

# Consistent Condom Use Among Juvenile Detainees: The Role of Individual Differences, Social Bonding, and Health Beliefs

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**Abstract** This study takes the perspective that condom use may be a non-continuous variable, and that the endpoint of consistent condom use is an important focus of study both in terms of public health considerations and theoretically. As consistent condom use is the ultimate goal for prevention of the spread of HIV and STDs among those who are sexually active, special attention needs to be paid to those who have accomplished that goal, especially among high-risk populations. Guided by theories of resiliency, and using consistent condom use as a marker of the broader sexual health resiliency construct, condom promotive factors are used to predict consistent condom use among detained adolescents. Consistent condom users appear to be a distinct sub-population. Likely to be male, they are also likely to have higher self-esteem, higher optimism, and lower sensation seeking and impulsive decision making. They are likely to be in school and to live with both biological parents. Finally, they are likely to have positive attitudes towards condoms and report having friends and peers who feel the same way.

**Keywords** Juvenile delinquency · Protective factors · Condom use

## Introduction

Adolescents involved with the juvenile justice system are at extremely high risk for a number of negative health outcomes including STD and HIV infection due to risky

sexual behavior (Forrest et al. 2000; Teplin et al. 2003; Morris et al. 1998). Adolescents involved with the criminal justice system are younger at first intercourse, have higher rates of anal intercourse, a greater number of sex partners, and lower rates of condom use (Barthlow et al. 1995; DiClemente 1991, 1992; Lux and Petosa 1994, 1995). In a recent study of 800 juvenile detainees in Chicago, 91% of males and 87% of females were sexually active, with 61% of males and 26% of females having had more than one partner in the last 3 months (Teplin et al. 2003). Rates of risky behavior were much higher than in the general population, and these higher rates of risk do translate into high rates of unintended pregnancy as well as STD infection in this population (Canterbury et al. 1998; Morris et al. 1998; St Lawrence, et al. 1999). Researchers have developed a large body of knowledge concerning the correlates and predictors of the risky sexual behaviors of this population (Canterbury et al. 1998; Barthlow et al. 1995; Magura et al. 1994).

The strong focus on risk, almost to the exclusion of predictors of *safer* behavior, has led to an incomplete picture of criminally-involved adolescents. There is a subset of juvenile detainees in virtually all studies of sexual behavior in this population who do report consistent condom use (i.e., 100% condom use; DiClemente 1991). From a public health standpoint as well as on an individual level, consistent condom use at every instance of sexual intercourse is essential for optimal prevention of STD and HIV infection among sexually active populations (CDC 2005). Pollard et al. (1999) examined the roles of risk and protective factors of delinquency in a sample of adolescents, and concluded that both are necessary for a complete understanding of behavior, and an intense focus on one over the other could be detrimental to the development of theories and interventions focused on the reduction of

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problem behavior. Thus, the goal of this work is to focus on theoretically plausible characteristics that distinguish high risk adolescents who consistently engage in safer sexual behavior from those who do not. Pollard et al. (1999) categorized protective factors that might distinguish such adolescents into three areas: (1) individual characteristics, (2) social bonding, and (3) healthy beliefs and clear standards of behavior. Therefore, we test specific indicators from each of these categories to provide a putative profile of the juvenile detainee that consistently uses condoms. The term “protective factors” denotes variables that moderate the influence of negative environment and adversity on behavior, whereas the term “promotive factors” denotes variables that directly predict behavior. In the current research, we will be examining condom promotive factors among a population shown to face a high level of adversity.

Pollard et al.’s (1999) work comes from the resiliency perspective, and we believe this is a useful theoretical framework from which to study factors promotive of consistently safer sexual behavior among juvenile detainees. We believe that consistent condom use may serve as a marker of the broader construct of “sexual health resilience” that for various populations might include delay of sexual initiation, fewer sexual partners, engaging in less risky sexual behaviors (e.g., oral instead of vaginal or anal sex), and consistent (100%) condom use. Resilience, generally, occurs when unexpected good outcomes are observed in high-risk populations who have experienced high levels of adversity. We acknowledge that there is some debate concerning the definition of or what constitutes a sufficient characterization of “resilience.” Luthar et al. (2000) provide a comprehensive examination of the critical issues inherent in resilience research. A main criticism of resilience research is the lack of clear terminology. The authors recognize the multiple operationalizations of resilience by different researchers, but argue that this diversity need not necessarily represent a critical problem, as different definitions have still yielded corresponding results. However, justifying one’s own approach is necessary in resilience work. According to one school of thought, to be considered resilient, an individual must demonstrate positive outcomes across multiple domains in the face of adversity (Tolan 1996). More recently, Goldstein and Brooks (2005) posit that the study of resilience requires only two assumptions. First, the individuals under study must have faced a significant level of threat or adversity. Second, the researcher must infer what is to be considered a good or adequate outcome. The latter approach is taken in the present research. Though we recognize the importance of an approach that embraces the full constellation of resilience behaviors, this project represents an initial effort to examine a specific behavior that

can be considered a marker of the broader construct of resilience in the narrowly defined domain of sexual health: consistent condom use. There is some precedent for this approach. Chang et al. (2003) examined the resilience factors associated with safer sex attitudes of juvenile detainees. Resilience factors were defined as variables that provided protection against the negative effects of poor environment and included knowledge about HIV risk, self-esteem, and hopefulness. Positive associations with safer sex attitudes were associated with female gender, African American race, more HIV knowledge, higher self-esteem, and increased hopefulness. Resilience factors (knowledge, self-esteem, and hopefulness) accounted for more variance than demographic factors in the model. Although this study integrated predictors from many different levels of abstraction—ranging from ethnicity and family situation to individual-level factors such as self-esteem—the outcome was safer sex attitudes. The next logical step in the characterization of sexual health resilience is the examination of actual safer sex behavior.

There is a large body of literature on the levels of adversity faced by criminally involved adolescents and the extraordinarily high level of risk behavior and negative social and health-related outcomes they experience. For example, living in adverse family environments (low family attachment, family cohesiveness, family respect, and family role modeling) has been associated with younger arrests and more arrests by age 17 for males (Ge et al. 2001). Additionally, Hay et al. (2006) demonstrated a relationship between the family environment and juvenile crime, such that criminally involved youth were more likely to come from families with lower parent–child attachment, parental monitoring and reinforcement of prosocial behavior, and higher use of physical punishment and coercion. These effects were further exacerbated by community disadvantage and poverty, measured both objectively (based on ZIP codes), and subjectively (parents’ ratings of their communities). Ryan and Testa (2005) also demonstrated a relationship between delinquency and maltreatment in childhood. Other indicators of adversity faced by this population are high levels of abuse and neglect (Grogan-Kaylor and Otis 2003; Widom 2003). Thus, this population clearly meets the first criteria for a consideration of resilience according to Goldstein and Brooks (2005)—they face exacerbated and pervasive levels of adversity. In terms of an easily quantifiable definition of a “good outcome,” as noted the larger sexual health resilience construct probably includes multiple factors. However, consistent condom use, defined as reporting having “always” used a condom during every episode of sexual intercourse, is one important marker of this construct.

Although many factors have been shown to be influential to both delinquency and sexual behavior, important

theoretical constructs specific to the domain of risky sex are key to a full understanding of safer sex resilience in juvenile detainees. The Theory of Planned Behavior (TPB; Ajzen 1991) posits a mediational model of behavior in which attitudes, norms, and perceived behavioral control (often characterized as self-efficacy) predict intentions, which in turn predict behavior. The TPB is predictive of condom use both in the general population (Albarracín et al. 2004) as well as in criminally involved adolescents (Bryan et al. 2002, 2004, 2005; Bryan and Stallings 2002). The role of norms for this population may be especially relevant. Adolescents who reject conventional norms may be at particular risk for juvenile delinquency, and the influence of peers and friends may be particularly strong in determining a delinquent youth's behavior (Angenent and de Man 1996). Although the TPB's predictive validity in the sense of accounting for variability in condom use is well-established, the cohesion of the TPB variables in consistent versus inconsistent condom users has not been examined.

It has also been suggested that there may be qualitative differences between levels of riskiness, that there may not be a continuous normal distribution underlying sexual risk taking (Winfield and Whaley 2005). Therefore, consistent condom use does not merely represent the endpoint of a continuum of safe sex, but may be a qualitatively distinct behavior. Crosby et al. (2004) discuss the problematic nature of condom use as a dependent variable in these terms, and that in many cases it may make more sense to dichotomize this outcome into consistent condom users and non-condom users. However, they argue that the classification of the *inconsistent users* (those who use condoms somewhere between 1 and 99% of the time) is problematic in terms of whether they should be grouped with the never users or the consistent users. They suggest a "screening" analysis to empirically determine whether inconsistent users are more similar to the never users or consistent users. While we have a theoretical reason for grouping inconsistent and never users together, it is also important to empirically validate that theoretical distinction.

Characterizing the distinct subsample of consistent condom users in an otherwise risky population is the focus of the current research. We aim to provide a theoretically based and empirically guided descriptive profile of juvenile detainees who are consistent condom users as compared to those who are non-consistent condom users on promotive factors shown to be relevant in this population. Individual characteristics that have been shown to be related to risk and protective behavior in this population include self-esteem (Bryan et al. 2004; Chang et al. 2003), hopefulness (Chang et al. 2003) here operationalized as control over the future and optimism about the future (Bryan et al. 2004), impulsive sensation seeking (Robbins and Bryan 2004), and demographics including gender, age, and ethnicity (Chang

et al. 2003; Teplin et al. 2003). In this study we assess the detainees' living situation prior to incarceration (c.f., Stouthamer-Loeber et al. 2002), and whether or not they were still in school as proxy variables of quality of social bonding in the home and community. Finally, healthy beliefs and clear standards of behavior are represented by the TPB variables. This profile should provide a starting point for future research targeting the mitigating factors that can potentially reduce the influence of a suboptimal social and developmental context on risky behaviors.

## Methods

### Participants

Participants were recruited in the context of an ongoing longitudinal randomized controlled trial comparing HIV prevention interventions in adolescent detention facilities in the Denver metropolitan area. The current study examined baseline data (i.e., prior to intervention) from an initial subset of participants. At the time of analysis, 237 sexually active adolescents had been recruited into the study. The sample was 40.5% White, 7.5% African-American, 25% Hispanic, 4% Asian, 2.5% Other, 20% Mixed Race, and less than 1% Native American. Average age was 15.8 years (range 14–17). The sample was mostly male (86%), consistent with the census for the population of adolescents in detention in the Denver metro juvenile justice system.

### Procedure

To ensure confidentiality for participants, an NIH certificate of confidentiality was obtained for this project. Participant assent and parental consent for a minimum of three participants was required to conduct a session. Participant assent was obtained during the intake process at first arrival at the adolescent detention centers. Parental consent was either obtained at intake or verbally (and recorded) over the phone. Sessions were conducted at one of three detention facilities in private groups of three to seven. Participants were assured that the data they provided would be kept confidential from anyone connected to the detention facility or the juvenile justice system, and they completed the baseline questionnaire on laptop computers using ACASI software (Audio Computer-Assisted Self-Interviewing).

### Measures

#### *Sexual Behavior*

The main outcome variable of interest was how often participants used condoms in the past, assessed with one item:

“How much of the time have you used condoms when you’ve had sexual intercourse?” Sexual intercourse was defined as “a man putting his penis inside a girl’s vagina or inside the anus (rear end).” Response options were on a 1–5 scale from Never to Always. However, for most analyses, responses were coded into consistent use (Always) and other use (Never to Almost Always). Participants who responded that they “Never” used condoms were classified as non-users and those who responded either “Almost Never,” “Sometimes,” or “Almost Always” were classified as inconsistent users in some analyses.

#### *Sociodemographic Variables*

Participants indicated their gender, race, and age. Because of the number of racial categories, many with less than ten participants, and many Mixed Race individuals, we recoded the race variable. If participants indicated they were White and one other race category, they were coded as the other race category, and only if they indicated two non-white categories were they considered Mixed Race. Native Americans, Asians, Other, and Mixed Race individuals were combined into the “Other” category. In contrast codes, we compared White to African American, Hispanic, and Other; Black to Hispanic and Other; and Hispanic to Other. They also indicated whether they were in school and who they lived with: mother and father, mother, father, guardian, or other. Two planned contrasts were examined to assess the relationship of living situation with consistent condom use: living with both mother and father compared to other, and just mother compared to other.

#### *Personality Variables*

Previously validated scales of self-esteem, control over the future, optimism about the future, impulsive decision-making, and sensation-seeking were used to measure theoretically relevant personality variables as important individual differences. All scale alphas are derived from the current sample. Scores on these scales were averages of individual items after appropriate reverse scoring. Self-esteem (published and validated by Rosenberg 1965) was measured with 8 items (“I feel that I have a number of good qualities,”  $\alpha = .80$ ). Control over the future (published and validated by Whitaker et al. 2000) was measured with a 7-item scale assessing perceptions of participants’ ability to determine what their futures will be (“My future is what I make of it,”  $\alpha = .68$ ). Optimism about the future (previously validated in this population by Bryan et al. 2004) was measured by four items assessing the likelihood of positive outcomes in the participants’ future (“How likely is it you will get a good job someday,”  $\alpha = .78$ ). Participants answered True (coded 1) or False (coded 0) on items of

impulsive decision making (“I don’t spend much time on the details of planning ahead”, seven items,  $\alpha = .67$ ) and sensation seeking (“I like doing things just for the thrill of it,” 12 items,  $\alpha = .71$ ) taken from the Zuckerman-Kuhlman Personality Questionnaire (published and validated by Zuckerman and Kuhlman 2000).

#### *TPB Constructs*

Affective attitudes toward condoms (seven items,  $\alpha = .83$ ), norms for condom use (four items,  $\alpha = .84$ ), self-efficacy (five items,  $\alpha = .78$ ), and intentions to use condoms (four items,  $\alpha = .89$ ) were also measured with previously validated scales as a theoretically grounded assessment of healthy beliefs and clear standards of behavior (attitudes, norms, and intentions previously validated by Bryan et al. 2004; self-efficacy originally published and validated by Brien et al. 1994). Sample items include “Condoms can ruin the sexual mood,” “Most of my friends use condoms when they have sex,” “I am confident in my ability to put a condom on myself or my partner,” and “How likely is it that you will use a condom every time you have sexual intercourse in the next 3 months?”

#### *Analytic Approach*

In order to examine safer sex resilience, logistic regressions were conducted with each of the individual difference, social bonding, and health beliefs variables predicting inconsistent or non-use versus consistent condom use. This analysis provides initial insight into which variables may be related to resiliency at a univariate level. Next, we examined differences between consistent condom users, inconsistent users, and never users to determine if these three groups are qualitatively different using a multinomial logistic regression approach. This analysis serves as what Crosby et al. (2004) describe as a screening procedure to test our theoretical proposition that inconsistent and never users should be grouped together. Finally, we will examine if the structure of health beliefs represented by the TPB operates differently in consistent users versus all others by conducting a cross-groups path analysis. Another approach would have been to estimate a regression model with the main effects of attitudes, norms, self-efficacy, condom use status, and all possible interactions of condom use status with the TPB variables (i.e., attitudes  $\times$  condom use, norms  $\times$  condom use, self-efficacy  $\times$  condom use). This piecemeal approach is cumbersome, however, and a cross-groups analysis accomplishes a simultaneous test of all three of these moderation hypotheses, e.g., is the relationship between attitudes and intentions the same for consistent condom users versus others? When one wishes to test whether the relationships within a theoretical model are

moderated by group status, a cross-groups analysis is recommended as the most parsimonious approach (c.f., Bryan et al. 2007). Finally, a hierarchical logistic regression with three blocks (individual differences, social bonding variables, and health beliefs) was conducted to examine the relative importance of the three classes of variables.

## Results

Twenty-five percent of participants ( $n = 61$ ) indicated that they were consistent condom users, i.e., that they had “always” used condoms during sexual intercourse. A series of  $\chi^2$  and logistic regression analyses were conducted to examine the relationship of consistent condom use to our measures of individual differences (including demographics), social bonding, and beliefs and standards. Variables that were significantly associated with consistent condom use were race (specifically, the contrast code comparing Hispanic ethnicity to Other, such that Hispanics were less likely to be consistent condom users), self-esteem, optimism, being in school, and living with both biological parents (marginal effect). Variables that were negatively related to consistent condom use were impulsive decision making and sensation-seeking, and are therefore risk factors for inconsistent condom use. See Table 1 for odds ratios of all significant predictors in logistic regressions. Participants in school were more likely to be consistent condom users (31.2%) than those not in school [13.6%,  $\chi^2$  (1,  $N = 237$ ) = 8.81,  $p < .01$ ]. Gender also was related to consistent condom use such that males were more likely to be consistent condom users (28%) than females [9%,  $\chi^2$  (1,  $N = 237$ ) = 5.82,  $p < .02$ ].

### Justification for Dichotomization of Condom Use

To empirically test our theoretical characterization of consistent condom users as a distinct group, as well as to examine differences among the three groups of condom users, we conducted multinomial logistic regression on each variable found to be related to consistent versus other condom status. Using inconsistent users as the reference group, we compared them to both consistent and non-users,

and results are summarized in Table 2. Gender differentiated consistent from inconsistent use but not inconsistent versus non-use. Being in school also followed this pattern, such that being in school differentiated consistent use versus inconsistent use, but not inconsistent versus non-use. Also, living with both biological parents differentiated consistent versus inconsistent users but not inconsistent versus non-users. Perhaps most striking is the fact that none of the personality variables differentiated inconsistent use versus non-use in multinomial logistic regression. While optimism significantly differentiated consistent use from inconsistent use it did not differentiate inconsistent versus non-use. This same pattern of results was found for self-esteem, impulsive decision-making, and sensation-seeking.

### Healthy Beliefs and Clear Standards of Behaviors

*t*-Tests were conducted on all TPB constructs, comparing consistent and other users, and these appear in Table 3. To examine the utility of the TPB variables to predict intentions in the two subsamples of consistent and other users (never and inconsistent users), a cross-groups model (Aiken et al. 1994; Bentler 1995) was estimated in EQS such that the exact model in Fig. 1 was simultaneously estimated in consistent versus other users. Essentially, this analysis simultaneously tests the moderation of all TPB relationships by condom user status (e.g., is the relationship between self-efficacy and intentions the same for those who use condoms consistently versus those who do not?). For ease of interpretation standardized parameter estimates from the cross-groups analysis by condom use status appear in Fig. 1, with coefficients for consistent users appearing before the “/” and those for other users appearing after the “/”. The initial estimation constrained all unstandardized structural paths and covariances to be equal in the two groups. All structural paths were supported, with attitudes, norms, and self-efficacy predicting intentions. LaGrange multiplier statistics (MacCallum 1995) suggested no structural paths upon which the two groups significantly differed, however they did indicate that the correlation between norms and self-efficacy was different in the two groups. We re-estimated the model allowing this relationship to freely vary, and the results

**Table 1** Significant protective factors predicting consistent condom use versus inconsistent condom use

Protective factor	Odds ratio	95% CI of odds ratio	<i>B</i> -value
Hispanic versus other ethnicity	.57	(.33–.99)	–.56*
Both mother and father versus other	1.23	(.99–1.57)	.21 <sup>†</sup>
Self-esteem	3.05	(1.50–6.19)	1.11**
Optimism	4.64	(2.15–10.01)	1.53***
Impulsive decision-making	1.14	(1.05–1.22)	.13**
Sensation-seeking	1.16	(1.04–1.29)	.15**

\* $p < .05$ , \*\* $p < .01$ ,  
\*\*\* $p < .001$ , <sup>†</sup> $p < .10$

**Table 2** Results of multinomial logistic regressions, condom use status

Variable	Non-users	Consistent users
Gender	1.48 (.90–2.41)	.53* (.28–.98)
Being in school	.94 (.61–1.48)	.59** (.41–.84)
Live with biological parents	1.14 (.83–1.57)	1.25 <sup>†</sup> (1.0–1.55)
Impulsive decision-making	.86 (.68–1.08)	1.26** (1.07–1.48)
Sensation-seeking	.92 (.77–1.11)	1.14* (1.02–1.27)
Optimism	.68 (.28–1.67)	4.48*** (2.05–9.78)
Self-esteem	1.01 (.44–2.27)	3.03** (1.48–6.17)
N	24	61

Reference category for the equations is inconsistent users, 95% confidence intervals in parentheses, Total N = 237

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001, <sup>†</sup>*p* < .10

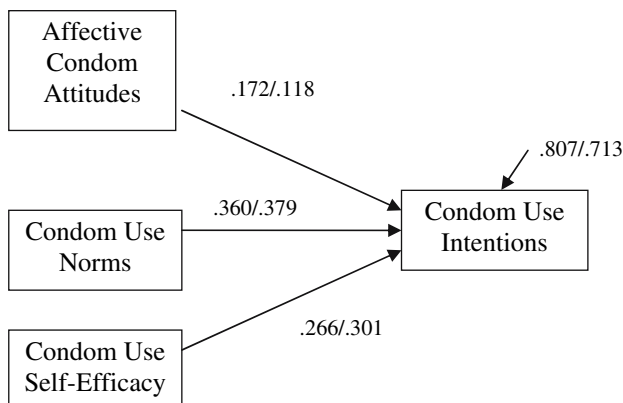
**Table 3** Mean values, standard deviations, and *t*-tests of theory of planned behavior constructs by condom use status

Variable	Mean (SD) by condom use status		<i>t</i> -Test <sup>a</sup>
	Consistent users (n = 61)	Inconsistent/non-users (n = 176)	
Attitudes	3.20 (.57)	2.52 (.61)	7.66**
Norms	3.54 (.46)	2.69 (.75)	8.42**
Self-efficacy	3.84 (.30)	3.62 (.47)	3.11*
Intentions	3.61 (.47)	2.89 (.81)	6.55**

\**p* < .01, \*\**p* < .001

<sup>a</sup> Due to sporadic missing data, degrees of freedom on attitudes = 235. All other degrees of freedom = 236

indicated a significant positive correlation between norms and self-efficacy for consistent users, and not for other users. This increased the fit of the model to  $\chi^2$  (5, N = 237) = 5.74, *ns*; CFI = .99; RMSEA = .025, 90% CI



**Fig. 1** Model of condom use intentions in consistent (before “/”) versus other users (after “/”).

of the RMSEA = .000–.096; SRMR = .102. The model accounted for 35% of the variance in intentions for other users and 31% of the variance in intentions for consistent users, and all paths were significant. This analysis demonstrates that the TPB model of intentions operates successfully and similarly among both consistent and inconsistent users.

A hierarchical logistic regression analysis was conducted predicting consistent condom use, entering the significant individual difference variables as one block, the social bonding variables as a second block, and the healthy beliefs and standards as a third block. The goal of this analysis was to compare the relative contribution of the individual difference, social bonding, and healthy beliefs and standards categories. Computing logistic regression analogs of *R*<sup>2</sup> (Hosmer and Lemeshow 1989), individual difference variables accounted for 9.5% of the variance in consistent condom use, social bonding variables accounted for an additional 6.9% of the variance, and finally the beliefs and standards variables (TPB constructs including intentions) accounted for an additional 22.3% of the variance in consistent condom use. Variables that remained significant in the final analysis included optimism, being in school, attitudes, norms, and intentions, and the effect of gender was marginal (see Table 4).

**Table 4** Results of hierarchical logistic regression analysis of consistent condom use, entering as blocks of individual difference variables, social bonding, and healthy beliefs and standards

Variable	B-value	OR
Step 1		
Gender	-.533	.587 <sup>†</sup>
Self-esteem	.383	1.47
Optimism	1.07	2.94*
Sensation-seeking	.053	1.05
Impulsive decision-making	.065	1.07
Analog of <i>R</i> <sup>2</sup>	.095	
Step 2		
Live with two biological parents	.191	1.21
Live with just mother	.248	1.28
In school	-.683	.505**
Analog of <i>R</i> <sup>2</sup>	.164	
Step 3		
Attitudes	1.05	2.87**
Norms	1.30	3.67**
Self-efficacy	-.578	.561
Intentions	.936	2.55*
Analog of <i>R</i> <sup>2</sup>	.387	

\**p* < .05, \*\**p* < .01, <sup>†</sup>*p* < .10

## Discussion

Taken together, these results present a picture of a juvenile detainee who consistently uses condoms. Likely to be male, he is also likely to have higher self-esteem, higher optimism about the future, and lower sensation seeking and impulsive decision making. He is likely to be in school or to be more socially bonded. Trends in the data suggest also that living with both biological parents may serve as a promotive factor for consistent condom use. In terms of healthy beliefs and clear standards of behavior, he is likely to have positive attitudes toward condoms, report having friends and peers who feel the same way, and to exhibit a strong relationship between perceived norms of condom use behavior and his own condom use self-efficacy. These results confirm that individual characteristics, social bonding, and healthy beliefs and clear standards of behavior are promotive factors of consistent condom use.

These results also point out qualitative differences between the consistent condom user sub-population and those who use condoms inconsistently or not at all, while there are fewer if any differences between inconsistent users and non-users. This finding further supports the idea that condom use may not be a continuous dimension. Recent research has suggested an increase in focus on consistent condom use both in adults (El-Bassel et al. 2005) and adolescents (Wu et al. 2005), but consistent condom use may be especially important in high-risk populations such as juvenile detainees given their high frequency of sexual activity with multiple partners.

One area that deserves closer scrutiny is the protective factor category of social bonding and influences from family. From the current dataset we have no way of examining more specific and subtle aspects of the relationships these adolescents have with their parents. Although there were no differences in likelihood of being a consistent condom user when living with just mother versus other living situations, the effect of family structure may be attenuated by the quality of these relationships. For example, if an adolescent does not live with his father, but has a strong and secure relationship with his father, the effect of father absence on that adolescent is likely to be weaker.

Some limitations of this study should be highlighted. The most significant weakness of the current design is limitations of measurement. To measure social bonding, we asked who the detainee lives with and if they are in school. More detailed measurement of quality of relationships with parents or guardians, teachers, and peers would be desirable in future research. Our measures may therefore tap the *opportunity* for social bonding instead of *quality* of social bonding. Also, these measures as well as our measure of behavior were based on single-items, which are

generally less reliable than multi-item scales. Issues of social desirability and biased self-report data are almost always inherent in sexual behavior research, and one potential improvement in the assessment of “safety” might be the addition of a biological marker such as STD tests (though these are fraught with their own limitations; e.g., Cates Jr and Berman 1999). Though our data showed few if any differences between inconsistent condom users and non-users, it is certainly possible that these two groups differ on variables other than the ones we measured. Additionally, the cross-sectional design limits our ability to make strong causal inferences. While it seems plausible that, for example, having high self-esteem leads to consistent condom use because of increased feelings of self-worth, perhaps being a consistent condom user actually boosts self-esteem as an adolescent realizes his/her own ability to protect his/her health. Finally, given that we sampled criminally involved adolescents, our ability to generalize beyond this population is limited.

Despite these issues, we believe this research provides an important incremental step in highlighting the importance of promotive factors as well as risk factors in understanding risky sexual behavior. Unfortunately, for a number of reasons, many promotive factors are the result of structural influences in a child’s developmental years that become highly difficult to change after the child has already become an adolescent. Epps and Jackson (2000) stress the importance of family, community, and culture in guiding children toward healthy behavior. The interactions between these levels of “social ecology” may lead to various risk and protective factors. The authors suggest that surveillance of risk factors at all levels should be integrated into child health check-ups. Protective factors representing aspects of the culture and environment in which condom use takes place also underline the insufficiency of rational-cognitive models such as the TPB, which focus on individual-level factors, to fully describe influences on risky or resilient sexual behavior, and indeed did not operate differently in consistent condom users. Incorporation of social bonding variables may provide a more comprehensive perspective of these influences.

Although much HIV/STD prevention research is aimed at identifying and intervening on factors that *increase* condom use, *consistent* condom use at every instance of sexual intercourse should be the ultimate behavioral outcome if the goal is to stop the spread of STDs and avoid unwanted pregnancies. As a qualitatively distinct sub-population, consistent condom users within the population of juvenile delinquents provide a fascinating focus of study. Clearly, alarming levels of risky sexual behavior among criminally involved adolescents demand attention from researchers into ways to reduce that risk. However, this focus on risk may have obscured the interesting

distinguishing characteristics of high-risk adolescents who appear to be remaining safe. We have shown that these adolescents differ from their unsafe counterparts on individual characteristics, familial and community context, and health beliefs. Our findings suggest that interventions to increase safer sexual behavior should focus on both distal (social, educational, and familial) as well as proximal (individual differences and health beliefs) levels to achieve optimum effectiveness.

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