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Adolescent Sexual Decision-Making: A Review of the Abstinence and Emotions Literature

Exploring Adolescent Sexual Possibility Situations: The Role of Emotions in Unused Sexual Opportunities and Associations with Sexual Experience Status

By

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Catherine Nwachukwu graduated from Fordham University in 2013 with a Bachelor of Science degree in Biological Sciences. Though she loved science, the classes that impacted her most during her time at Fordham were about racial and ethnic disparities, urban housing issues, and philosophy. Catherine also spent much of her time outside of the classroom doing community work with The Dorothy Day Center for Service and Justice. She had the opportunity to host college workshops for high school students in the Bronx, teach health education classes to ninth grade students with Peer Health Exchange, and lead incoming freshman at Fordham through a service-focused pre-orientation program called Urban Plunge. To further pursue her passion for social justice, she served with City Year Boston for two years after graduating from Fordham, where she had the privilege of working with students and teachers at a high school in Boston to provide targeted support for students' academic and behavioral needs. At a City Year networking event, Catherine spoke to a woman obtaining her Master of Public Health (MPH), and she finally knew how she could merge her interest in science and passion for social justice. To Catherine, public health is the intersection of health and social justice, and pursuing her MPH at Brown has prepared her with the skills and knowledge to make a positive impact in public health. Her specific interests are around adolescent health, health disparities, and health access.

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Introduction

The existing literature about adolescent sexual decision-making is focused on risk, centering on adolescents' decisions to initiate sexual activity at young ages or engage in sexual activities that lead to unintended pregnancy or sexually transmitted infections (Fantasia, 2008). However, far less research has been done to describe how and why adolescents make decisions to abstain from sexual activity. Gaining a thorough understanding of what factors influence adolescents' decisions to refrain from sexual activity can inform prevention and intervention efforts (Blinn-Pike, 1999; Abbot & Dalla, 2008). Also, there may be evidence that adolescents' reasons to abstain from sexual activity may be more than the inverse of those reasons to initiate sexual activity. In a study that applied the transtheoretical model of change to adolescents' sexual abstinence behavior, stages of change linearly predicted decisional balance (i.e., how adolescents rated the pros and cons of engaging in sexual intercourse) for virgins, but not for nonvirgins (Hulton, 2001). Other studies have found that differences in sexually inexperienced adolescents' intentions of remaining abstinent in the near future were associated with differences in individual, peer, and parental factors (Forste & Haas, 2002; Whitaker, Miller, & Clark, 2000).

Furthermore, within the adolescent sexual decision-making literature, there are only a small subset of researchers who examine the role of emotions in decision-making processes. For instance, in a recent study by Houck et. al. (2014), researchers found that adolescents attending therapeutic schools endorsed both positive and negative emotions prior to their last sexual experience. Guilamo-Ramos et al. (2012) reported that

anticipated emotional reaction was the strongest predictor of intentions to have sex among a sample of Dominican youth in the US and in Dominican Republic. These findings support the notion that emotions may play an important role in adolescent sexual decision-making, and that more research should be done to accurately define what that role is.

The purpose of this literature review was to describe the extant literature about adolescent sexual decision-making, focusing on abstinence decisions and the role of emotions. This was done to draw conclusions and make recommendations for future research. Research studies were selected from a literature search conducted using PubMed. For the purposes of this review, articles published prior to 1990 and studies summarizing the results of interventions were excluded. The list of articles included was not exhaustive.

Review of Abstinence Literature

Eighteen articles were found that focused on factors associated with adolescent sexual decision-making about abstinence. A majority of the studies described primary abstinence in adolescence, but a small subset of the studies reviewed secondary abstinence (n = 5), defined as intentionally refraining from sexual activity after sexual initiation. This section summarizes the major findings in the literature organized by common themes.

Fear of unwanted health consequences

A majority of studies reported fear of unwanted health consequences, such as pregnancy and STIs, as a contributing factor in adolescents' decisions to abstain from sexual activity. In several studies, fear of pregnancy, STIs, or both were the two main reasons why adolescents had not engaged in sexual activity, and avoiding these unwanted

outcomes was the most commonly cited benefit of abstinence (Abbot & Dalla, 2008; Blinn-Pike, 1999; Blinn-Pike, 2004; Forste & Haas, 2002; Michels, Kropp, Eyre, & Halpern-Felsher, 2005; Ott, Pfeiffer, & Fortenberry, 2006; Paradise, Cote, Minsky, Lourenco, & Howland). More specifically, adolescents feared that pregnancy and STIs would ruin their lives, give them a negative reputation, and strain relationships with parents. In a qualitative study by Monsen (1996), fear of pregnancy was illustrated in adolescents' reports that they were not ready to raise a child. In a different qualitative study, adolescents explained that fear of pregnancy and disease was more influential in the decision to remain abstinent than pressure from their peers (Stevens, Gilliard, & Matthews, Nilsen, Malven, & Dunaev, 2014). Secondary abstainers mentioned similar fears, often directly related to fear of repeat pregnancy or infection (Bradley, Sales, Elifson, & DiClemente, 2012; Bradley, Sales, Murray, & DiClemente, 2012; Byers, O'Sullivan, & Brotto, 2016; Haglund, 2008; Loewenson, Ireland, & Resnick, 2004). In one study, a particularly strong association was found between previous infection and interest in secondary abstinence, where those who had an STI in the past had almost two times the odds of reporting strong interest in secondary abstinence compared to those who did not have an STI in the past (Bradley, Sales, Murray, & DiClemente, 2012).

Values and beliefs about abstinence

Similar to fear of unwanted health consequences, values and beliefs about abstinence were discussed in almost every article reviewed, encompassing both religious and personal influences. In a qualitative study by Michels, Kropp, Eyre, and Halpern-Felsher (2005), adolescents without previous sexual experience reported Christianity, strong belief in personal values (i.e., adamantly feeling that they should not have sexual intercourse at their age), and disapproval of sex before marriage, as reasons for refraining

from sexual activity. Firm religious beliefs were also found to be positively associated with abstinence in other studies (Abbot & Dalla, 2008; Byers, O'Sullivan, & Brotto, 2016). Paradise et. al. (2001) observed that virgins were most likely to agree with the universal statement that they had not had sex because "it is against my values and beliefs," and they more commonly cited value-based reasons for abstinence as opposed to opportunity-based reasons when compared to currently inactive adolescents (i.e. no sexual activity in the previous three months). Researchers also found that youths' personal belief that they should be in a committed and/or marital relationship before having sex was a major reason for remaining abstinent (Abbot & Dalla, 2008; Blinn-Pike, 1999; Blinn-Pike, 2004; DiIorio, Dudley, Soet & McCarty, 2004; Forste & Haas, 2002; Monsen, Jackson, & Livingston, 1996; Ott, Pfeiffer, & Fortenberry, 2006).

Interpersonal influences

Interpersonal influence from peers and parents was also a factor in adolescents' abstinence decisions, cited in nine articles. In a few studies, youth who were sexually abstinent reported that their parents and peers held very conservative values towards or did not support premarital sex (Abbot & Dalla, 2008; Blinn-Pike, 1999; Blinn-Pike, 2004). In other studies, adolescents either refrained from sexual activity to avoid disappointing their parents or to maintain strong and honest relationships with their parents (Michels, Kropp, Eyre, and Halpern-Felsher; Ott, Pfeiffer, & Fortenberry, 2006; Stevens, Gilliard-Matthews, Nilsen, Malven, & Dunaev, 2014). Perceived norms about peer attitudes towards abstinence were predictive of intention to abstain in two sexual abstinence models (Buhi, Goodson, Neilands, & Blunt, 2011; Collazo, 2005). Interestingly, interpersonal influences were not as important in the decision to abstain for

secondary abstainers when compared to the importance of other factors, like health consequences and future goals (Haglund, 2008).

Gender differences

A few studies found that boys and girls held different beliefs, attitudes, and concerns about sexual activity and abstinence. Compared to males, females more commonly cited fear-based postponement, not feeling ready, fear of parental disapproval, and waiting to be in a committed, marital relationship as reasons for abstinence (Blinn-Pike, 1999). Furthermore, researchers using an integrative framework to describe sexual abstinence found that males were less likely to endorse abstinence-related standards compared to females (Buhi, Goodson, Neilands, & Blunt, 2011). In a study that examined the perceived social and emotional consequences of refraining from sexual activity, researchers found that females were more likely than males to report only positive consequences of sexual inactivity (Brady & Halpern-Felsher, 2008). On the contrary, Blinn-Pike (2004) found that being male was associated with still being abstinent in an 18-month follow up study.

Emotions

Emotions in the sexual abstinence literature encompassed both anticipated emotions and experienced emotions. Avoidance of emotional pain and/or guilt was cited as a reason to refrain from sexual activity in two studies (Abbot & Dalla, 2008; Byers, O'Sullivan, & Brotto, 2016). Also, anticipated emotional reaction contributed most to remaining abstinent with a main partner in a theory-based predictive model (Collazo, 2005). In a study examining adolescents' interest in secondary abstinence, researchers found that those interested had higher odds of saying they felt negative emotions after sex due to religious reasons compared to those who were not interested in secondary

abstinence (Bradley, Sales, Murray, & DiClemente, 2012). In the same study, authors speculated that those not interested in secondary abstinence were using sex to cope with negative emotions due to their reported stress level.

Future goals

Lastly, the impact of future goals on adolescents' decision to abstain from sex was explored in a few studies. Adolescents in two qualitative studies reported that they wanted to "have a future," and they feared that potential consequences of sexual activity (i.e. STIs and pregnancy) would ruin their future (Michels, Kropp, Eyre, & Halpern-Felsher, 2005; Monsen, Jackson, & Livingston, 1996). Prioritizing school was mentioned as a reason for abstinence in three of the secondary abstinence studies, and two found that most adolescents believed that sex was a distraction and abstinence would allow them to focus on school (Bradley, Sales, Elifson, & DiClemente, 2012; Haglund, 2008). However, the third found that very few adolescents reported focusing on school as a reason to avoid sexual activity (Byers, O'Sullivan, & Brotto, 2016).

Discussion

A variety of factors were presented as being influential in adolescents' decisions to abstain from sexual activity. The most commonly researched factor was fear of health consequences, like unintended pregnancy and STIs, followed by abstinence values and beliefs, interpersonal influences, gender differences, emotions, and future goals. These themes had varying degrees of importance in adolescents' decision to abstain, further distinguished between primary and secondary abstainers. For example, fear of pregnancy and disease was relevant for all abstainers, whereas, interpersonal influences impacted primary abstainers' decisions, but not secondary abstainers. However, it is important to highlight that besides the results from the handful of qualitative studies, results were

limited to the constructs that researchers chose to study. Therefore, it is difficult to differentiate between what researchers deemed important and what is truly important to adolescents in their decisions to abstain.

Further complicating this last point is that only eight of the eighteen articles reviewed in this section were guided by theory, and several different theories were used. Two studies used ecological systems theory (Abbott & Dalla, 2008; Stevens, Gilliard-Matthews, Nilsen, Malven, & Dunaev, 2014), one used the theory of reasoned action and the theory of planned behavior (Collazo, 2005), one used an eight element integrative framework of health behavior (Buhi, Goodson, Neilands, & Blunt, 2011), two studies used the transtheoretical model of change (Haglund, 2008; Hulton, 2001), one study used the information motivation behavior model (Bradley, Sales, Murray, & DiClemente, 2012) and one study created a novel framework for adolescent sexual decision-making based on qualitative data (Michels, Kropp, Eyre, & Halpern-Felsher, 2005). The range of theoretical grounding, and lack thereof in most cases, makes it even more difficult to ascertain the most important factors for abstinence decision-making according to youth.

Moreover, the non-uniform and selective approach in studying how adolescents make decisions about abstinence has left some aspects of the decision-making process disproportionately understudied. In a systematic review of adolescent sexual behavior by Buhi (2007), authors used an integrative framework of eight factors that are said to influence all health behaviors, one factor being emotions. Given that they only found three articles that explored the role of emotions in adolescent sexual behavior, they argued that emotions have mostly been neglected in the literature and more research needs to be done. Especially in the abstinence literature, there is a trend to only include

emotions when it pertains to fear, and researchers should be urged to move beyond the fear factor and expand research to include other emotions. The following section will investigate the importance of emotions in greater detail, and review the existing literature about emotions in adolescent sexual decision-making.

Review of Emotions Literature

As stated in a 2003 article on emotions and decision-making, researchers have acknowledged the role of emotions in decision-making processes since the late 1990s (Loewenstein & Lerner, 2003). Based on the informed work of a few of these scientists, this section will briefly explain theoretical mechanisms through which emotions can influence decisions, how this influence manifests in adolescence, and how emotions play a role in adolescent sexual decision-making.

Affect and decision-making

There are two categories of affective influences that impact decision-making: expected emotions and immediate emotions (Loewenstein & Lerner, 2003). Expected emotions are those that individuals anticipate will occur as a result of a decision. Immediate emotions describe individuals' pre-existing feelings at the time of decision-making, unrelated to the decision at hand. While expected emotions influence people to make decisions that optimize positive emotions, and minimize negative emotions, immediate emotions can directly influence decisions or indirectly impact perception and processing of future consequences. Typically, when researchers have looked at emotional influences on decisions, researchers have focused on the impact of expected emotions, and little emphasis has been placed on immediate emotions. Both conceptualizations of emotions should be considered in research in order to best understand the complex role of emotions in decision-making processes, including decisions about abstinence.

Additionally, Slovic (2001) explains that people subconsciously label objects and events with differing levels of positive and negative affect, and that people refer to this "affect pool" when making a decision. He calls this the "affect heuristic," where people consult their affect pools in order to bypass the need to reference relevant examples or balance the pros and cons of activity. Based on the evidence of other researchers, Slovic asserts that people's perception of risks and benefits are inversely related (i.e. the higher the perceived benefit, the lower the perceived risk), and that positive affect is associated with high perception of benefits (or low perception of risks) and negative affect is associated with high perception of risks (or low perception of benefits). This affective judgment of risks and benefits inhibits our decision-making when actual consequences differ from our initial perceptions.

These theories about affect and decision-making highlight that whether or not individuals are aware, emotions impact our judgment of risk, benefits, and ultimately, our decisions. Moreover, an improper labeling of risks or benefits due to expected or immediate emotions can hinder people's ability to make rational decisions. When adolescents decide to abstain, their decisions may be directly affected by their expectations that sexual activity will result in negative emotions (or an insufficient amount of positive emotions). Specifically, for those adolescents who cite fear of unintended health consequences as a reason to abstain, their decision to abstain may be impacted by their emotional assessment of the risks of sexual activity.

Emotions and adolescent decision-making

Emotions may play an even greater role in decision-making for young people than for adults because of the developmental characteristics of adolescence. The parts of the brain associated with regulating behavior and emotion, as well as those related to risk

perception and evaluation, develop during adolescence, and changes in puberty precede development of regulatory skills (Steinberg, 2005). This developmental context is important to consider in adolescent decision-making because it indicates that emotional responses, triggered by puberty and situations of sexual possibility, occur before adolescents develop the skills to regulate those responses. Due to the interaction between puberty and changes in emotional development, emotions may have a larger influence on decision-making and behavior in adolescents compared to adults. Adolescents' rational judgment may be inhibited because of these developmental realities, making them more prone to risky decision-making.

Furthermore, individuals are motivated to make decisions to achieve certain emotional states, which may be especially relevant in adolescent sexual decision-making. The functional perspective of behavior asserts that behavior is best interpreted through the goals and needs it fulfills (Cooper, Shapiro, & Powers, 1998). Behavior motivations include appetitive behaviors and aversive behaviors, where the former involves the pursuit of positive feelings and experiences, and the latter involves the avoidance of negative feelings and experiences. Cooper et. al. (1998) further stratified these categories of motivation, and tested their ability to describe the sexual motivations of a college-aged sample. They found that enhancement motives (i.e., having sex to enhance physical or emotional pleasure) were the most common reasons for having sex. These findings were supported in another study that found when college-aged students engaged in sexual activity for appetitive reasons, they experienced more positive emotions and when they engaged in sex for aversive reasons, they experienced more negative emotions (Impett, Peplau, & Gable, 2005). These results highlight that adolescents' emotions may not only

influence their decisions to engage in certain behaviors, but also that adolescents may engage in certain behaviors to achieve desired emotions, especially in the context of sexual decision-making. As previously mentioned, adolescents may abstain from sexual activity to avoid negative feelings, most specifically fear.

Emotions and adolescent sexual decision-making

The previously summarized research provides the theoretical basis that asserts emotions are important in decision-making, and are perhaps even more important for adolescent sexual decision-making. The remainder of this section will describe the relevant literature on emotions and adolescent sexual decision-making (n = 14), including those about sexual risk and reiterating the findings of those related to sexual abstinence. To aid the reader, studies are organized according to emotion type (i.e. positive, negative, or both), relation to sexual intentions, gender differences, and age differences.

Emotion type

Several studies found that positive emotions were the most frequently reported emotions after sexual intercourse by adolescents (Brady & Halpern-Felsher, 2007; Dawson, Shih, de Moor, & Shrier, 2008; Houck et al., 2014; Impett & Tolman, 2006; Ozer, Dolcini, & Harper, 2003; von Sadovszky, Vahey, McKinney, & Keller, 2006). In most cases, positive emotions included feeling good about oneself or feeling happy following sexual intercourse. Negative emotions were also commonly reported, in both sexual-risk focused and sexual abstinence studies (Brady & Halpern-Felsher, 2007; Bradley, Sales, Murray, & DiClemente, 2012; Collazo, 2005; Houck et al., 2014). For instance, fear was the most frequently reported anticipated emotion in a study of college-aged adolescents and feeling nervous or disappointed after a sexual encounter was reported by almost one-fifth of college students (Carrera et. al., 2011; von Sadovszky,

Vahey, McKinney, & Keller, 2006). Also, avoidance of negative emotions, like guilt, was reported as a reason for remaining sexually abstinent (Abbot & Dalla, 2008; Byers, O'Sullivan, & Brotto, 2016). It is important to note that there was not an inverse relationship between endorsement of positive emotions and endorsement of negative emotions in studies that included both types; adolescents endorsed both types of emotions (Brady & Halpern-Felsher, 2007; Houck et al., 2014; von Sadovszky, Vahey, McKinney, & Keller, 2006).

Emotions and sexual intentions

A few studies found that emotions about sexual activity, whether anticipated or experienced, were associated with intentions to have sex in the future. When researchers added anticipated emotional reaction to a model based on the Theory of Planned Behavior, the model's predictive ability of behavioral intentions and behavioral expectations improved significantly (Carrera et. al., 2011; Collazo, 2005). In another study, intentions to have sex were significantly negatively associated with reporting negative emotions at last sex, and were somewhat positively associated with reporting positive emotions at last sex (Houck et al., 2014). Also, one study found that positive emotions were most strongly correlated with intentions to have sex (Guilamo-Ramos et al., 2012). On the contrary, in a study about sexual abstinence, researchers dropped emotions from their predictive model because emotions about abstinence were not significantly associated with sexual intentions (Buhi, Goodson, Neilands, & Blunt, 2011). They speculated that emotions in their study were either not associated with intentions in their sample of middle school youth due to lack of sexual experience, or that their data did not have enough variation to be an appropriate predictor in their framework.

Gender differences

Some studies found that the type of emotions reported and emotions' predictive ability differed by gender. Of these studies, males typically reported or anticipated more positive emotions, like happiness and pride, when compared to females (Brady & Halpern-Felsher, 2007; Guilamo-Ramos et al., 2012; van de Bongardt, Reitz, & Deković, 2015). Females, on the other hand, had higher odds of reporting negative emotions like shame, guilt, and dirtiness, when compared to males (Brady & Halpern-Felsher, 2007; Houck et al., 2014; van de Bongardt, Reitz, & Deković, 2015). However, one study found no gender differences in endorsement of "feeling good" as a reason to have sex (Ozer, Dolcini, & Harper, 2003). Lastly, in one study, researchers found that anticipated emotions were more predictive of sexual intentions for males than females (Guilamo-Ramos et al., 2012).

Age differences

Three studies looked at age differences in emotions about sex. One study found that as age increased, anticipation of feeling positive emotions increased, and anticipation of negative emotions decreased (Guilamo-Ramos et al., 2012). Another found that older youth had lower odds of reporting that they had sex to manage their emotions (Dawson, Shih, de Moor, & Shrier, 2008). Finally, in a study of Dutch adolescents, older youth reported significantly more happiness after sexual encounters than younger adolescents, though there was no age difference in the other emotions about sex (van de Bongardt, Reitz, & Deković, 2015). More broadly, these studies appear to provide evidence that younger adolescents are more likely to endorse negative emotions, and that older adolescents are more likely to endorse positive emotions. This may be explained by younger adolescents' lack of sexual experience that is manifested by feelings of

negativity in sexual situations. It could also be related to the transition of peer norms regarding sexual activity (i.e. more accepting attitudes towards sex and more youth engaging in sexual activity) as children get older, and that older youth may feel more ready to accept unintended consequences of sex compared to younger adolescents.

Discussion

The literature provides evidence that emotions influence adolescent sexual decision-making, with differences by age and gender, and associations with intentions for future sexual activity. Older adolescents endorsed more positive emotions about engaging sexual activity compared to younger adolescents, and females typically reported negative emotions when compared to males. Some studies found that emotions about sexual activity were predictive of intentions to have sex, while some did not find an association. However, on a more basic level, studies found that adolescents described feeling both positive and negative emotions about sexual activity and sexual abstinence. Fear remained a present and frequently cited emotion, but the emotions literature also included constructs like guilt, shame, pride, and happiness. The dual endorsement of both positive and negative emotions suggests a complex emotional experience for adolescents in sexual situations that should further be unpacked in order to best prepare adolescents to make informed decisions amidst their ambivalence.

Recommendations

Based on the reviewed literature, future researchers should consider the following recommendations:

Expansion of emotional reasons for abstinence

Though fear is often cited as a reason to abstain from sexual intercourse, there is little about the impact of other emotions on adolescents' abstinence decisions. As

previously reviewed, some researchers have begun to describe the range of emotions adolescents feel in or about sexual encounters, but more needs to be done. Researchers should focus on measuring the impact of positive and negative emotions on adolescents' decisions, in order to create a more comprehensive view of the influence of emotions on decision-making processes. By incorporating positive and negative emotions in abstinence research, researchers will be able to more accurately depict the complex role emotions play in sexual decisions and bring more depth to adolescents' reasons for abstinence. Additionally, if researchers gain a better understanding of reasons for adolescent abstinence, they can use that knowledge to provide adolescents with the skills to remain abstinent until they feel ready to engage in safe sexual activity.

Further research on secondary abstinence

Most of the abstinence articles discussed primary abstinence, but secondary abstinence represents a small, but interesting, niche of the literature. Research about secondary abstinence illustrates that the decision to initiate sexual activity at a young age does not doom adolescents to a lifetime of adverse sexual outcomes. For those adolescents who have initiated sexual activity at young ages, experienced STIs, or have had unintended pregnancy, secondary abstinence may be a viable solution to prevent repeat infections and pregnancy. Secondary abstinence may be a way for adolescents to reduce their chances of adverse outcomes in their teen years. Also, youth who are interested in secondary abstinence may need different resources than primary abstainers, because their decisions to abstain are likely influenced by different factors. Whereas fear is a significant motivator for primary abstainers to avoid sexual activity, other emotions may influence secondary abstainers' decisions to avoid sexual activity. Similar to understanding primary abstinence, a thorough understanding of secondary abstinence can

allow researchers to use that information to develop skills in adolescents to make safe sexual decisions, especially in those youth who feel that they initiated sexual activity before they were ready.

Qualitative approaches for future research

The literature about abstinence decisions, emotions about sexual decision-making, and the intersection of the two is very limited, especially in that researchers' results are constrained to the constructs they choose to study. More exploratory research should be conducted in order to better incorporate the adolescent perspective into the narrative about abstinence and emotions. There may be constructs that have yet to be uncovered that are influential in adolescents' sexual decisions, limiting researchers' ability to make informed conclusions and design appropriate programs. This research should be grounded in common theory so that researchers can align their conclusions and recommendations.

Integrating research into targeted interventions

Adolescent sexual health interventions often emphasize the negative consequences of sexual activity and fail to address emotions at all. Given the evidence of adolescents' conflicting emotions in sexual situations, interventions would benefit from integration of messaging around managing one's emotions to make informed and rational decisions, regardless of whether those emotions are positive or negative. Furthermore, emotions have different influences by age, gender, and prior sexual experience, and so, intervention designers may need to develop different messages that are appropriate for different subgroups based on these demographics. Interventionists should seek to tailor their programs to the actual needs and experiences of adolescents in order to best prepare them to make complicated decisions about sexual activity.

Conclusion

The purpose of this literature review was to describe some of the existing literature regarding adolescent sexual decision-making about abstinence and the role of emotions in adolescent sexual decisions. The study of adolescent sexual decision-making about abstinence is an asset-based way of considering adolescent's sexual behavior. Much of the sexual decision-making research is focused on adolescents making risky decisions about sexual initiation and condom use, but by studying youth who have decided to abstain from sexual intercourse, researchers may learn better strategies for improving adolescent sexual health.

Exploring Adolescent Sexual Possibility Situations: The Role of Emotions in Unused Sexual Opportunities and Associations with Sexual Experience Status

Abstract The purposes of the current research are to describe adolescents' reported emotions prior to unused sexual opportunities and to explore associations with relevant factors and demographics. Youth were at-risk seventh grade students, aged 12-14 years, referred by school staff for having emotional and behavioral problems or suspected substance use/sexual activity. Data analyzed were baseline assessments completed through audio computer-assisted self-interviews, measuring factors related to demographics, sexual activity, and emotions prior to their last unused sexual opportunity. Youth in this study endorsed both positive and negative emotions, and significant differences in emotional endorsement emerged by sexual experience status and gender. Regression analyses revealed that positive emotions were associated with intentions to have sex in the next six months in the total sample, and marginally associated among sexually inexperienced adolescents. This study adds to the limited literature about adolescent sexual possibility situations and the influence of emotions.

Background

The existing literature about adolescent sexual behavior is focused on risk, centering on adolescents' decisions to initiate sexual activity at young ages or engage in sexual activities that lead to unintended pregnancy or sexually transmitted infections. Research about adolescent sexual abstinence is often limited by focusing only on constructs like fear, religiosity, and values regarding sex before marriage, where fear is the most frequently cited reason for adolescents to abstain (Blinn-Pike, 2004; Buhi, Goodson, Neilands, & Blunt, 2011; Hulton, 2001). However, this false dichotomy of

sexual risk versus sexual abstinence blurs the complexity of adolescent sexual behavior and the contexts in which sexual decisions can occur. Expanding the scope of research pertaining to adolescent sexual decision making may better inform prevention and intervention efforts.

An understudied area of adolescent sexual behavior is sexual possibility situations (SPS), defined by Paikoff (1995) as "exposure to mixed-sex, private, unsupervised situations." Sexual possibility situations are an important niche of adolescent sexual behavior research because, in examining them, the contexts in which youth may be making sexual decisions are considered, a concept that is obscured in the traditional literature. Paikoff's exploratory research describes activities that happen in SPS from the point of view of 4th– and 5th–graders, including running games (i.e., games in which peers chase each other) and intercourse, though only a small minority of her sample had previously engaged in intercourse. Other researchers have looked at exposure to SPS as a predictor for early sexual initiation and found positive associations (DiIorio, Dudley, Soet & McCarty, 2004; Lewis, 2006). One study linked more exposure to SPS to having more problem-solving skills than their peers who had not been exposed to SPS, but greater difficulty strategizing what to do when asked to respond to hypothetical situations about peer pressure (Traube et. al., 2007). Another study found that parental support was protective against being exposed to SPS (Paikoff, Parfenoff, Williams & McCormick, 1997).

Paikoff's definition of sexual possibility situations is inclusive of a wide range of scenarios. However, a mixed-sex group of unsupervised adolescents doing homework is likely very different than a situation in which two youth are home alone. One of the most

important distinctions between these two examples is youth's perception of the situation; that is, do youth consider sex to be a possibility in these situations, or not? Whereas youth may not perceive there is a sexual opportunity while doing homework with friends, they may perceive that they have the opportunity to have sex when they are alone with one other adolescent. Furthermore, if youth perceive that they have the opportunity to have sex, they have to make a decision, directly or indirectly, whether or not to engage in sexual activity. Situations in which youth are exposed to a sexual possibility situation, perceive it to be such an opportunity, and "decide" not to have sex would most appropriately be called an "unused sexual opportunity" (USO).

Emotions may greatly contribute to whether or not youth decide to engage in sexual activity when they perceive the opportunity to do so. Research has shown that feelings are an important influence on decision-making (Loewenstein & Lerner, 2003; Slovic, 2001), especially on the decision-making processes of adolescents (Steinberg, 2005). A few studies exploring the relationship between emotions and adolescent sexual decisions have found positive associations. For instance, Guilamo-Ramos et al. (2012) found that anticipated emotional reaction was the strongest predictor of intentions to have sex among a sample of Dominican youth in the US and in the Dominican Republic. In another study, researchers found that enhancement motives (i.e. having sex to enhance physical or emotional pleasure) were the most common reasons for having sex (Cooper, Shapiro, & Powers, 1998). These findings were supported in another study that found when college-aged students engaged in sexual activity for appetitive reasons (e.g. having sex in anticipation of pleasure or increased intimacy with partner), they experienced more positive emotions, and when they engaged in sex for aversive reasons (e.g. having sex to

avoid relationship conflict or disappointing their partner), they experienced more negative emotions (Impett, Peplau, & Gable, 2005).

By describing the role of emotions in SPS, researchers can better understand the influence emotions may have on adolescents' decisions to have, or not have, sex. This understanding could help researchers prepare adolescents to make informed sexual decisions when they inevitably encounter sexual opportunities. Unused sexual opportunities (USO) are a subset of sexual possibility situations that have not been previously researched, and can add greatly to our understanding of adolescent sexual behavior.

The purpose of the current research was to add to the literature by describing adolescents' reported emotions in unused sexual opportunities among a sample of at-risk youth. Youth with behavioral or emotional problems tend to initiate sexual activity earlier, have multiple sexual partners, are less likely to use condoms, and have more unintended pregnancies than youth without behavioral or emotional problems (Brown, Danovsky, Lourie, DiClemente, & Ponton, 1997; Schofield et. al., 2008; Tubman, Windle & Windle, 1996). Examining the relationship between sexual possibility situations and emotions could be of particular importance in this group of adolescents with increased sexual risk. We sought to a) describe demographics of adolescents who had an unused sexual opportunity and compare demographics by sexual experience status, b) report endorsement of eleven different emotional states prior to their USO, c) compare emotional endorsement by relevant factors including sexual experience status and gender, and d) assess the relationship between emotional endorsement and adolescents' intentions to engage in sexual activity in the near future.

Due to the limited scope of the literature regarding sexual possibility situations, we proposed the following hypotheses. We hypothesized that youth will endorse mostly negative emotions during SPS, and that sexually inexperienced youth will endorse more negative emotions than sexually experienced youth based on literature that cites fear as the most common reason for abstinence among adolescents (Forste & Haas, 2002; Hulton, 2001; Ott, Pfeiffer, & Fortenberry, 2006). We also hypothesized that overall emotional endorsement will be positively associated and endorsement of negative emotions will be negatively associated with intentions to engage in sexual activity in the near future, consistent with research detailing the emotional context of adolescents prior to engaging in sexual activity (Houck et. al., 2014).

Methods

Participants

Participants in Project TRAC (Talking about Risk and Adolescent Choices) were seventh grade students, 12-14 years of age, attending one of five urban public middle schools in southern New England between September 2009 and February 2012. Project TRAC was a tailored intervention for early adolescents that taught emotion regulation (ER) skills and strategies for instances of potential risk (e.g., peer pressure for sex).

All participants spoke English, and were identified by school personnel as having increased risk due to emotional or behavioral problems, or being suspected of engaging in sexual or substance use behaviors. School staff completed a counseling referral form to refer students to the program if they had emotional or behavioral problems such as, hyperactivity, withdrawing, declining grades, erratic behavior/mood swings, disruptive behavior, or suspected substance use/sexual activity. Students were excluded if they had

developmental delay, if they were HIV positive, currently pregnant, if they were known to have a history of sexual violence, or have a sibling who had previously participated in the program. Four hundred twenty students participated in Project TRAC, 115 of whom (28% of participants) reported at baseline assessment that there had been a time in the previous six months that they had a chance to have vaginal, anal, or oral intercourse but did not, hereafter referred to as having an unused sexual opportunity (USO). Ninety-two adolescents had complete and valid information for the analytic measures used in this study, and therefore, comprise the analytic sample.

Procedures

All procedures were approved by the Rhode Island Hospital institutional review board. Adolescents were eligible to participate after research staff obtained parental consent and adolescent assent.

Assessment

The current study used baseline adolescent assessment data. Assessments were audio-assisted computer self-interviews (ACASI) completed on a laptop computer, administered in a quiet setting at school, with a research assistant nearby to answer questions. Assessments took 1.5 hours on average at baseline (if necessary, completed in multiple installments). Parents also completed questionnaires regarding demographic factors and adolescent symptoms in their preferred language (English, Spanish, or Portuguese). Thirty-dollar gift cards were provided for completing assessments.

Demographics. Participating adolescents provided baseline demographic information about age, gender, race and ethnicity. Baseline household income was obtained from

parent questionnaires. Gender was reported as either male or female. For ease of analysis, race and ethnicity information collected was combined into one binary variable, where adolescents were classified as either Non-Hispanic White or Minority. Household income categories ranged from a yearly family income of less than $10,000 to $50,000 or more.

Health behaviors. Three separate questions were aggregated to classify adolescents by prior sexual experience. Adolescents were labeled as "sexually experienced" if they reported ever engaging in vaginal, anal and/or oral intercourse at baseline assessment. Adolescents who reported never engaging in any form of intercourse (vaginal, anal, or oral) were labeled as "sexually inexperienced." To measure intentions to have sex in the next six months, three separate questions about vaginal, anal, and oral intercourse were aggregated. Participants were asked, "If you had a chance to have (vaginal/ anal/ oral) sex in the next six months, how likely would you be to do it?" for each of the three types of intercourse. If participants responded "likely" or "very likely," to at least one of the questions about vaginal, anal, or oral sex, they were classified as intending to have sex in the next six months. All other participants (i.e. those responding "not at all likely," "not likely," or "not sure" to all three questions) were classified as not intending to have sex in the next six months.

Emotions preceding unused sexual opportunity (EPUSO). Participants who responded affirmatively to the question, "In the LAST 6 MONTHS have you had a chance to have vaginal, anal, OR oral sex BUT YOU DIDN'T?" were asked to report their experience of 11 emotions prior to not having sex despite perceived opportunity: excited, happy, proud, guilty, lonely, mad, nervous, sad, scared, daring, and curious. Each question was phrased

as follows: “Think back to the last time you had a chance to have sex, but you didn’t. Before you stopped, how (EXCITED) did you feel?” Participants were also asked, “Think back to the last time you had a chance to have sex BUT YOU DIDN'T. How much do you think your feelings made you NOT have sex?” Response options included “not at all” “a little” “somewhat” “quite a bit” and “extremely.” For the purposes of the current analyses, endorsement was categorized as responding “somewhat,” “quite a bit,” or “extremely.”

Data Analysis

Bivariate analyses were conducted on demographic characteristics by whether participants reported having a USO in the last six months and, within those with USOs, by sexual experience status.

To describe the emotional contexts of early adolescents who had a USO, frequencies of endorsement for each of the eleven emotions presented were calculated for the overall sample, as well as by sexual experience status and by whether or not they felt their emotions caused them to have a USO.

A Principal Components factor analysis was conducted to assess the underlying factor structure of the eleven emotions presented. Differences in mean scores for factor subscales and overall endorsement were calculated by sexual experience status and gender. Lastly, logistic regressions were performed using the extracted factors and relevant demographic variables to examine associations with adolescents’ intentions to engage in vaginal, anal, and/or oral intercourse in the next six months among three groups: the total sample, those without prior sexual experience, and those with prior sexual experience. STATA version 14.2 was used to conduct analyses.

Results

Descriptive statistics

A total of 115 adolescents reported that they had an unused sexual opportunity (USO) in the last six months. They had a mean age of 12.99 years (*SD* = .048), were about half female (42%), and were mostly from minority racial and ethnic backgrounds (75%). Those adolescents who reported a USO in the last 6 months were more likely to be sexually experienced and more likely to report ever being in an unsupervised group of peers than those who did not have an unused sexual opportunity (see Table 1). They were also more likely to express intentions to have vaginal, anal, or oral intercourse in the next six months than those who did not report an USO.

Ninety-two adolescents reported having a USO and provided complete data on the EPUSO, and were therefore included in subsequent analyses. There were no significant demographic differences between those who provided complete and valid information on the EPUSO scale compared to those who did not (results not shown). Comparisons of those who had reported on EPUSO by prior sexual experience revealed no significant demographic differences (see Table 2). A significantly greater proportion of youth (56%) who had sexual intercourse in the past intended to have sexual intercourse in the next six months compared to sexually inexperienced adolescents (24%).

Frequencies of emotional endorsement and analysis by relevant factors

Table 3 describes percentages of participants who endorsed ("somewhat," "quite a bit," or "extremely") each item on the EPUSO scale prior to perceiving a chance to have vaginal, anal, or oral sex, but did not. The most commonly endorsed emotions were feeling happy, nervous, curious, excited, and daring. Also, almost half of adolescents

(49%) reported that their emotions caused them to not have sex, despite perceived opportunity.

Several reported emotions prior to a USO differed by adolescents' prior sexual experience (see Table 4). Those who had not had sex before were more likely to report feeling guilty, nervous, sad, scared, daring, and curious than those who had previously engaged in sexual activity. They were also more likely to endorse that their emotions caused them to not have sex than adolescents with sexual experience.

Similarly, endorsement of several items on the EPUSO scale differed by whether or not adolescents felt that their emotions caused them to have a USO (see Table 4). Adolescents who felt their emotions caused them to not have sex were significantly more likely to report feeling guilt, mad, nervous, and curious compared to those who did not think their emotions led them to not have sex. Differences in endorsement of feeling sad and lonely trended towards significance.

Emotional endorsement subscales and analysis by relevant factors

Factor analysis was used to summarize the underlying structure for items on the EPUSO. Factor analysis used Principal Component Factors (PCF) and Varimax rotation. Two factors emerged, explaining 56.16% of the total variance observed, and their rotated factor loadings are found in Table 5. Feeling excited, happy, and proud loaded on one factor ("Positive emotions"), and feeling sad, nervous, guilty, scared, lonely, and mad loaded on the other ("Negative emotions"). Daring and curious loaded similarly on both factors and were excluded from the remainder of the analyses.

Summary scores were created for each subscale (Positive and Negative) by totaling participants' responses on the 5-point scale used for each item of the EPUSO.

Thus, possible ranges for the Positive and Negative emotion subscales were 3-15 and 6-30, respectively, with the lowest possible score representing "not at all" feeling component emotions and the highest possible score representing "extremely" feeling all component emotions in the subscale. The mean score for the positive emotions subscale was 6.59 (*SD* =3.15, range = 3 - 15), and the mean score for the negative emotions subscale was 12.0 (*SD* = 6.29, range = 6 - 30). The correlation between subscales was not significant (r =.03, p = .80). A Total endorsement scale was created by combining scores from the subscales, which had a mean score of 18.6 (*SD* = 7.11, range = 9 – 37).

Influences of gender and prior sexual experience on EPUSO subscales were explored. Female participants had a significantly higher mean score on the Negative emotions subscale, $t(90) = -3.79$, $p < .01$, and on the Total endorsement scale, $t(90) = -3.61$, $p < .01$, than male participants. However, no significant gender differences emerged for the Positive emotions subscale, $t(90) = -.59$, $p = .56$. Similarly, sexually inexperienced youth had a significantly higher mean score on the Negative emotions subscale, $t(90) = 3.53$, $p < .01$, and on the Total endorsement scale, $t(90) = 2.88$, $p < .01$, than sexually experienced adolescents, but no differences emerged on the Positive emotions subscale, $t(90) = -.39$, $p = .70$.

Emotional endorsement and intentions

Logistic regressions were performed to examine factors associated with intentions to have vaginal, anal, and/or oral intercourse in the next six months among the total sample, sexually inexperienced youth, and sexually experienced youth (see Table 6). Reporting more positive emotions prior to last USO was significantly associated with intentions to have sex in the next six months among the total sample. Among sexually

inexperienced adolescents, more positive emotions prior to last USO were marginally positively associated with intentions to have sex in the next six months. However, among sexually experienced adolescents, no variables were significantly associated with intentions.

Discussion

This study provides valuable information about early adolescents in sexual possibility situations. Of the 420 seventh grade students who participated in Project TRAC, 115 reported that they had a chance to have sexual intercourse in the last six months, but did not. Typically, researchers discuss youth with mental health symptoms as having increased sexual risk when compared to their peers. This study, however, provides evidence that a substantial proportion of youth with mental health symptoms are also denying sexual intercourse when given the opportunity, a description relatively absent from the existing literature. Furthermore, 38% of adolescents who reported having an unused sexual opportunity also reported prior sexual experience, significantly more than those who did not have a USO in the last six months. These findings demonstrate that youth who have previously engaged in sexual activity also encounter situations in which they do not have sex; the decision to initiate sexual activity is not synonymous with a decision to always have sex. Often, research about adolescent sexual behavior obscures this detail when it solely characterizes youth by whether or not they have had sexual intercourse.

Moreover, it is important to note that 95% of adolescents who had an unused sexual opportunity also reported being in an unsupervised group of peers, compared to 70% of adolescents who did not report a USO in the last six months. Paikoff's definition

of sexual possibility situations would consider all adolescents in unsupervised groups of peers as having the opportunity to have sex, but our operationalization captures adolescents' perceptions of these situations. Research has shown that perception of peer and parental norms are influential in adolescent decision-making (Buhi, Goodson, Neilands, & Blunt, 2011; Collazo, 2005), and this notion of individual perception also could be important in trying to understand adolescent sexual behavior and the decisions they do, or do not, make in sexual situations.

Our study revealed that in this sample of adolescents, both positive and negative emotions were endorsed prior to unused sexual opportunity. Feeling happy, nervous, curious, excited, and daring were most commonly endorsed, contrary to our initial hypothesis. The two-factor solution in our study mirrors that of a factor analysis conducted with an older adolescent sample with mental health issues (Houck et. al., 2014). Positive and negative emotion subscales were not correlated, which may be evidence of mixed and conflicting emotions in sexual situations for early adolescents. The lack of an inverse relationship between positive and negative emotions is also supported by other research in the field of adolescent sexual decision-making (Brady & Halpern-Felsher, 2007; Houck et. al., 2014; von Sadovsky, Vahey, McKinney, & Keller, 2006). Curious and daring loaded similarly on both factors, which may reflect that they are associated with both positive and negative affect.

Significant differences in endorsed emotions prior to a USO emerged based on adolescents' prior sexual experience, where adolescents who had not previously engaged in vaginal, anal, or oral intercourse were more likely to endorse feeling guilty, nervous, sad, scared, daring and curious, and were also more likely to believe their emotions

caused them not to have sex. This finding aligns with our hypothesis that youth who have not engaged in sexual activity would endorse more negative emotions than those who have had sex. Sexually inexperienced adolescents also had significantly higher mean scores on the negative endorsement subscale when compared to sexually experienced adolescents. In studies about sexual abstinence, adolescents without sexual experience frequently report fear of negative health consequences (i.e. STIs and unintended pregnancy), fear of disappointing their parents, and holding sexually conservative values (e.g. sexual intercourse should be reserved for couples in a committed, marital relationship) as reasons to remain abstinent (Abbott & Dalla, 2008; Blinn-Pike, 1999; Michels, Kropp, Eyre, & Halpern-Fisher, 2005; Paradise, Cote, Minsky, Lourenco, & Howland, 2001). Sexually inexperienced adolescents in this study may have identified with some of these reasons, and these factors may have manifested as endorsement of certain emotional states on the EPUSO scale. For adolescents who reported prior sexual experience, less endorsement of most emotions may be reflective of the fact that repeated sexual encounters have minimized their emotional reactions to these situations and that the failure to experience feared outcomes (i.e., pregnancy and disease) mitigated their negative emotions.

When comparing emotional endorsement by whether adolescents felt their emotions caused them to have a USO, significant differences emerged on most negative emotions (sad and lonely trended towards significance) and on curiosity. These adolescents' ability to identify their negative emotions and "react" to them could reflect that they have better emotional regulation (ER) skills than their peers. Additionally, the ultimate decision not to engage in sexual activity may have reinforced emotion regulation

techniques that were already happening, again illustrating the existence of ER skills in these adolescents compared to their peers. According to Gross (2014), ER involves identifying one's own emotions and using strategies to manage them. This finding is interesting given that adolescents in this study were reported to have behavior or emotional problems, and youth with mental health symptoms typically have a more difficult time regulating their emotions (Dahl, 2001). Another explanation could be that when asked to reflect on their unused sexual opportunity, adolescents reported that their emotions caused them not to have sex as a way to explain and understand their negative emotions in these situations. These adolescents' ability to process their emotions and try to explain them may reflect being more in touch with their emotional states than their peers.

Mean scores on endorsement subscales revealed significant differences between genders. On average, females in our sample reported more negative emotions, and more emotions in general, than males. This is consistent with other studies that found females in this age group reported more emotionality and more negative emotionality than males in regards to sexual experiences and consequences (Brady & Halpern-Felsher, 2007; Brady & Halpern-Felsher, 2008; Guilamo-Ramos et al., 2012; Houck et. al., 2014; van de Bongardt, Reitz, & Deković, 2015). These studies found that female adolescents were more likely to report negative emotions prior to engaging in sex and positive consequences of refraining from sexual activity, whereas males reported popularity and feeling good about themselves as consequences of sexual activity.

Logistic regression revealed that positive emotions were positively associated with intentions to engage in sex in the next six months among the total sample of

adolescents and marginally positively associated with intentions among sexually inexperienced adolescents. These findings are similar to those from a study that found positive emotions when thinking about sex were more strongly correlated with intentions to have sex than any other factor in their model (Guilamo-Ramos et al., 2012). Also, in a study about emotions preceding sex in a sample of sexually active adolescents, negative emotions were significantly negatively associated with intentions and positive emotions were marginally positively associated (Houck et. al., 2014). Perhaps those adolescents who reported positive emotions prior to their last USO did not have sex due to factors outside of their control (e.g. unplanned interruption, partner not willing, etc.), despite their intentions. For the marginal positive association among sexually inexperienced adolescents, another explanation could be that adolescents did not feel ready to engage in sexual intercourse although they felt positive emotions. A few studies about adolescent sexual abstinence have captured the concept of lack of "readiness" as being integral in the decision to abstain from sexual activity (Blinn-Pike, 1999; Blinn-Pike, 2004; Byers, O'Sullivan, & Brotto, 2016; Monsen, Jackson, & Livingston, 1996; Ott, Pfeiffer, & Fortenberry, 2006). In the present study, if adolescents did not feel ready prior to their last sexual opportunity, but believed they would be ready soon, they may have indicated that they intended to have sex in the next six months. Also, if the construct of readiness is more closely represented by feeling positive emotions rather than negative emotions, this could explain why negative emotions were not associated with intentions.

This study is not without limitations. First, participants were youth with mental health symptoms from five urban public schools in southern New England, limiting generalizability of these findings to different age groups, those without mental health

symptoms, and those from other US regions or countries. Second, data were self-reported and subject to participants' interpretation. For example, participants' may have had differing interpretations of what constituted a sexual opportunity. However, as previously mentioned, almost all of the adolescents who reported having a USO also reported being in a group of unsupervised peers, consistent with the definition of sexual possibility situations in the literature. Also, items on the EPUSO had good face validity and were selected based on emotion measures used in previous literature (Watson & Clark, 1988). Another limitation is that adolescents were asked to recall emotional states, potentially leading to recall bias. Adolescents' retrospective reports of their emotions may not be representative of their actual feelings prior to these situations. To reduce this effect, adolescents were deliberately asked to think back to the last time they had a chance to have sex, but did not.

The modest sample size may have led to limited ability to detect effects. However, we were able to detect significant differences between genders and by sexual experience status, as well as associations between emotions and intentions. Finally, our sample was comprised mostly of sexually inexperienced adolescents, potentially limiting our ability to accurately assess the influence of emotions on sexually experienced youth.

These data have many implications for future research. One hundred and fifteen seventh grade adolescents reported that they had a chance to have vaginal, anal, or oral intercourse, but did not. Future researchers might further explore this concept of unused sexual opportunity to better understand early adolescents' interpretation of these situations, and to determine how active or passive adolescents are in not having sex in these situations. It is especially important to narrow the scope of research about sexual

possibility situations, because though our study found that a majority of adolescents spend time in unsupervised groups, a smaller proportion of them perceived the opportunity to have sex in these situations. Researchers' understanding of adolescents' perceptions in sexual situations is integral to the development of relevant sexual health messages that will be received, understood, and applied. The dearth of literature about sexual possibility situations, and specifically unused sexual opportunities, prevents researchers from building a comprehensive picture of adolescent sexual behavior and decision-making, and limits intervention specialists from developing the means to adequately prepare adolescents with the skills necessary to handle the myriad of sexual situations they may encounter.

Participants in the current study also endorsed both positive and negative emotions prior to an unused sexual opportunity, similar to the emotional context of older adolescents prior to engaging in sexual activity (Houck et. al., 2014). Our study provides evidence that emotions are not solely linked to sexual risk, but that emotional endorsement may also be protective. Future researchers should hone in on the emotional ambivalence of early adolescents and better equip them to navigate and regulate their emotions in sexual encounters. Ideally, curriculum about sexual decision-making will acknowledge that both types of emotions can influence behavior, and that feeling conflicting emotions is a normal part of adolescents' emotional development. Curricula should also emphasize that the decision to initiate sexual activity is not irreversible, and that it is okay if adolescents later decide they no longer want to engage in sexual activity. By doing this, researchers can normalize the complexity of adolescent sexual

experiences, while also enabling adolescents to make informed decisions about their sexual health.

Ultimately, researchers in the field of adolescent sexual health should aim to give more attention to situations in which adolescents are making the "right" sexual decisions. This study provides some description of adolescents who have not had sex despite opportunity, and future studies should seek to provide more robust descriptions of adolescents who have avoided sex, and what other factors influenced their decision. Though we can conclude that emotions are influential in these situations, we cannot determine which individual health behaviors or social norms also influence the decision not to have sex. Future research of sexual possibility situations ought to include consideration of other factors known to be associated with sexual behavior including personal risk behaviors (e.g. drug and alcohol use) and perceived peer and parental norms. These data will allow researchers to assess the comparative influence of emotions in these situations and add depth to descriptions and understanding of youth in sexual possibility situations. In understanding the contribution of a variety of factors in the decision not have sex despite having the opportunity, those creating interventions can focus their programs on enhancing protective factors as opposed to solely aiming to reduce factors that put adolescents at risk of adverse sexual outcomes. This asset-based approach to programs about adolescent sexual behavior will focus on empowering adolescents to make decisions about their sexual health that are right for them and informed by a deeper understanding of the varying factors that contribute to their decisions.

The current study provides a novel approach to understanding adolescent sexual decision-making in sexual possibility situations. This exploration shifts the focus away from sexual risk behavior and provides some description of the emotional context of adolescents when sexual opportunities are unused, thus enhancing health. This study also adds to the literature about sexual experience, adding necessary complexity to discussions of adolescents with and without sexual experience.

Table 1: Participant demographics by unused sexual opportunity in the last six months

	Never had an unused sexual opportunity 72%, n = 297 % (n)	Have had an unused sexual opportunity 28%, n = 115 % (n)	χ^2	*p*
Age (years)[a]	12.92 (.031)	12.99 (.048)	-1.08	.27
Gender (female) [b]	50 (148)	42 (48)	7.93	.09
Race (Non-Hispanic White)	23 (69)	25 (29)	.180	.67
Income[c]			13.3	.35
Less than $10,000	13 (38)	16 (18)		
$10,000-19,999	18 (54)	11 (13)		
$20,000-29,999	15 (46)	17 (20)		
$30,000-39,999	13 (39)	19 (22)		
$40,000-49,999	7 (21)	9 (10)		
$50,000 or above	13 (39)	16 (18)		
Ever sexually active	9 (27)	38 (42)	47.0	<.00**
Ever in a group unsupervised	70 (205)	95 (109)	28.7	<.00**
Intentions to have vaginal, anal, or oral sex in the next six months	14 (39)	38 (43)	29.4	<.00**

[a]Mean (SD) presented, test statistic is *t*-test
[b]7% of respondents did not report a gender category
[c]18% of respondents did not report household income
**p-value less than .05

Table 2: Participant demographics for those who have had an unused sexual opportunity by sexual experience

	Inexperienced 64%, n = 59 % (n)	Experienced 36%, n = 33 % (n)	χ^2	*p*
Age (years)[a]	12.95 (.062)	13.05 (.092)	–.948	.35
Gender (female)	49 (29)	36 (12)	1.60	.21
Race (Non-Hispanic White)	20 (12)	27 (9)	.578	.45
Income[b]			4.23	.65
Less than $10,000	15 (9)	12 (4)		
$10,000-19,999	17 (10)	6 (2)		
$20,000-29,999	14 (8)	24 (8)		
$30,000-39,999	17 (10)	18 (6)		
$40,000-49,999	8 (5)	12 (4)		
$50,000 or above	15 (9)	18 (6)		
Intentions to have vaginal, anal, or oral sex in the next six months	24 (14)	56 (18)	9.62	<.01**

[a]Mean (SD) presented, test statistic is *t*-test
[b]12% of respondents did not report household income
**p-value less than .05

Table 3: Percent of participants endorsing emotional states prior to the last time they had an unused sexual opportunity

	% Endorsement	Not at all	A little	Somewhat	Quite a bit	Extremely
Excited	35	45	20	15	9	11
Happy	44	38	18	20	11	12
Proud	26	58	16	13	5	9
Guilty	29	51	20	8	3	19
Lonely	11	78	12	7	3	4
Mad	17	72	12	7	3	7
Nervous	39	43	18	10	10	20
Sad	21	63	17	10	5	6
Scared	31	52	17	8	5	18
Daring	34	41	25	15	11	9
Curious	37	39	24	14	9	15
Caused	49	32	19	15	12	22

Table 4: Percent endorsement by sexual experience and by whether participants felt their emotions caused them to have a USO

	Ineveperienced	Experienced	χ^2	*p*	Did not cause	Caused	χ^2	*p*
Excited	37	30	.455	.50	14	20	1.43	.23
Happy	41	52	1.00	.32	24	20	.512	.47
Proud	25	27	.038	.85	12	13	.162	.69
Guilty	41	15	6.39	<.03**	7	23	13.1	<.00**
Lonely	14	9	.401	.74	2	9	5.48	<.06*
Mad	20	12	.995	.40	3	14	9.12	<.01**
Nervous	52	21	9.45	<.01**	10	29	16.5	<.00**
Sad	31	6	7.43	<.02**	7	14	3.12	<.09*
Scared	46	12	10.7	<.01**	5	26	22.4	<.00**
Daring	42	21	4.18	<.05**	7	12	1.75	.19
Curious	47	24	4.79	<.04**	13	24	5.92	<.02**
Caused	64	30	9.86	<.01**	n/a	n/a	n/a	n/a

*p-value less than .10, **p-value less than .05

Table 5: Rotated factor loading of EPUSO items

Item	Factor 1	Factor 2	Uniqueness
Excited	.0439	.7646	.4135
Happy	-.1608	.7642	.3901
Proud	-.0660	.6433	.5819
Guilty	.7982	.0206	.3624
Lonely	.6552	.0554	.5677
Mad	.7988	-.1193	.3477
Nervous	.7814	.0945	.3804
Sad	.6172	.2117	.5742
Daring	.4844	.6366	.3600
Curious	.4451	.5060	.5459

Table 6: Logistic regression of factors associated with intentions to have vaginal, anal, and/or oral intercourse in the next six months

	Total Sample[a]			Sexually Inexperienced[b]			Sexually Experienced[c]		
	OR	**Wald**	**95% CI**	**OR**	**Wald**	**95% CI**	**OR**	**Wald**	**95% CI**
Age	.81	-.46	.32-2.04	.51	-.96	.13-2.02	.79	-.27	.15-4.24
Gender (Female)	.80	-.44	.30-2.14	1.14	.84	.30-4.28	.56	-.65	.10-3.26
Race (Non-Hispanic White)	1.71	.99	.59-4.95	2.01	.95	.48-8.47	1.07	.94	.18-6.35
Positive emotions at last USO	1.17	2.10	1.01-1.35**	1.21	1.71	.97-1.49*	1.18	1.36	.93-1.51
Negative emotions at last USO	.96	-.88	.89-1.05	1.05	.86	.94-1.17	.91	-.98	.76-1.10

[a]n = 91. χ^2 (5) = 6.35, p = .27.
[b]n = 59. χ^2 (5) = 4.92, p = .43.
[c]n = 32. χ^2 (5) = 3.97, p = .55.
*p-value less than .10, **p-value less than .05

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