated extensively and reinforced by service providers and public policy” (p. 71). The messages that need to be conveyed must be distributed using multiple media channels. They suggest seven activities that information campaigns of this type should employ:

1. Conduct formative research to define campaign goals, select target audiences, identify media channels, and refine the campaign strategy.
2. Tailor messages so they speak to the audience members’ “world view,” and use credible sources as well as appropriate and understandable language.
3. Ensure exposure by working with media gatekeepers and using cost-effective approaches (e.g., radio, billboards, transit cards) as well as entertainment and news. News stories bring important third party endorsements and can be achieved by drumming up events worthy of public attention.
4. Frame the issues in terms that are important to policymakers, thus taking advantage of the agenda-setting function of mass communication.
5. Combine media and community strategies to leverage program activity in the community. Health communication campaigns may induce the target audience to participate in face-to-face interventions and self-help programs; enroll program

- participants and volunteers; announce availability of self-help materials and events; reinforce instruction provided by community programs and schools, among other functions.
6. Apply behavior change models. Begin by increasing awareness and move on to increase knowledge and change beliefs, teach new skills, and sustain behavior change.
 7. Evaluate, with attention to complex media effects, behavior change. Collect data on other indicators, preferably using a control group (pp. 71-72).

The foregoing are prudent suggestions considering that mass media content regarding the dangers of teen pregnancy and other risky sexual behaviors aimed at teenagers seldom presents messages young people consider realistic. Hust, Brown and L'Engle (2008) found that often, "girls were portrayed as being solely responsible for their children. Pregnancy content emphasized the absence of the teen father, and girls [should be] responsible for preventing pregnancy and STDs" (p. 16). They found that "fictional accounts were more optimistic than the nonfictional." For example, in fictional depictions, "the father ultimately will attempt to be a part of the new family and share in the responsibility" (p. 16). In reality, the situation usually resolves into single motherhood. Teen fathers are presented as rationalizing their abandonment because their female partners "might have been dishonest." Females are portrayed as highly tolerant of this abandonment because the teen fathers had been "good lovers" (p. 17).

Condom use is also "gendered" in the media so that "boys had condoms as a kind of toy, whereas girls were more knowledgeable [about condoms and their use] and are portrayed

as more likely to have a condom when needed” (p. 17). This portrayal forms part of the traditional notion that safe sex is the girl’s affair and that she should take the responsibility for any unwanted pregnancy. Hust et al. (2008) hypothesize that these skewed presentations of sexuality “normalize shame and confusion about puberty and sex among adolescents” (p. 19).

Maladaptive and Adaptive Coping Responses

There is significant research to support the idea that fear arousal from a threat appeal can have a significant effect on behavior (e.g. Janis & Feshbach, 1953; Rogers & Mewborn, 1976; King & Reid, 1990), but how a person responds to a threat is complicated by personal, situational, and personality trait issues (Zuckerman & Bone, 1972; Andrucci et al., 1989). In response to a threat appeal, people often seek ways of removing or coping with the threat in order to eliminate the danger. Risk communication practitioners have long taken advantage of this relationship by using the threat of danger to evoke fear and thus enhance behavioral change toward the recommended practice. However, past research efforts have been unable to provide a sound theory for the process of influencing behavior through fear.

Among the few who attempted to do so, Maddux and Rogers (1983) proposed one of the most promising models of behavioral change. Their ordered protection motivation (OPM) model suggests that the tendency to adopt a given behavior is a function of how the individual appraises the threat (perceived vulnerability to the threat, perceived severity of the threat, and the extent of fear aroused), how the individual assesses his/her ability to cope with the threat (response efficacy) and the resulting coping mechanisms it generates, and the motivations to protect oneself (Maddux and Rogers, 1983). Protection motivation is

organized as two mediating sub-processes people go through to evaluate threats (the threat appraisal process) and in selecting among coping alternatives (coping appraisal).

Assessments of threats (done by evaluating severity, vulnerability, and benefits) and coping factors (self efficacy, response efficacy, and costs) combine to form a motivation in stakeholders to protect themselves from the risk (Mulilis and Lippa, 1990).

Coping appraisals involve an assessment of the expectancies regarding the consequences of the behavior and the value of those consequences. These, then, can lead to adaptive or non-adaptive coping mechanisms for self-protection. According to OPM, threat appeals in risk messages can generate maladaptive or adaptive coping responses. Maladaptive responses attempt to deflect the feeling of risk without reducing or eliminating the actual risk. Adaptive responses, on the other hand, result in the adoption of a behavior that reduces or minimizes the actual risk. Schoenbackler and Whittler (1996) offered useful examples of both types of responses: An adaptive response to a seatbelt appeal would be to use a seatbelt regularly. A maladaptive response to a seatbelt threat communication is exhibited by a person who has not had an accident in 20 years and internally uses that clean record as justification for not wearing a seatbelt. This response removes the intellectual threat, but does not reduce the actual risk of injury during an accident. Maladaptive coping responses have been operationalized in terms of avoidance (Fruin, Pratt, & Owen. 1991; van der Velde & van der Pligt, 1991), denial (Abraham et al., 1994), fatalism (Abraham et al., 1994; Rippetoe & Rogers, 1987), wishful thinking (Abraham et al., 1994), and hopelessness (Fruin et al., 1991).

In risk communication targeting teenagers' sexual practices, the coping response may be more complex because the messages may ask audiences to adopt a certain coping behavior (e.g., use a condom), or *not* to do something (e.g., don't have sex too early). In some instances, the message may have a combination of both (e.g., don't have intercourse *but* if you do choose to have intercourse, use some form of protection).

A meta-analytic review of protection motivation theory conducted by Milne et al. (2000) suggests that coping appraisal has modest utility in predicting intentions to protect oneself against a health threat. However, their findings also show that intentions are satisfactory predictors of health behaviors—as OPM proposes—although other OPM variables have only small to medium correlations with precautionary actions. Overall, coping appraisal variables had greater utility in the prediction of intention and behavior than did threat appraisal variables (Abraham et al., 1994; Rippetoe & Rogers, 1987).

Sensation Seeking

The OPM accommodates additional sources of coping responses, such as experience and individual characteristics, including a person's level of sensation seeking. Sensation seeking is a personality trait that is expressed as a need for novel stimulation and a willingness to take risks to achieve these experiences. It has been surmised that teenagers constitute an audience segment that possesses high sensation seeking tendencies.

Psychologists (i.e., Steinberg, et al., 2010) suggest that 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. Indeed, sensation seeking has been invoked by public health campaign scholars as a variable that may be influenced by targeted campaign messages.

Elkind (1967) was one of the first to describe the types of egocentrism associated with the cognitive developmental stages of adolescents, a trait to which sensation seeking has been correlated. Green et al. (2002) looked at how cognitive development interacts with egocentrism and sensation seeking. The purpose of that study was to evaluate the various factors scholars have suggested to mediate message processing and to assess the impact of message elaboration on knowledge, attitudes and behavior. The authors suggested moving away from an individual differentiation model of explaining message outcomes toward a developmental one that could be applied or targeted to cohorts. They suggest that messages should be designed to accommodate the changes resulting from “cognitive changes and development in reasoning strategies, moral reasoning, and emotional growth” (Green et al., 2002, p. 813). This implies that targeting decision-making processes may be a more tenable objective of information campaigns.

To identify the factors that mediate message influence Green et al. (2002) conducted three studies that evaluated the interplay between elaboration, message specificity, risk-taking behavioral intention, egocentrism, sensation seeking, and cognitive development. The results of the study have implications for health message design and future studies.

Specifically, the study found that:

- Deep elaboration (the process of personally drawing conclusions, instead of having them stated for you) results in a higher incidence of desired behavioral intention.

- Males are less likely to be affected by any message and less likely to reduce risk-taking intention.
- Egocentrism has limited explanatory power; adolescents with feelings of invulnerability “saw the message as less realistic and reported less intent to reduce risk behaviors, and those [adolescents] higher in uniqueness reported less message similarity” (p. 824).
- Sensation seeking, particularly disinhibition and thrill seeking, appears to be a good indicator of intention, retention, and message processing.
- Cognitive development rivaled egocentrism and sensation seeking in predictive power.

The implications of these results on message design must be considered in future projects. Among others, the findings suggest that cognitive development and sensation seeking both have a significant, but separate, effect on message processing. According to Greene et al. (2002), cognitive development predicted knowledge processing and retention, while sensation seeking considerations were useful in achieving changes in behavioral intention. The results also suggest that “adolescents do not extend or generalize information about one behavior...to other, even similar, behaviors” (p. 828). Greene et al. (2002) did point out a problem with using sensation seeking in message design, cautioning that “in any given group, there are likely to be both high and low sensation seekers” (p. 813).

There are important limitations to the Green et al. (2002) study that should be noted. Among others, the study used a convenience sample drawn from a particular geographic region (southeastern U.S.), presented messages in an unnatural setting, and had no delay

between message consumption and the application of the post-test. However, the study does present an interesting approach to predicting and measuring message impact across a broad range of adolescent development phases.

There is compelling evidence that sensation seeking is strongly correlated with sexual risk behaviors. A study conducted by Donohew et al. (2000) examined the interaction of sensation seeking and impulsive decision-making regarding sex. The authors looked at the demographic characteristics, the sexual histories, sexual behavioral intentions, drug use, levels of sensation seeking, and impulsive decision-making tendencies of 2,949 ninth graders from 17 high schools in the U.S. Their analyses showed that high sensation seeking (HSS) adolescents were more likely to engage in risk-taking behaviors, including sexual intercourse and the use of alcohol or marijuana before sex.

Stephenson et al. (2003) analyzed whether the number of items in the most commonly used scale to measure sensation seeking, Zuckerman's (1978) Sensation Seeking Scale (SSS-V), could be reduced from the original 40-item index to a more economical number of items cognizant of the fact that large-scale surveys typically reduce theoretical constructs into a set of manageable scales. To develop a shorter tool, the authors reviewed studies that used shortened scales, and settled on testing two indices, a two-item index and a four-item index. Their study focused on intention to try marijuana, and their analyses were conducted on a sample size of 5,187 seventh to eleventh graders. The Brief Sensation Seeking Scale-4 (BSSS-4) they produced resulted in statistics comparable to those achieved for two longer and more often used subsets of the SSS-V. The researchers who developed the BSSS-4 pronounced it "psychometrically sound and, when necessary, can be substituted for [its]

longer counterparts without significant loss of predictive power” (Stephenson et al., 2003, p. 285).

The present study applies a similar theoretical perspective and methodology to determine the effect of sensation seeking on sexual behavior and message processing. It adopts the BSSS-4 to measure level of sensation seeking in an examination of adolescents’ reactions to two posters that are different in terms of their message sensation value.

Message Sensation Value

Some scholars (e.g., Stephenson and Palmgreen, 2001) have explored the relationship between sensation seeking and message sensation value (MSV), which refers to the degree to which formal and content features elicit sensory, affective, and arousal responses.

Operationally, MSV has been defined as a set of message structural features supposed to elicit higher arousal (Kang and Capella, 2006). Message presentations that are high in MSV are able to tease out certain emotions, making these presentations more persuasive. While MSV is an “attribute of the message related to its content and formal features,” *perceived* message sensation value (PMSV) refers to the “affective and arousal responses to such message features by audiences” (Stephenson and Palmgreen, 2001, p. 51).

Presentations high in MSV are said to be highly novel, arousing, dramatic, or intense. Most of the time, they feature high-impact visuals (Palmgreen et al., 2002). In TV watching, although viewers can actively control attention to stimuli based on their goals, interests, and intentions, Palmgreen et al. (2002) posit that formal or structural features of messages trigger automatic (unconscious) attentional processes. These structural features include cuts, edits, pacing, camera movement, scene changes, and narrative structure as well as video graphics

(Geiger & Reeves, 1993; Yoon, Bolls & Muehling, 1999). Content features, on the other hand, include the story, its characters, the plot, and the actions featured in the story (Geiger & Reeves, 1993; Stephenson & Palmgreen, 2001).

Donohew et al. (2000) suggest targeting high sensation seeking (HSS) adolescents who were more likely to engage in risk taking behaviors with novel and dramatic presentations to overcome barriers to message processing inherent among individuals with this personality type. Analyzing anti-drug PSAs, Stephenson and Palmgreen (2001) hypothesized that high sensation seekers will be more attentive to messages with a higher PMSV. Indeed, they found evidence to support that hypothesis. A follow up study by Morgan et al. (2003) examined the relationship between MSV and PMSV and concluded that the two variables were highly correlated ($r = .96, p < .001, n = 109$). Such high collinearity allows PMSV and MSV to be used interchangeably in most situations.

Most of the available research on MSV and PMSV examines video-based messages. Specific visual components, such as the use of intense images and their impact on the way people process messages, also have been explored. For example, Niederdeppe (2005) linked MSV and message processing by reconciling the latter to the syntactic indeterminacy of visuals or the absence of “explicit syntax for expressing analogies, contrasts, causal claims, and other kinds of propositions” when visuals are used as the primary mode of presenting messages (Messaris, 1997, p. xi). Niederdeppe found that message processing was significantly associated with PMSV-enhancing features. This effect was significant for both younger (12-15) and older (16-18) teens, but was larger for older teens than younger teens.

Suspenseful imagery was examined independently and was found to correlate highly with message processing.

Experiments have demonstrated that messages high in sensation value produce higher levels of attention and desired behavior change in high sensation seekers, whereas messages low in sensation seeking produce the same effects in low sensation seekers (Donohew et al., 1991; Lorch et al., 1994; Palmgreen et al., 1991). Niederdeppe (2005) suggests that the association between suspenseful imagery and message processing may be explained by either the lack of propositional syntax said to be a characteristic of visuals or through an emotional response which, according to Stephenson (2003), results in increased message scrutiny and processing.

Other researchers explain the relationship between sensation seeking and message sensation value following the propositions of the activation model of information exposure (Donohew, Palmgreen & Duncan, 1980; Donohew, Lorch & Palmgreen, 1998). The activation model contends that attention is a function primarily of an individual's level of need for stimulation. In this case, high sensation seekers need considerably more novel and powerful messages to attract and hold their attention. High sensation value messages, with their fast pace, novel and dramatic style, typically provide an optimal state of activation for HSS, substantially reducing the chance that they will seek out alternative forms of stimulation. Zuckerman (1988) maintains that HSS are more receptive to novel stimuli, including media messages, because their "optimal level of stimulation depend on the levels set...by novel stimuli" and that "anything producing lower arousal levels may be considered boring" (p. 182).

Other studies illustrate the effectiveness of employing HSV messages to change high sensation seekers' drug-related behaviors. Palmgreen and his associates (2001), for example, reported a time series investigation demonstrating the dramatic effectiveness of three televised anti-marijuana media campaigns employing HSV messages that reduced marijuana use among HSS adolescents in two cities. This study demonstrates the utility of using HSV messages for designing messages and programs to reduce unhealthy behaviors among at-risk groups.

The current study examines whether sensation seeking is related to young people's preference for the MSV of posters meant to persuade them to practice sexual abstinence.

Considering the foregoing literature review, this study posits the following hypotheses:

H1: Sensation seeking is related to increased risky sexual behavior. Because risky sexual behavior is a construct that has several dimensions, this hypothesis is divided into seven sub-hypotheses. It is posited that sensation seeking is related to (1) age at first sexual intercourse (age of debut), (2) number of sexual partners, (3) incidence of alcohol and/or drug use before and/or during intercourse, (4) consistency of condom use, (5) use of birth control, (6) incidence of experienced STDs, and (7) incidence of pregnancy.

H2: High sensation seekers will find the poster that is high in message sensation value (HMSV) to be more engaging than its counterpart that is low in message sensation value (LMSV). In other words, there is a positive relationship between sensation seeking and MSV.

CHAPTER 3

METHOD

This study aims to analyze the influence of sensation seeking on sexual risk taking behaviors. It also intends to determine whether high sensation seeking individuals will prefer—or find more engaging—a visual presentation that is high in message sensation value (HMSV) as opposed to one that is low in message sensation value (LMSV). While most previous research involving MSV or PMSV has focused on video presentations and television programs, this study applies the same principles to a non-video visual format—posters.

Most sex education programs cater to middle and high school students, the target population of efforts to reduce teen pregnancy. This exploratory study solicited the input of 18-19 year-old college students who participated in an online survey. The respondents were undergraduate students at a Midwestern university. The student-respondents were randomly drawn from the official registry of undergraduate students. Their participation was solicited via an introductory e-mail. Then, they were directed to the online survey site where they completed a questionnaire after exposure to two kinds of posters both of which aim to promote sexual abstinence. The questionnaire (Appendix B) asked for demographic information, and contained items that aim to measure sensation seeking tendencies, risky sexual behaviors, and their reaction to the two types of poster presentation.

The survey questionnaire was administered using SurveyMonkey. To encourage participation and honesty, respondents were guaranteed that their responses would be kept completely confidential, and their anonymity would be protected. Not even the researcher

was able to tie a response to a particular participant. To increase the response rate, the names of those who returned their completed questionnaires were entered into a random drawing for one \$50 gift certificate.

The Study Design

The posters were designed using public domain photographs to avoid copyright or permission complications. The first poster uses a more sedate photograph in black-and-white to represent the low MSV treatment (Figure 1). The other poster was designed to be more visually stimulating by featuring a color photograph. This poster is expected to deliver the high MSV input (Figure 2). These particular images and poster designs were selected due to their connection to the topic, sex education. The initial designs were shown to a group of teenagers who were asked whether they seemed typical of posters they find on campus or in other venues. Based on their input and the literature on PMSV, minor adjustments were made before the posters, along with the survey questionnaire, were submitted to the Institutional Review Board (IRB). After receiving IRB approval (see Appendix A), participants were contacted by e-mail to request their participation.

Variables and their Measure

The first hypothesis posits that sensation seeking is related to increased sexual risk taking. *Sensation seeking* was measured using the four-item BSSS-4 scale. Here, the respondents were asked to select their answers from a five-point scale with response options ranging from strongly disagree (1) to strongly agree (5). The following four items comprise this scale: (1) I would like to explore strange new places; (2) I like to do frightening things; (3) I like new and exciting experiences; and (4) I prefer friends who are exciting and

unpredictable. The average of the students' responses to these four items was computed to create an index.

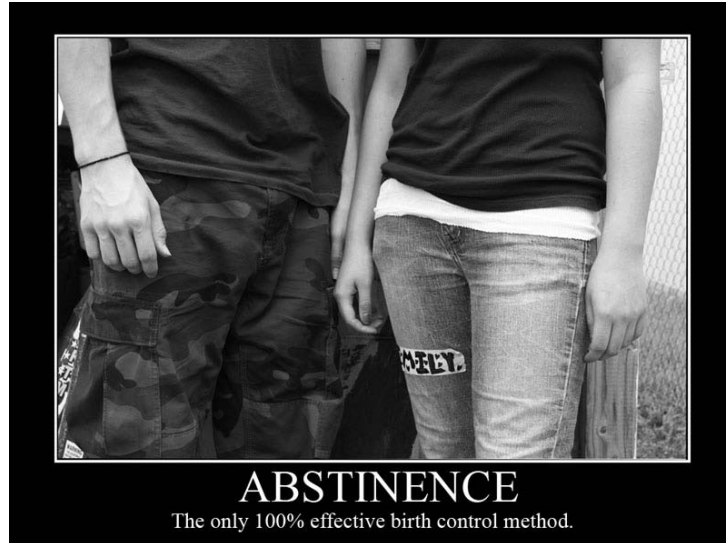


Figure 1. Low message sensation value poster

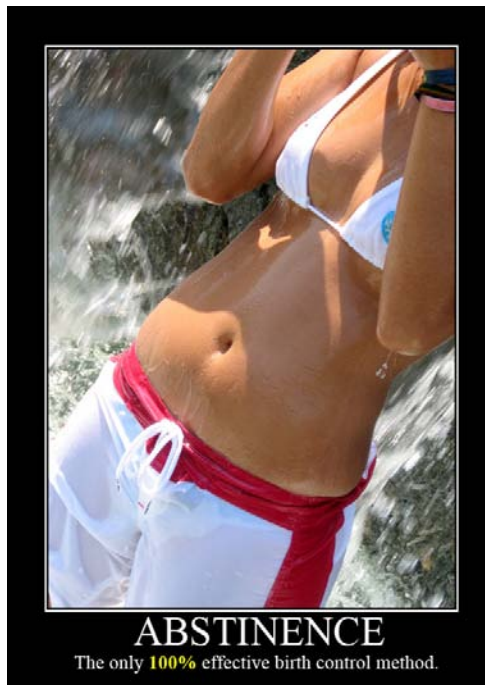


Figure 2. High message sensation value poster

Sexual risk taking was measured by asking respondents items related to their sexual experience and their prevailing sexual behaviors and attitudes. The sexual risk taking variables include: (1) age at first sexual intercourse (age of debut), (2) number of sexual partners, (3) alcohol and/or drug use before and/or during intercourse (yes/no), (4) condom use (yes/no), (5) use of birth control measures (yes/no), (6) incidence STD experience (yes/no), and (7) pregnancy experience (yes/no). Each of these seven items was correlated with the sensation seeking index.

To check the validity of the PMSV manipulation, the respondents were asked to consider both posters and answer the following questions: (1) Now that you have seen both posters, which is more visually stimulating—Poster 1 or 2? (2) Which poster is more likely to catch your attention if displayed in a public hallway? (3) Which of the two posters is more likely to make you seek out more information about the subject matter it displays (abstinence)?

H2 posits that high sensation seekers will find the poster that is high in message sensation value (HMSV) to be more engaging than the one that is low in message sensation value (LMSV). Perceived message sensation value was measured using a method similar to the one employed by Stephenson and Palmgreen (2001) that has been adapted to assess different presentation formats (poster vs. video). Most items related to this measure use forced choice, five-item scales. All questions were asked for each poster.

The items that constitute the perceived message sensation value scale were as follows:

(1) Did you find the poster visually interesting? The response range was 1 “Not at all” to 5 “Very interesting.” (2) Was the meaning of the poster clear? Here, the response range was 1 “Not at all” to 5 “Very easy to understand.” (3) Did the poster make you consider abstinence in your life? The response set here was 1 “Not at all” to 5 “Strongly consider.” (4) Was the poster boring? The range of responses here was 1 “Very boring” to 5 “Not boring at all.” (5) Did the poster increase your interest in learning more about abstinence? The range of answers is 1 “Not at all” to 5 “Increased a great deal.” (6) In your opinion, was the photo in the poster typical for this type of poster you have seen before? The response range was 1 “Very typical” to 5 “Not typical at all.” The average of the students’ responses to these items was computed to determine the perceived message sensation value for each of the two posters.

CHAPTER 4

RESULTS AND DISCUSSION

A total of 151 students returned the completed questionnaire online, producing a response rate of 12%.

Sample Characteristics

The sample had more female respondents (60.9%) compared to the general undergraduate population of the university (43.5%). The sample was also more racially diverse (Asians constituted 5.3%; Black/African Americans, 2.7%; Hispanic/Latinos, 4.0%; and White/Caucasians, 88%) than the university's composition. The majority was made up of 19 year olds (65%) with the remainder composed of 18 year olds (35%).

Socioeconomic status was measured using information about parents' education and family living arrangements prior to starting college. Figures 3 and 4 provide the breakdown for these two measures that are intended to provide cues regarding the respondent's family environment. It is expected that the developmental course of sensation seeking is such that it increases between preadolescence and middle adolescence especially given an unstable family environment (Steinberg et al, 2010). As such, it is expected that an adolescent who is raised in a stable environment and whose parents are educated will exhibit less negative tendencies. The demographic characteristics of the sample indicate that the majority grew up in stable family situations and that for a significant majority, the parents had completed some post-secondary education.

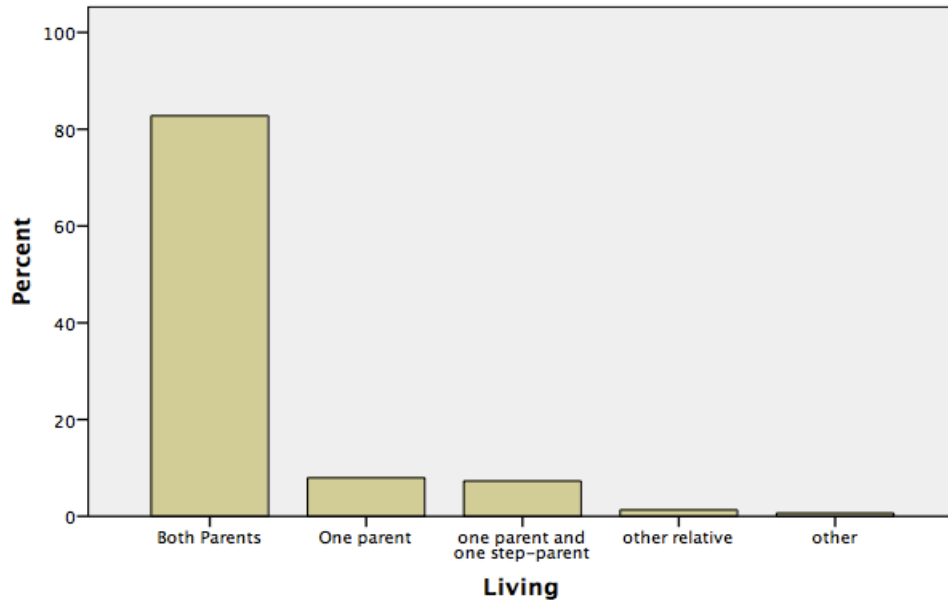


Figure 3. Respondents' family living arrangements prior to starting college

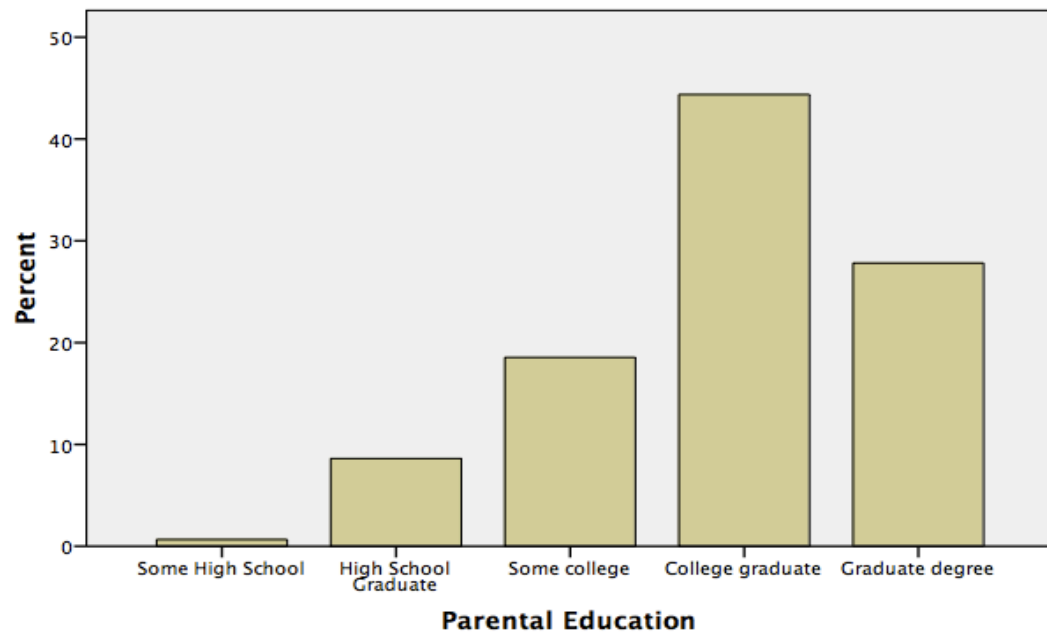


Figure 4. Parents' educational attainment

Sensation Seeking and Risky Sexual Behaviors

To measure sensation seeking, the simplified BSSS-4 scale was used. This index is composed of four items with response items ranging from 1 to 5. The answers were averaged and served as the measure for sensation seeking. The items that comprise this scale were found to be internally consistent (Cronbach's alpha = .823). The mean for this computed variable was 3.35 and the median was 3.5, indicating that more people scored in the upper range of the distribution. The descriptive statistics for each of the seven risky sex behavior items are shown in Table 1.

Table 1. Descriptive statistics for each of the seven risky sexual behaviors

Risky sexual behavior	n	Measure of central tendency
1. age at first sexual intercourse	151	Mean= 18.67; s.d.= 0.498
2. number of sexual partners	150	Mean= 1.7467; s.d.=11.17117
3. alcohol and/or drug use	150	Mode=No
4. condom use	102	Mode=Yes
5. use of birth control	105	Mode=Yes
6. experienced STDs	146	Mode=No
7. experienced pregnancy	139	Mode=No

H1 posits that sensation seeking is related to sexual risk taking. To test this hypothesis, a series of Pearson correlation tests was conducted to determine the linear relationship between the sensation seeking index and the seven risky sexual behaviors. The results, listed in Table 2, indicate that sensation seeking is positively and significantly related to age of debut ($r=.315$, $p=.000$), the number of sexual partners ($r=.309$, $p=.000$), and the use of alcohol and/or drugs during intercourse ($r=.374$, $p=.000$), although the strength of these correlations was relatively weak. There was a weak and negative correlation between sensation seeking and STD experience and condom use, and this was not significant (Table 2). In terms of the seven risky behavior items, therefore, H1 was partially supported.

Table 2. Pearson correlation coefficients between sensation seeking and the seven risky sexual behaviors

Risky sexual behavior	n	R	Prob.
1. age at first sexual intercourse	149	.315	.000
2. number of sexual partners	148	.309	.000
3. alcohol and/or drug use	148	.374	.000
4. condom use	101	-.009	.929
5. use of birth control	104	.063	.526
6. experienced STDs	144	-.018	.835
7. experienced pregnancy	137	.070	.405

Does sensation seeking lead to risky sexual behavior? The results of a series of simple regression tests conducted to answer this question are shown in Table 3. The findings suggest that sensation seeking is a significant predictor of three risk variables—age of debut ($F_{1, 146}=16.23, p=.000$), number of sexual partners ($F_{1, 146}=15.370, p=.000$), and alcohol and/or drug abuse during intercourse ($F_{1, 146}=23.75, p=.000$). As Table 3 shows, sensation seeking contributed 9.9% of the variance in age of debut, 9.5% of the variance in number of sexual partners, and 14% of the variance in alcohol and/or drug use.

Table 3. Results of simple regression tests showing whether sensation seeking predicts the seven risky sexual behaviors

Risky sexual behavior	F	df	Prob.	R²
1. age at first sexual intercourse	16.230	1, 147	.000	.099
2. number of sexual partners	15.370	1, 146	.000	.095
3. alcohol and/or drug use before and/or during intercourse	23.752	1, 146	.000	.140
4. condom use	.008	1, 990	.929	.000
5. use of birth control	.404	1, 102	.526	.004
6. experienced STDs	.044	1, 142	.835	.000
7. experienced pregnancy	.697	1, 135	.405	.005

Significant results were found only for three of the seven items that constitute risky sexual behavior. Thus, H1 receives partial support regarding the influence of sensation seeking on the seven risky sexual behaviors.

Demographic Variables, Sensation Seeking and Risky Sex Behaviors

Do demographic variables have a bearing on sensation seeking and risky sexual behavior? The results of an independent samples t-test shown in Table 4 suggest that males and females do not differ significantly in their sensation seeking tendencies ($t=1.919$; $p=.057$; $df=147$).

To determine whether there is a difference between gender in terms of age of first sexual intercourse and number of sexual partners, two independent samples t-tests were conducted. The results, shown in Table 4, indicate that males and females do not differ significantly in either their age of first sexual intercourse or number of sex partners.

Table 4. Independent samples t-test results comparing males and females on sensation seeking and two risky sexual behaviors

Dependent variable	T	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% Confidence interval	
						Lower	Upper
Sensation seeking index	-1.919	147	0.057	-0.2978	0.1552	-.6044	.0089
Age of first sexual intercourse	0.18	149	0.861	0.0372	0.2124	-.3825	.4570
Number of sexual partners	-0.186	148	0.852	-0.0367	0.19700	-.4260	.3526

To ascertain whether males and females differ in terms of alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience, and pregnancy experience, five separate chi-square tests were conducted. The results, listed in

Tables 5 and 6, suggest no statistically significant difference between gender when it comes to alcohol and/or drug use during intercourse, condom use, use of birth control measures, and STD experience. However, three males reportedly fathered a child, suggesting greater male experience regarding pregnancy.

Table 5. Cross tabulation of gender by alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience

Gender	STD		Condom use		Birth control		Drunk/High		Pregnancy	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Male	59	0	19	26	23	23	38	20	55	3
Female	84	3	29	28	22	37	55	37	81	0
Total	143	3	48	54	45	60	93	57	136	3

Table 6. Chi-square results testing gender differences in alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience

Risky sexual behavior	Chi-square	df	Sig.
Alcohol and/or drug use during intercourse	0.497	1	0.481
Condom use	0.756	1	0.385
Birth control use	1.706	1	0.192
STD experience	2.077	1	0.150
Pregnancy experience	4.282	1	0.039

Does ethnicity have an effect on sensation seeking and risky sexual behaviors? An ANOVA test was conducted to answer this question. The results, outlined in Table 7, suggest that none of the three dependent variables differed based on ethnicity.

Table 7. ANOVA results to test the difference among ethnic groups in terms of sensation seeking and two risky sex behaviors

Dependent variable	Sum of squares	df	Mean squares	F	Sig.
Sensation seeking index	1.750	3	0.583	0.661	0.577
Age at first intercourse	2.533	3	0.844	0.521	0.668
Number of sexual partners	10.433	3	3.478	2.601	0.054

To find out whether being drunk and/or high during intercourse, condom use, use of birth control measures, STD experience, and pregnancy experience differ based on ethnicity, five separate chi-square tests were conducted. The results, shown in Tables 8 and 9, indicate that experience with STD and pregnancy differs based on ethnicity. It should be noted, however, that both variables have small sample sizes.

Table 8. Cross tabulation of ethnicity by alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience

Ethnicity	STD		Condom use		Birth control		Drunk/ High		Pregnancy	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Asian	6	1	4	1	1	4	4	4	6	0
Black/African American	3	1	0	1	0	2	3	1	3	0
Hispanic/Latino	6	0	2	0	0	3	4	2	6	0
White/Caucasian	127	1	47	46	58	36	81	50	120	3
Total	142	3	53	48	59	45	92	57	135	3

Table 9. Chi-square results testing differences in alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience based on ethnicity

Risky behavior	Chi-square	df	Sig.
Alcohol and/or drug use during intercourse	0.497	1	0.481
Condom use	0.756	1	0.385
Birth control use	1.706	1	0.192
STD experience	16.711	3	0.001
Pregnancy experience	4.282	1	0.039

Does the parents' education level (considered synonymous with socioeconomic status) have a bearing on sensation seeking and risky sexual behaviors? An ANOVA test was conducted to answer this question. The results, outlined in Table 10, suggest that sensation seeking tendencies, age of first intercourse, and number of partners did not differ based on parents' education.

Table 10. ANOVA results indicating no significant difference among parental education groups in terms of sensation seeking and two risky sex behaviors

Dependent variable	Sum of squares	df	Mean squares	F	Sig.
Sensation seeking index	6.521	4	1.630	1.913	0.111
Age at first intercourse	11.519	4	2.880	1.826	0.127
Number of sexual partners	6.316	4	1.579	1.156	0.333

To find out whether condom use, use of birth control measures, STD experience, and pregnancy experience differ based on parents' education, four separate chi-square tests were conducted. The results, shown in Tables 11 and 12, indicate that none of the dependent variables differ based on parent's education.

Table 11. Cross tabulation of parent's education by alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience

Parents' educational level	STD		Condom use		Birth control		Drunk/ High		Pregnancy	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Some high school	1	0	0	0	1	0	1	0	1	0
High school graduate	12	1	6	3	5	5	7	6	13	0
Some college	27	0	12	10	7	15	16	12	26	1
College graduate	63	2	19	27	21	26	41	25	59	1
Graduate degree	40	0	11	14	11	14	28	14	37	31
Total	143	3	48	54	45	60	93	57	136	3

Table 12. Chi-square results testing differences in alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience based parents' education

Dependent variable	Chi-square	df	Sig.
Alcohol and/or drug use during intercourse	1.649	4	0.800
Condom use	2.589	4	0.459
Birth control use	2.714	4	0.607
STD experience	3.817	4	0.431
Pregnancy experience	0.723	4	0.948

Pre-college living arrangements were asked of survey respondents to serve as a surrogate measure for family stability. To determine whether sensation seeking varied according to living arrangements before college, an ANOVA test was conducted. As Table 13 shows, the results indicate no significant difference in sensation seeking, age at first intercourse, or number of sexual partners based on pre-college living arrangements.

Table 13. ANOVA results indicating no difference among living arrangements prior to college in terms of sensation seeking and two risky sex behaviors

Dependent variable	Sum of squares	Df	Mean squares	F	Sig.
Sensation seeking index	2.341	4	0.585	0.664	0.618
Age at first intercourse	8.003	4	2.001	1.250	0.293
Number of sexual partners	5.870	4	1.468	1.072	0.373

To find out whether condom use, use of birth control measures, STD experience, and pregnancy experience differ based on living arrangement, four separate chi-square tests were conducted. The cross tabulation of these variables is displayed on Table 14. The chi-square results, shown in Table 15, indicate that risky sexual behaviors did not differ based on living arrangements, except for pregnancy experience. Two of the three cases involved a respondent that live with both parents until college; the third indicated living with a relative.

Table 14. Cross tabulation of pre-college living arrangement by alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience

Pre-college living arrangement	STD		Condom use		Birth control		Drunk/High		Pregnancy	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Both parents	120	1	36	46	35	49	79	45	112	2
One parent	11	1	6	3	7	2	6	6	12	0
One parent & one step-parent	9	1	5	3	2	7	6	5	10	0
Other relative	2	0	1	1	0	2	1	1	1	1
Other	1	0	0	1	1	0	1	0	1	0
Total	143	3	48	54	45	60	92	57	136	3

Table 15. Chi-square results for differences in alcohol and/or drug use during intercourse, condom use, use of birth control measures, STD experience and pregnancy experience based on pre-college living arrangement

Risky behavior	Value	df	Sig.
Alcohol and/or drug use during intercourse	1.882	4	0.757
Condom use	3.378	4	0.497
Birth control use	8.928	4	0.063
STD experience	6.457	4	0.168
Pregnancy experience	22.273	4	0.000

In summary, additional analysis show minimal impact of demographic variables on sensation seeking and risky sexual behaviors. The findings indicate that experience with STD and experience with pregnancy vary according to ethnicity and that pregnancy experience differs based on living arrangements prior to college. These findings, however, may be an artifact of the small sample sizes for each category of the nominal variables involved.

Sensation Seeking and Perceived Message Sensation Value

H2 posits that high sensation seekers will find the poster that is high in message sensation value to be more engaging than its low MSV counterpart. A great majority of the respondents (84.2%) found the HMSV poster more visually stimulating and said it is more likely to grab their attention if seen in public places (82.2%). However, 67.5% said the LMSV poster was more likely to make them seek out more information about abstinence, although it also was more likely to be disregarded as boring or lacking in focus. The descriptive statistics for the variables that constitute PMSV are shown in Table 16.

Table 16 shows that in absolute terms, the respondents found the high MSV poster more visually interesting, less boring, and featuring a photograph typical of posters with this kind of message. It registered a higher PMSV. However, the low MSV poster was seen as having a clearer meaning that made them consider abstinence more, and was better able to heighten their interest in abstinence. In short, the HMSV poster was more effective at grabbing attention, but the LMSV poster was more effective at getting students more interested in abstinence.

Table 16. Descriptive statistics for the variables that constitute perceived message sensation value for the high and low MSV posters

Sensation value items	Low MSV poster			High MSV poster		
	n	Mean	SD	n	Mean	SD
1. The poster was visually interesting	151	2.79	1.037	151	3.54	1.170
2. The meaning of the poster was clear	151	4.17	1.086	150	2.53	1.355
3. The poster made me consider abstinence	149	2.11	1.302	149	1.55	0.911
4. The poster was boring	150	2.52	1.041	151	3.50	1.095
5. The poster increased my interest in learning more about abstinence	150	1.72	1.017	150	1.54	0.824
6. The photo was typical for posters of this type	149	2.58	1.122	150	3.99	1.258
Perceived MSV	146	2.642	0.693	146	2.769	0.606

The response range for each of the items above were: (1) 1 “Not at all” to 5 “Very interesting;” (2) 1 “Not at all” to 5 “Very easy to understand;” (3) 1 “Not at all” to 5 “Strongly consider;” (4) 1 “Very boring” to 5 “Not boring at all;” (5) 1 “Not at all” to 5 “Increased a great deal;” and (6) 1 “Very typical” to 5 “Not typical at all.” PMSV was computed by adding the responses to the six items and taking the average.

To ascertain whether the two types of posters differ on the six sensation value items, a series of paired t-tests was conducted. The results, displayed in Table 17, show that for every measure of MSV, the two posters were significantly different. This indicates that the posters’ design functioned as intended by the researcher; the intended MSV closely aligned with the student-respondents’ PMSV. This finding indicates that it is worthwhile to consider MSV when selecting visuals to go with communication campaign materials.

Table 17. Paired t-test results comparing the two posters on the six sensation value items and perceived MSV

Dependent variable	t	df	Sig. (2-tailed)	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval	
							Lower	Upper
1. The poster was visually interesting	-6.815	150	.000	-.755	1.361	.111	-.974	-.536
2. The meaning of the poster was clear	14.237	149	.000	1.640	1.411	.115	1.412	1.868
3. The poster made me consider abstinence	6.185	146	.000	.551	1.080	.089	.375	.727
4. The poster was boring	-8.698	149	.000	-.973	1.371	.112	-1.194	-.752
5. The poster increased my interest in learning more about abstinence	2.499	148	.000	.188	.918	.075	.039	.337
6. The photo was typical for posters of this type	-11.52	147	.014	-1.405	1.484	.122	-1.646	-1.164
Perceived MSV	-2.036	141	.044	-.127	.742	.0623	-.250	-.004

Those who preferred the HMSV poster also displayed a greater degree of engagement with the subject matter as demonstrated by their open-ended responses. Examples of these comments follow:

I think this one was better because it brought in color and she looked like she was probably having some fun. But it depicts her alone, so it makes me feel like one has to be alone to stay abstinent.

This poster seems to send a stronger message about the importance of abstinence. But I think the picture is very distracting and may influence people the wrong way. However, this may be a good way to attract attention.

To measure PMSV for each of the posters, the responses to the six items listed above were averaged. To determine if there is a linear relationship between sensation seeking and

PMSV, two correlation tests were conducted. The results show no significant correlation between the sensation seeking index and the high PMSV poster ($r=0.127$, $p=0.130$) or the low PMSV poster ($r= -0.40$, $p=0.632$). In fact, sensation seeking correlated negatively with the low PMSV poster although this was weak and thus was not significant. This finding goes against the results of previous studies that show a positive relationship between sensation seeking and PMSV.

To analyze this question further, the study asks: Is there a difference between high and low sensation seekers in terms of their PMSV? The sensation seeking scores were split at the median to dichotomize the results into high (those who scored 3 and above on the BSSS-4 scale) vs. low sensation seekers. The results of an independent samples t-test indicate no difference between HSS and LSS in terms of PMSV (Table 18), suggesting that high and low sensation seekers do not differ in terms of the way they perceive the message's sensation value. Therefore, Hypothesis 2 was not supported.

Table 18. Independent samples t-tests comparing high and low sensation seekers on their PMSV for both posters

	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% Confidence interval	
						Lower	Upper
Low MSV poster	-0.584	142	.560	-.07538	0.12905	-0.3305	0.1797
High MSV poster	1.714	142	.089	0.18768	0.10949	-0.0288	0.4041

The open-ended remarks indicate that respondents showed increased message processing for the HSMV poster due to the perception that the image and the text do not match. Examples of remarks that indicate deeper information processing follow:

I think the color has a much better effect than the black and white, but the photo itself does not mix with the topic at all... You're going to need to find a happy median... maybe a boy and a girl walking away from the camera holding hands... and then show your message.

It's showing a half-naked girl... There's no boy involved. It just doesn't seem to match the message. It looks like it should be an advertisement for something... tanning, swimwear, but not abstinence.

Is it showing that not being in a relationship is the only 100% effective abstinence [measure]? That is a horrible point to make.

The foregoing comments suggest that future studies should explore the effect of visual dissonance on message processing and persuasion.

CHAPTER 5

CONCLUSIONS

The current study explored whether sensation seeking is a significant predictor of risky sexual behavior and whether high PMSV messages will appeal to high sensation seeking individuals. One hundred and fifty-one college undergraduates were exposed to two abstinence-promoting posters and then were asked to evaluate the posters for their perceived message sensation value. They were also asked to respond to items meant to tap sensation seeking tendencies, risky sex practices, and to provide demographic information.

The findings indicate a positive and significant relationship between sensation seeking and age of debut, number of sexual partners, and the use of alcohol and/or drugs during intercourse. No relationship was found between sensation seeking and four other risky behavior items (condom use, use of birth control, STD experience, and pregnancy experience). This finding provide support to the growing body of literature suggesting that sensation seeking is strongly correlated with risky behaviors and that especially targeted messages can be effective in reducing those behaviors. The significant correlations found in this study, however, were moderate in terms of intensity.

The relationship found between sensation seeking and some risky sex practices suggest that those who intend to launch campaigns to reduce teen pregnancy should keep sensation seeking in mind during the design phase. The finding on sensation seeking suggests that adolescents with higher sensation seeking tendencies are more likely to engage in other risky sexual behaviors as well. The results also imply that high sensation seekers are an

appropriate audience segment on which to pilot test campaign strategies, messages, and tactics.

Identifying these high sensation seekers is not too difficult because the data support the utility of the BSSS-4 index in evaluating sensation seeking tendencies. As in past efforts, the BSSS-4 showed strong reliability in this study (Cronbach's alpha = .823), which supports its deployment in comprehensive reviews and assessments of sex education programs and information campaigns.

The study also explored the impact of demographic variables on sensation seeking tendencies and risky sexual behaviors. It was found that respondents did differ in their reported incidences of STDs and pregnancy based on ethnicity and the incidence of pregnancies by their pre-college living arrangements. No other demographic variables were related to sensation seeking tendencies or risky sexual behaviors. The results suggest that adolescents' living arrangements and ethnicity should be considered when constructing messages. Pilot testing should ensure that messages effectively reach audience segments of different ethnicity.

The responses to message sensation value items confirmed that the two posters presented were indeed different in terms of sensation value. Contrary to the results of previous studies, however, the results of the present study suggest no relationship between sensation seeking and perceived message sensation value. There are several possible explanations for this result, all of which should be investigated in future studies. Previous work in this area has primarily focused on public service announcements (PSAs) presented in a video format; it is possible that the relationship between MSV and sensation seeking does

not transition through a format shift. Stephenson and Palmgreen (2001) found that PMSV affected both low and high sensation seekers despite their hypothesis that it would have a positive effect only on high sensation seekers. In their study, the topic (marijuana use) was simply not arousing enough to exceed the low sensation seekers' comfort threshold. In the current study, the topic of abstinence was presented in a fairly innocuous, if arousing, format in the high PMSV treatment; therefore, the effects were similar for all student-respondents regardless of sensation seeking tendencies. This finding suggests that for low intensity topics, such as marijuana use, sexual abstinence, and underage drinking, it is better to target adolescents with high PMSV messages to cater to teenagers' optimal level of arousal.

Despite the lack of a significant relationship between sensation seeking and MSV, the respondents' open-ended remarks indicate that the poster with higher PMSV was both preferred and more elaborated. Therefore, enhancing PMSV is a laudable objective of those who design campaign materials. The most common comment about the high PMSV poster was that the main visual, a photograph of a scantily clad girl, was incongruent with the text. It appears that the dissonance this caused made the student-respondents think more about how to visually present and promote abstinence better.

Limitations and Suggestions for Future Study

The current study has several limitations. The sample size was small and limited to college students, aged 18-19, at a single Midwestern university. A larger sample size, with more geographically distributed respondents, will help improve the generalizability of results. Future studies also should include a wider age range to explore whether sensation

seeking and messages crafted to reduce or tone down this trait affects younger adolescents more than older ones.

The participants were exposed to the two treatments passively, so that in the absence of a knowledge test at pre-exposure, it is not possible to determine the extent to which they understood the posters' meaning. Further research should thus explore the impact of ongoing and interactive message exposure on sensation seeking among adolescents.

The lack of differentiation in the responses of high versus low sensation seekers pertaining to PMSV indicates that other mediating variables may be exerting their influence. The absence of a relationship between sensation seeking and PMSV may be an offshoot of the observation that some threat messages, primarily those related to pregnancy and STDs, are difficult to portray stylistically in such a way as to further enhance the message's sensation value. In other words, a vivid format that some teenagers may find exciting runs the risk of being too discomforting for others.

The findings point to the need for further research to better understand how young audiences process threat messages. Some risk messages are presented with visuals that display the tragic consequences of risky behaviors, such as death resulting from the use of hard drugs. Others do not. Understanding how teenagers process these two types of message presentations could lead to more targeted message designs.

Future studies should also clarify the role of sensation seeking in young people's perception of a message's sensation value. Such studies can benefit from the use of multiple presentation styles to examine the impact of MSV on cognitive processing. Future studies may also want to further examine the effect of incongruent visual and textual elements in

message elaboration, processing and retention. The fact that the high PMSV poster's visual presentation did not match the viewer's expectations appears to have increased elaboration. Future studies should explore whether specific types of dissonance might have a positive effect on campaign objectives in order to provide guidelines to communication strategists.

Researchers may also examine which behaviors are effective and efficient bellwethers of risk taking tendencies. Drinking or using drugs during intercourse, age of debut, and number of sex partners are indicators of current risky behaviors and thus are not as useful when the goal is prevention. Further work is needed to determine whether sensation seeking will predict these behaviors in pre-teens, the primary target of pregnancy prevention campaigns.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

DATE: March 1, 2010

TO: Jeremy Schweitzer
211 Andrews House, Ames, IA 50011

CC: Dr. Lulu Rodriguez
214 Hamilton

FROM: Office for Responsible Research

TITLE: Sensation Seeking, Message Sensation Value, and Risky Behavior – Examining Compelling Communications

IRB ID: 09-612

Submission Type: New **Exemption Date:** March 1, 2010

The project referenced above has undergone review by the Institutional Review Board (IRB) at Iowa State University and has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making any changes**, to determine if the project still meets the federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use only the approved study materials** in your research, including the **recruitment materials and informed consent documents that have the IRB approval stamp**.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

APPENDIX B: THE STUDY QUESTIONNAIRE

1. What is your age? _____
2. What is your gender? Female/Male
3. What is your ethnicity?
 - 1 = White/Caucasian (not Hispanic/Latino)
 - 2 = Black/African American
 - 3 = Hispanic/Latino
 - 4 = Native American/American Indian
 - 5 = Asian
4. Before starting college did you live with...
 - 1 = both parents?
 - 2 = one parent?
 - 3 = one parent + one stepparent?
 - 4 = other relative?
 - 5 = other?
5. What is the highest level education either of your parents (or guardians) has achieved?
 - 1 = Some high school (no diploma)
 - 2 = High school graduate
 - 3 = Some college (at least one year)
 - 4 = College graduate
 - 5 = Graduate degree

6. How well do the following statements describe you? Rate each statement on the following scale:

Strongly disagree	Disagree	Not sure/Neutral	Agree	Strongly agree
1	2	3	4	5

- A) I would like to explore strange places.
 B) I like to do frightening things.
 C) I like new and exciting experiences, even if I have to break the rules.
 D) I prefer friends who are exciting and predictable.

Questions 7-12 & 14-19 are based on a 5-point scale – the boundaries for each question are included.

7. Please take a look at the poster above (LMSV poster shown, see Figure 1). Did you find the poster visually interesting? Not at all – Very interesting
8. Was the meaning of the poster clear? Not at all – Very easy to understand
9. Did the poster make you consider abstinence in your life? Not at all – Strongly consider
10. Was the poster boring? Very – Not at all
11. Did the poster increase your interest in learning more about abstinence? Not at all – Yes
12. Was the photo in the poster typical of this type of poster in your opinion? Very typical – not typical at all.

13. Do you have any thoughts you want to share about this poster with the curriculum designers? Open-ended
14. Please take a look at the poster above (HMSV, see Figure 2). Did you find the poster visually interesting? Not at all – Very interesting
15. Was the meaning of the poster clear? Not at all – Very easy to understand
16. Did the poster make you consider abstinence in your life? Not at all – Strongly consider
17. Was the poster boring? Very – Not at all
18. Did the poster increase your interest in learning more about abstinence? Not at all – Yes
19. Was the photo in the poster typical of this type of poster in your opinion? Very typical – not typical at all.
20. Do you have any thoughts you want to share about this poster with the curriculum designers? Open-ended
21. Now that you've seen both posters, which poster is more visually stimulating? Poster 1 or 2?
22. Which poster is more likely to catch your attention if displayed in a public hallway?
23. Which of the two posters is more likely to make you seek out more information about the poster's subject, abstinence?

24. Have you ever engaged in sexual activity, sometimes referred to as “everything, but...” such as oral sex? Yes/No

25. How likely are you to have an honest conversation about sex with a girlfriend or boyfriend?

Not Likely

Very Likely

1

2

3

4

5

26. Have you ever had sexual intercourse? Yes/No

a. If yes, how old were you the first time you had intercourse? _____

b. If yes, how many sexual partners have you had? _____

27. Have you ever tried illegal drugs, or taken prescription drugs for recreational purposes? Yes/No

28. Have you ever been drunk or high when engaging in sexual intercourse? Yes/No

29. The last time you had sexual intercourse did you or your partner use a condom? Yes/No

30. The last time you had sexual intercourse were you or your partner using some type of birth control (other than a condom)? Yes/No

31. How likely are you to use a condom the next time, or first time, you have sexual intercourse?

Not likely

Very likely

1

2

3

4

5

32. How likely are you to use birth control the next time you have sexual intercourse?

Not likely

Very likely

1

2

3

4

5

33. Have you ever been tested for sexually transmitted diseases (STDs)? Yes/No

34. Have you ever been diagnosed with an STD? Yes/No

35. Have you ever been pregnant or have you ever impregnated a partner? Yes/No

36. Do you have any children? Yes/No

a. If yes, how many? _____