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Understanding the unique role of media message processing in predicting adolescent sexual behavior intentions in the United States

Tracy M. Scull, PhD, Christina V. Malik, PhD, and Janis B. Kupersmidt, PhD

Innovation Research & Training

Abstract

This study investigated the role that media message processing variables stemming from the Message Interpretation Process (MIP) model play in adolescents' intentions to engage in sexual activity. Data collected from 873 adolescents in the United States were examined in an ordered logistic regression model containing demographic variables; attitudes; self-efficacy; parent and peer normative beliefs; and media message processing variables. The analyses revealed that media message processing variables have a unique influence on adolescent sexual intentions above and beyond the influence of all the other predictors. Specifically, higher levels of perceived realism of, perceived similarity to, and identification with media messages were related to higher levels of adolescent sexual intent. These findings support the relevance of logical processing of media messages for adolescent intentions for sexual activity and suggest that this may be a possible cognitive mechanism to address in media literacy education programs focusing on promoting healthy decision-making.

Keywords

media; message interpretation processing; sexual intentions; adolescents; media influence

Sexual exploration and discovery is a natural part of adolescence. However, many teens in the U.S. are engaging in risky sexual behaviors that put them at risk for sexually transmitted infections and unwanted pregnancy (Kann et al., 2014). A significant body of research has explored adolescent sexual decision-making, and a plethora of factors have been found to be associated with sexual health outcomes (Buhi & Goodson, 2007), including exposure to media messages (Ward, Reed, Trinh, & Foust, 2014). Recent research has found media literacy education (MLE) to be a promising approach to sexual health education (Pinkleton, Austin, Chen, & Cohen, 2012; Scull, Malik, & Kupersmidt, 2014; Scull, Kupersmidt, Malik, & Keefe, 2017). MLE sexual health interventions often use the theoretical framework of the Media Interpretation Processing (MIP) model (Austin & Johnson, 1997b) and focus on attenuating the potentially harmful influence of media on adolescent sexual health by enhancing students' media message processing skills, as well as influencing several known

Author contact: Tracy M. Scull, PhD, Senior Research Scientist, Innovation Research & Training, 5316 Highgate Dr., Suite 121, Durham, NC 27713, 919-493-7700, tscull@irtinc.us.

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antecedents of healthy sexual decisions making (e.g., attitudes, normative beliefs, self-efficacy). However, relatively less is known about the unique influence of the media message processing variables outlined in the MIP model on adolescent sexual health outcomes.

Determinants of Adolescent Sexual Behavior

In an effort to understand teen sexual activity, researchers have examined a myriad of factors that influence adolescent sexual initiation. This research has consistently shown that several demographic factors are associated with teen sexual activity including, but not limited to, age, gender, SES, and academic achievement (Kirby, 2002). In addition, educational factors, such as receiving sexual health education, are associated with abstaining from sexual activity (Kirby, Laris, & Roller, 2007), and teens' dating and past sexual experiences are positively correlated with engaging in sexual activity. Specifically, teens are more likely to be sexually active if they are already sexually experienced or if they are currently in a romantic relationship (Kirby, 2002).

Adolescents' attitudes and beliefs are also important predictors of sexual activity and may be more influential than many other factors (D. Kirby, 2002). Using the theoretical framework of the Theories of Reasoned Action (Fishbein & Ajzen, 1975) and Planned Behavior (Ajzen, 1991) (TRAPB), studies have found that adolescents' attitudes, normative beliefs, and self-efficacy are each associated with intentions to engage in sexual activity and, ultimately, sexual behaviors. Specifically, adolescents who hold more positive attitudes about teen sexual activity are more likely to intend to have sex and to engage in sexual activity. In addition, adolescents' perceived normative beliefs regarding both parental and peer permissiveness of teen sexual activity are consistently associated with teen sexual behaviors. Adolescents who believe that their peers do not think favorably of teen sexual activity are more likely to abstain from sexual activity, delay sexual debut, have sex less frequently, and have fewer sex partners (for review, see Buhi & Goodson, 2007). Similarly, adolescents who perceive their parents to be disapproving of teen sexual activity are more likely to be abstinent; conversely, adolescents who perceive their parents to have permissive attitudes about teen sex are more likely to be sexually active (Small & Luster, 1994). Also in accordance with the TRAPB, self-efficacy has been found to be a predictor of teen sexual activity. Adolescents who feel more efficacious toward refusing sex are less likely to engage in sexual activity (Buhi & Goodson, 2007). Across many studies conducted with adolescents, behavioral intentions regarding sexual activity have consistently predicted sexual behaviors, and a systematic review of predictors of adolescent sexual behavior revealed that intention to engage in sexual activity was found to be the most stable predictor of sexual activity (Buhi & Goodson, 2007).

Media and Teen Sexual Activity

In addition to the influences discussed above, research has illuminated the influence of media on a variety of attitudes, beliefs, and expectations related to sex and romantic relationships. Although specific media exposure, such as magazine reading, has been found to be related to some positive healthy outcomes such as sexual health knowledge, self-efficacy, and safer sexual intentions (Walsh & Ward, 2010), many studies have also reported

that media exposure is related to unhealthy outcomes. For example, studies have found an association between sexual media exposure and more positive attitudes toward casual or uncommitted sexual activity (Ferris, Smith, Greenberg, & Smith, 2007; L. M. Ward, 2002; L. M. Ward & Friedman, 2006), higher estimates of peers' sexual activity (L. M. Ward, 2002), and expectations of sexual activity within a relationship (Aubrey, Harrison, Kramer, & Yellin, 2003). In addition to studies that have demonstrated an association between sexual media exposure and sexual attitudes, beliefs, and behaviors, several longitudinal and experimental studies have provided evidence of causal link between exposure to sexual media content and early sexual activity and teen pregnancy (Brown et al., 2006; Chandra et al., 2008; Collins, Martino, Elliott, & Miu, 2011; Martino et al., 2006). In many of these studies, several of the possible alternative explanations for the association, such as demographic characteristics, extent of connection or closeness with parents, school, or religion, sensation seeking, and self-esteem, were controlled for; however, media variables still predicted sexual behavior.

The association between media exposure and sexual outcomes is not surprising given that media have become ubiquitous in the lives of adolescents (Rideout, Foehr, & Roberts, 2010) and mainstream entertainment media are rife with sexual content (Ward, Erickson, Lippman, & Giaccardi, 2016). Analyses of television programming estimates between 77–82% of shows contained sexual content (Fisher, Hill, Grube, & Gruber, 2004; Kunkel, Eyal, Finnerty, Biely, & Donnerstein, 2005). Sexual content is also prevalent in feature films, as one study documented that approximately 85% of the coded films contained sexual content in at least one 5-minute segment (Bleakley, Jamieson, & Romer, 2012). Sexual imagery has been found to be present in approximately 59–84% of music videos (Turner, 2011; Ward, Reed, Trinh, & Foust, 2013), with the most frequent images involving suggestive dancing, sexual objectification, and self-touching. Similarly, music lyrics contain many sexual references with estimates ranging from 37–40% of songs (Pardun, L'Engle, & Brown, 2005; Primack, Gold, Schwartz, & Dalton, 2008). Video games infrequently contain female characters, but when they do the depictions are highly sexualized (e.g., revealing clothing; nudity) with 43% of female depictions compared with 4% of male depictions being sexualized (Downs & Smith, 2010). The top three topics in men's magazine editorial content was found to revolve around sex, including what women like, unorthodox sex and positions, and improving one's sex life (Taylor, 2005). With the explosion of Internet usage over the past decade, pornography or sexually explicit material (SEM) has become more widely available to adolescents. For example, 85% of boys and 50% of girls have reported viewing Internet pornography either purposefully or accidentally (Braun-Courville & Rojas, 2009).

While sex and sexual references are common in media messages, few of these messages contain information about contraception or sexual health, nor do they typically present risks or negative consequences associated with sex (Kunkel et al., 2007). Specific themes and scripts regarding sex roles and relationships have also been explored by researchers. In general, these studies have found that stereotypical heterosexual sex roles are commonly depicted in television programming with males often being depicted as preoccupied with sex and the sexual conquest of women, while females are often depicted as sexualized, yet, sexually passive or experiencing guilt over being sexual assertive (Aubrey, 2004; Collins, 2011; Ferris, Smith, Greenberg, & Smith, 2007; Kim et al., 2007; Kirsch & Murnen, 2015;

Ward, 1995). Additionally, sexual depictions in television are frequently shown outside of a committed relationship (Kunkel et al., 2007). An analysis of 90 movies targeted to teens found that 80% of the films contained teen sexual activity and 28% contained adult sexual activity, but few contained any information about contraception, risks, or consequences (Callister, Stern, Coyne, Robinson, & Bennion, 2011). Furthermore, the way men and women are portrayed in music videos typically reinforces stereotypical norms about masculinity and femininity (Wallis, 2011). Limited research has explored depictions of sex and relationships in video games. However, this research has found that depictions of women are limited, and when women are represented they are more likely than male characters to be hypersexualized (e.g., unrealistic body proportions, shown in revealing clothing or partially or totally nude) (Downs & Smith, 2010). A study of teenagers' exposure to magazines found that they were more likely to have seen information on sex in general, rather than information on sexual health (Walsh-Childers, Gotthoffer, & Lepre, 2002). The way male sexuality is portrayed in female magazines also conforms to traditional gender stereotypes. Contradictory messages are not uncommon, such as telling a woman to feel confident as she is and yet telling women certain ways to work out or groom themselves in order to be sex ready (Ménard & Kleinplatz, 2008). In both male and female magazines women are often posed and portrayed in a submissive and sexually available manor (Krassas, Blauwkamp, & Wesselink, 2001). Pornographic videos have been shown to present high levels of physical (88%) and verbal aggression (49%), which is typically is perpetrated by males toward females (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010). Roughly 50% of pornographic videos examined in one study portrayed females lacking agency in choosing sexual acts (Grudzen et al., 2009). Furthermore, unprotected sexual acts are a common occurrence in pornography as condom use during penile-vaginal intercourse was only portrayed in an estimated 2–3% of videos (Gorman, Monk-Turner, & Fish, 2010; Grudzen et al., 2009). For adolescents, entertainment media are easy-to-access sources of information about sexual norms and behaviors, where much of the sexual content portrays unhealthy and unrealistic sexual situations or excludes information about the potential consequences of risky sexual behaviors (Callister, Stern, Coyne, Robinson, & Bennion, 2011; Eyal, Kunkel, Biely, & Finnerty, 2007; Fisher et al., 2004; Kunkel et al., 2005; Pardun et al., 2005; Primack et al., 2008).

The Message Interpretation Process Model

Research has examined the role of media message processing variables on teen sexual attitudes and beliefs. One framework used to understand the processing of media messages and their impact on health behaviors is the Message Interpretation Process (MIP) Model (Austin & Freeman, 1997). The MIP model posits that media message processing is comprised of logical analysis in which a person compares the message to their perceptions and personal experiences, and one's affective reactions to the message. Specifically, the model specifies that perceived similarity of media portrayals to self, the perceived realism of media portrayals, and the desirability of media portrayals contribute to the level of identification with the media message (Austin & Johnson, 1997b). The level of identification with the media message predicts the valence of expectancies (e.g., positive vs. negative consequences) regarding the behavior, which influence behavioral choices. This theory has

been used primarily as a framework for understanding how media literacy interventions, which aim to decrease perceived realism, similarity, and desirability of unhealthy media messages, can reduce the influence of media on adolescents' sexual outcomes (Pinkleton et al., 2012; Scully et al., 2014).

Specifically, the logical constructs of the MIP model consist of perceived realism of media messages and perceived similarity to media messages. Perceived realism in general has been associated with idealistic beliefs about romantic relationships (Lippman, Ward, & Seabrook, 2014). Also, research has established an association between adolescents' perceived realism of sexual media messages and more permissive attitudes toward sex (Baams et al., 2015; Chock, 2011). Perceived realism has been found to moderate the association between adolescents' exposure to sexual media and permissive sexual attitudes (Peter & Valkenburg, 2010; Laramie D. Taylor, 2005). Whereas some research has found that perceived realism does not have as strong of an influence on impacting the link between media exposure and expectations (L. D. Taylor, 2005), a recent study found that the relationship between men's viewing of television with relationship/romantic themes and sexual expectations within a romantic relationship was moderated by perceived realism, but this effect was not found for women (Gamble & Nelson, 2016). Perceived similarity to a media message refers to the extent to which the audience views the media message as similar to themselves, and it is hypothesized that the more similar one feels to the people portrayed in a media message the more likely they will desire to be like those people (Austin & Meili, 1994). However, one study found that the influence of television viewing was not reinforced by perceived similarity (Eggermont, 2004).

According to the MIP model, perceived desirability captures an emotional response to a media message and is conceptualized as one's liking or enjoyment of the characters, storyline, or other elements of a media message. The logical and emotional constructs contribute to the level of identification with the portrayal, product, or behavior in the media message. Higher levels of identification predict more positive expectancies, and in turn, impact actual behaviors. For example, wishful identification with characters on the reality show *Jersey Shore* mediated the relationship between exposure to the program and permissive sexual attitudes (Bond & Drogos, 2014). Another study revealed that viewing TV characters modeling sexual health discussions motivated viewers to have such conversations in their real lives. The analyses revealed that this process occurred through identification with the TV characters, which enhanced the viewer's self-efficacy for having health conversations (Moyer-Gusé, Chung, & Jain, 2011). However, empirical research has yet to explore whether message processing mediates the effect of exposure to sexual media messages on adolescent sexual health outcomes or the effect of message processing variables on adolescents' intentions to engage in sexual activity.

Hypotheses

The purpose of the current study was to fill a gap in research regarding the unique influence of media message processing on factors related to sexual intentions in adolescence. The study's hypotheses are based on the MIP model, as well as prior research on media influence and adolescent sexual health. Higher levels of perceived realism of, similarity to, and

identification with media messages is hypothesized to be significantly related to higher levels of intention for sexual activity in the future. In addition, these media message processing variables are expected to predict adolescent intentions for sexual activity above and beyond the variance accounted for by demographic, peer, and parent variables previously found to influence adolescent sexual intentions.

Methods

Participants

Data were collected from adolescents in 54 seventh and eighth grade health education classes across 9 middle schools in one school district in the Southeastern United States (see Table 1 for number of classes within each school and average class sizes). Students were asked to complete a questionnaire that assessed their attitudes, cognitions, and behavioral intentions regarding sexual activity, including their perceptions surrounding parents, peers, media and adolescent sexual activity. This served as a baseline questionnaire as part of a larger evaluation of a sexual health promotion program. A total of 1485 adolescents were asked to participate in the study. Parental permission and student assent forms were sent home with the students. Of the adolescents who were asked, 1028 adolescents (69%) received parental permission and personally assented to participate in the study. A total of 873 adolescents (85%) took the baseline questionnaire. Participating adolescents ranged in age from 12 to 15 ($M = 13.01$, $SD = 0.77$). The sample was comprised of 51% male adolescents. The racial breakdown of the sample is as follows: 64% Caucasian, 10% African-American, 3% Asian; 3% American Indian, 9% more than one race, and 11% "Other." Regarding ethnicity, 16% of the adolescents reported being of Hispanic, Latino, or Spanish origin. See Table 2 for a breakdown of additional demographic and background characteristics for the sample.

Procedures

A week prior to the questionnaire administration, project staff members distributed permission and assent forms to each participating class of students to bring home to their parents or guardians. Adolescents who returned signed parent permission forms indicating parent approval for their child's participation and signed assent forms indicating their desire to voluntarily participate in the research study were eligible to participate. Project staff members led group web-based data collection efforts in each class. Project staff members distributed unique secret numbers to each student, which they used in place of their names on the web-based questionnaire. When participants were done with the questionnaire, they were asked to close their computer browser and laptop and read quietly at their desk. Participants were asked not to talk to one another until the entire class had completed their questionnaires.

As the content of the questionnaires was sensitive, several data collection procedures were used to protect the confidentiality of participants. These procedures included the use of secret number IDs entered on the questionnaire instead of names; the use of two proctors during questionnaire administration to monitor that participants only looked at their own computer screens and were not talking; ensuring that participants sat with adequate space

between each other to provide a semi-private setting; and setting up computer screen shields around each student's laptop. The research design, protocol, and measures for this study were all approved under an Institutional Review Board (IRB) review process.

Measures

Participants reported the following demographic information: self-reported academic grades; gender; age; race; socioeconomic status (SES; i.e., eligibility for free or reduced lunch). Participants were also asked to indicate if they had ever had sex, if they are currently in a romantic relationship, and whether they received sexual health education in school during the past year. Participants responded to measures related to sexual intentions, self-efficacy, attitudes/norms (Basen-Engquist et al., 1999), as well as media message processing measures that were adapted from advertising-specific stems to assessing processing of media more broadly (Austin & Johnson, 1997b; Pinkleton, Austin, Cohen, Chen, & Fitzgerald, 2008). The following measures were all rated on a 4-point Likert scale (Strongly Disagree to Strongly Agree).

Intentions to Engage in Sexual Activity—Four items ($\alpha = .80$) measured participants' intentions for sexual activity in the future. Examples of sexual contact (e.g., oral sex, genital-to-genital touching) and a definition of sexual intercourse (i.e., the insertion of an erect penis into a vagina or anus) were provided to participants. Participants were asked, "how likely is it that you would do the following: 1) have any type of sexual contact with another person before you graduate high school; 2) have sexual intercourse in the next year; 3) have sexual intercourse before you graduate high school; and 4) abstain from sexual intercourse until you graduate from high school" (reverse coded). Participants responded using a 4-pt. Likert scale (1=Not at all likely, 2=Somewhat likely, 3=Likely, 4=Very likely). Higher scores indicate an increased likelihood of future sexual activity.

Self-Efficacy to Refuse Sexual Activity—Four items ($\alpha = .86$) measured participants' feelings of self-efficacy for refusing sexual activity. For example, "I can say no to someone who is pressuring me to have sex." Higher scores indicate more perceived ability for refusing sexual activity.

Attitudes about Teen Sexual Activity—Three items ($\alpha = .67$) measured participants' attitudes about teen sexual activity. For example, "It is OK for teens to be sexually active." Higher scores indicate more permissive attitudes about teen sexual activity.

Perceived Peer Norms about Teen Sexual Activity—Three items ($\alpha = .77$) measured participants' normative beliefs about peers' attitudes about teen sexual activity. Participants were asked to respond to statements about what their peers think about certain statements. For example, "It is OK for teens to be sexually active." Higher scores indicate a perception that peers are more permissive of teen sexual activity.

Perceived Parental Norms about Teen Sexual Activity—Three items ($\alpha = .68$) measured participants' normative beliefs about parents' attitudes about teen sexual activity. Adolescents were asked to respond to statements about what their parents think about certain

statements. For example, “It is OK for teens to be sexually active.” Higher scores indicate a perception that parents are more permissive of teen sexual activity.

Perceived Realism of Media Messages—Two items ($\alpha = .78$) assessed participants’ perceived realism of media messages. For example, “Teens in the media act like average teens.” Higher scores indicate more perceived realism.

Perceived Similarity to Media Messages—Four items ($\alpha = .79$) assessed participants’ perceived similarity to media messages. For example, “I am like the people in the media.” Higher scores indicate more perceived similarity.

Identification with Media Messages—Three items ($\alpha = .84$) assessed participants’ desire to become or act in the same way as seen or heard in media messages. For example, “I want to do the things that teenagers do in the media.” Higher scores indicate more identification.

Results

Overview of the Analyses

Data used in these analyses were collected from adolescents clustered in classrooms within public schools in one region of the southeastern U.S. Missing data were handled using multiple imputation (J. L. Schafer, 1997) (EM algorithm, $m=20$), which is appropriate with low levels of missing data (less than 6% missing for all study variables) (Joseph L. Schafer & Graham, 2002; Joseph L. Schafer & Olsen, 1998). Bivariate correlations were calculated between the variables. An ordered logistic regression was conducted using SAS PROC GENMOD, a form of Generalized Estimating Equation (GEE), with intentions to have sex as the outcome variable. The model included demographic variables, attitudes, self-efficacy, perceived peer and parental norms, and media message processing variables. GEE analyses enables the analysis of correlated data, in which subjects are clustered. The models included effects for items and subjects, with standard errors adjusted for multiple observations per subject. The model estimators take into account multiple observations within the primary sampling unit (i.e., teacher), which also accounts for variance with classroom and student. Post-hoc tests were used to determine whether the block of media message processing variables as a group predicted a unique amount of variance in the outcome, over and above the variance accounted for all other predictor variables.

Descriptive and Bivariate Results

Descriptive statistics were calculated for key variables of the study (see Table 3). Bivariate correlations for sexual intent, self-efficacy, attitudes, norms, and media message processing variables can be seen in Table 4. The variables appear to be related but distinct constructs, correlated in the expected directions. Holding more permissive attitudes about teen sexual activity; perceiving parents and peers as more permissive of teen sexual activity; perceiving media messages as more realistic and similar; and identifying more with media messages are related to higher levels of intent to have sex. Conversely, having higher levels of self-efficacy to refuse sex is related to lower levels of intent to have sex. Among the variables, the

interscale correlations range from a low of .07 (perceived parent norms about teen sexual activity and perceived realism of media) to a high of .61 (perceived similarity and identification).

Multivariate results: Intentions to have sex

Analyses revealed that inclusion of all the variables in the model accounts for a significant amount of the variance in adolescents' intentions to have sex in the future, $F(16, 471154) = 62.40, p < .0001$. Being sexually experienced, being male, being older, having lower SES, being in a current relationship, having a more permissive attitude toward teen sex, perceiving peers and parents to be more permissive about teen sexual activity, perceiving media to be more realistic and perceiving people in the media to be more similar to themselves, and identifying more with media messages are each associated with more intention to have sex in the future (see Table 5 for odds ratios and confidence intervals). Having higher academic grades, having higher self-efficacy to refuse sex, and having had sex education in the past year were each associated with less intention to have sex in the future. The variables that comprise the media block (i.e., realism, similarity, and identification) predicted a significant amount of variance (1.0%) in intentions to have sex in the future over and above all the other predictor variables, $F(3, 547021) = 19.46, p < .0001$.

Discussion

This study establishes that media message processing variables outlined in the MIP model are predictors of adolescent sexual intentions. Specifically, perceived realism of, similarity to, and identification with media messages each predicted intentions to engage in sexual activity. Furthermore, this study revealed the unique influence of these message processing variables on behavioral intentions, taking into account several well-established predictors including key demographic characteristics, attitudes, normative beliefs, and self-efficacy, while controlling for classroom-level influences.

These findings extend prior research focusing on the effects of media exposure on adolescent sexual activity and identify important media message processing variables that influence sexual intentions. Although much research has focused on the influence of exposure to sexual media on adolescents (Ward et al., 2014), this study contributes to a growing body of literature moving beyond examining the direct effects of media exposure to understanding the psychological mechanisms underlying such effects. Using the MIP model as a theoretical framework, this study explored the influence the logical aspects of message processing (i.e., perceived realism of, perceived similarity to, and identification with media messages). Importantly, in this study, the processing of general media messages was found to be a significant predictor of sexual intentions and suggests that media message processing need not be specific to a certain topic (e.g., sexually-themed media messages) to have an influence on health outcomes. Therefore, perceived realism of, similarity to, and identification with media messages in general may be associated with a variety of health behaviors across different risk areas (e.g., contraception use; alcohol and substance use). However, it is important to note that research has also found that training in critical thinking about media messages surrounding specific risk behaviors (i.e., alcohol advertising) are

likely to have a stronger effect on those risk behaviors as opposed to providing one general training on media messages (Austin & Johnson, 1997a).

In addition to the theoretical contributions of this study, there are a number of applied implications. With the aim of protecting youth from the potentially harmful effects of media content, some have recommended restricting adolescents' consumption of media messages. Given that youth spend an average of over ten hours per day with media (Rideout et al., 2010) and there are over 14,000 sexual references or behaviors in the media each year (Strasburger, 2000), curtailing exposure to certain media content may not be a feasible option. Furthermore, an important learning opportunity may be missed by merely sheltering youth from media content. The findings from this study suggest that teaching youth skills to critically analyze and process media messages may equip them to more successfully navigate the broader media landscape that cannot be easily controlled and provide them with a foundation for successfully negotiating future media exposure as adults.

Media literacy education (MLE) interventions have been found to influence both media message processing variables and important variables associated with adolescent sexual health, including sexual intention (Pinkleton et al., 2008; Scull, Malik, & Kupersmidt, 2014). The MIP model is a well-researched framework underlying the development of several empirically evaluated MLE programs (Kupersmidt, Scull, & Austin, 2010; Kupersmidt, Scull, & Benson, 2012). These programs provide training in developing logical analysis skills about media messages and aim to decrease students' perceived realism of and similarity to media messages in an effort to reduce the negative impact of media exposure on health. The findings from the present study provide insight into potential areas or mechanisms where MLE might be useful as a protective factor against early sexual behaviors. These findings also suggest that the negative influence that highly desirable, unhealthy media messages may have on adolescents' sexual behaviors may not be mitigated by sexual health promotion programs that only focus on parent or peer influences on sexual attitudes and behaviors, and leave out discussion of media messages about sex and relationships.

Based on the findings from this study, there are several directions for future research. Theoretical research would benefit from moving beyond exploring the direct effects of media exposure on sexual health and examine the psychological processes underlying these effects. Future research could explore whether media-related cognitions mediate the relationship between consumption of media or media exposure and sexual intentions as well as moderators of this relationship. For example, future studies might explore gender differences in how media-related cognitions impact intentions to have sex. Finally, general media-related cognitions (similarity and realism of media in general) might be examined in comparison to specific media-related cognitions (similarity and realism of sex and sexual relationships in the media) in terms of their strength of relationship with sexual intentions. In other words, media-related cognitions about sex may account for more variance in models predicting sexual intentions than general media-related cognitions.

These findings also have implications for program development and prevention research. They support continuing to build MLE programs based upon the MIP model as a theoretical

framework. Further testing of the relevance of the MIP model for prevention of risky sexual behaviors and adolescent pregnancy prevention may build upon the mediator analyses conducted on an MLE intervention for substance abuse prevention in middle school students that revealed that media-related cognitions mediated the effect of intervention on intent to use alcohol and tobacco products (Kupersmidt et al., 2012). Future research should explore whether the MIP variables mediate the effects of MLE interventions on sexual health outcomes.

Limitations

There are several limitations to this study that should be taken into consideration. First, this study examines intentions to engage in sexual activity but does not examine actual behaviors. Although intentions have been found to be a stable predictor of behaviors, the findings from the study may not be generalizable to predicting actual sexual behaviors. Future longitudinal research that tracks adolescent behavior over time or includes older adolescents, who are more likely to be sexually active, may be fruitful to conduct in order to examine associations between media message processing and sexual behaviors. Second, although the media message processing variables predicted a significant amount of variance in adolescents' intentions for sexual activity, the amount of variance accounted for in the models was small. Third, as a cross-sectional analysis the directional nature of the relationship between variables cannot be determined using this research design. Fourth, this study did not measure exposure to sexual media. Therefore, based upon the findings from this study, no conclusions can be made regarding the potential mediating impact of media-related cognitions on the relationship between exposure to sexual media content and sexual behaviors. Fifth, the sample of youth in this study was drawn from a number of schools belonging to only one school district in the Southeastern United States. Although the racial and ethnic breakdowns of the youth sample are similar to the U.S. as a whole, caution should be made in generalizing the findings to a wider population of youth.

Conclusion

This study extends research on the effects of media on adolescent sexual health by establishing that media message processing variables are predictors of adolescent sexual intention. These findings support the use of the MIP model as a framework for understanding how media messages influence sexual activity and provides additional support for the use of the MIP model as a theoretical foundation for the development of MLE interventions. Overall, this research contributes to empirical work testing the MIP model and a deeper understanding of the influence of media message processing on adolescent sexual intentions.

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Biographies

Tracy M. Scull (PhD, Duke University) is a Senior Research Scientist and Developmental Psychologist at innovation Research & Training, a behavioral sciences research company in Durham, NC. Her research focuses on the impact of media and media message processing on child and adolescent risk behaviors. In addition, she develops and evaluates evidence-based programming in the areas of sexual health promotion and substance abuse prevention.

Christina V. Malik (PhD, University of North Carolina – Chapel Hill) is a Research Scientist at innovation Research & Training. She is a mass communication researcher with training in the areas of health communication and media effects. Her work focuses exploring the influence of media on child and adolescent health, and developing and evaluating health interventions for adolescents that promote healthy decision making.

Janis B. Kupersmidt (PhD, Duke University) is a Senior Research Scientist at innovation Research & Training. Her research focuses on the development and evaluation of substance abuse and delinquency prevention and sexual health promotion programs using asset- and positive youth development-based approaches including media literacy education, mindfulness, and mentoring.

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Table 1

Descriptive characteristics of the sample including number of participating classrooms by school and the mean and standard deviation of students per classrooms.

School	<i>N</i> classes	<i>M</i> students	<i>SD</i> students
A	1	18.00	0.00
B	3	19.00	7.81
C	6	14.67	6.15
D	8	21.38	2.50
E	8	24.50	6.44
F	2	18.50	2.12
G	8	9.88	5.03
H	10	15.20	2.57
I	8	9.38	2.72

Table 2

Counts and percentages for background characteristics of the sample (N=873).

		n	Percentage
Gender	Male	431	50.59%
	Female	421	49.41%
Age	12	212	24.88%
	13	428	50.23%
	14	198	23.24%
	15	11	1.29%
Race	White	535	63.92%
	Black	84	10.04%
	Other	118	26.04%
Ethnicity	Hispanic	136	16.15%
	Not Hispanic	706	83.85%
SES	Received free lunch	349	41.65%
	Did not receive free lunch	489	58.35%
GPA	Mostly As	210	24.76%
	As and Bs	379	44.69%
	Mostly Bs	81	9.55%
	Bs and Cs	122	14.39%
	Mostly Cs	18	2.12%
	Cs and Ds	30	3.54%
	Mostly Ds	5	.59%
	Mostly below Ds	3	.35%
Currently in romantic relationship	Yes	176	20.66%
	No	676	79.34%
Ever had sex	Yes	43	5.05%
	No	808	94.95%
Had sex education in the past year	Yes	635	75.42%
	No	207	24.58%

Table 3

Descriptive statistics for intentions, self-efficacy, attitudes, peer and parental norms, and media message processing variables.

Variables	<i>N</i>	<i>M</i>	<i>SD</i>
1. Intentions to Have Sex	856	1.78	0.68
2. Self-Efficacy to Refuse Sex	855	3.36	0.60
3. Attitudes about Teen Sexual Activity	869	1.91	0.55
4. Perceived Peer Norms about Teen Sexual Activity	857	2.06	0.70
5. Perceived Parental Norms about Teen Sexual Activity	856	1.54	0.63
6. Perceived Realism of Media	873	2.66	0.70
7. Perceived Similarity of Media	866	2.12	0.60
8. Identification with Media Messages	869	1.94	0.64

Note: 4 pt. scale; 1 = “Strongly disagree” to 4 = “Strongly agree”

Table 4

Correlation matrix of known predictors of adolescent sexual intent variables and media message processing variables.

Variables	Known Predictors of Sexual Intent				Media Message Processing Variables			
	1	2	3	4	5	6	7	8
1. Intentions to Have Sex	1.00	-0.40***	0.58***	0.48***	0.38***	0.17***	0.30***	0.28***
2. Self-Efficacy to Refuse Sex		1.00	-0.43***	-0.37***	-0.36***	-0.07*	-0.18***	-0.20***
3. Attitudes about Teen Sexual Activity			1.00	0.58***	0.46***	0.11*	0.29***	0.30***
4. Perceived Peer Norms about Teen Sexual Activity				1.00	0.39***	0.11**	0.20***	0.24***
5. Perceived Parental Norms about Teen Sexual Activity					1.00	0.07*	0.09*	0.08*
6. Perceived Realism of Media						1.00	0.39***	0.25***
7. Perceived Similarity to Media							1.00	0.61***
8. Identification with Media Messages								1.00

Note.

*
p < .05,

**
p < .001,

p < .0001

Table 5

Odds ratios and 95% confidence intervals for demographic and background characteristics, interpersonal influence, and media influence variables as predictors of adolescents' intentions to have sex (N = 873).

Intentions to have sex			
Variable	Odds ratio		95% CI
Demographic Characteristics			
Gender(male)	1.56	***	1.33–1.82
Age	1.29	***	1.17–1.42
Academic grades	.90	***	.85–.95
SES (free/reduced lunch)	1.33	**	1.14–1.55
Romantic relationship	1.40	**	1.17–1.67
Ever had sex	4.00	***	2.87–5.59
Race (white)	.87		.73–1.03
Race (black)	.99		.77–1.28
Had sex education	.85	*	.72–.99
Interpersonal Influence			
Self-efficacy to refuse	.64	***	.56–.74
Attitudes about teen sex	2.28	***	1.95–2.67
Perceived peer norms	1.51	***	1.31–1.73
Perceived parent norms	1.17	*	1.02–1.35
Media influence			
Realism	1.18	*	1.05–1.32
Similarity	1.34	**	1.14–1.56
Identification	1.17	*	1.00–1.37

Note.

*
p < .05.

**
p < .001.

p < .0001.