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Abstract

The association between depressed mood and condom use was examined among incarcerated male adolescents. One hundred and eighty male adolescents who were detained in Birmingham, Alabama in the United States were interviewed during a period of incarceration. Contrary to patterns generally found in adult samples, nearly 50% of this adolescent sample that did not use condoms regularly actually recognized the advantages of condom use. This behavior pattern was deemed "inconsistent," and those engaging in this "inconsistent" behavior pattern were found to have a higher score of depressed mood compared to participants with a "consistent" behavior pattern. As a result, a relationship between depressed mood and decisional balance for condom use within adolescents was evident. These findings suggest that assessment and treatment of depressed mood within this high-risk population could potentially contribute to a reduction in high-risk sexual behaviors.

KEYWORDS: incarcerated adolescents, stages of change, depressed mood, condom use

Original Article

Decisional Balance of Condom Use and Depressed Mood among Incarcerated Male Adolescents

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The association between depressed mood and condom use was examined among incarcerated male adolescents. One hundred and eighty male adolescents who were detained in Birmingham, Alabama in the United States were interviewed during a period of incarceration. Contrary to patterns generally found in adult samples, nearly 50% of this adolescent sample that did not use condoms regularly actually recognized the advantages of condom use. This behavior pattern was deemed “inconsistent,” and those engaging in this “inconsistent” behavior pattern were found to have a higher score of depressed mood compared to participants with a “consistent” behavior pattern. As a result, a relationship between depressed mood and decisional balance for condom use within adolescents was evident. These findings suggest that assessment and treatment of depressed mood within this high-risk population could potentially contribute to a reduction in high-risk sexual behaviors.

Key Words: incarcerated adolescents, stages of change, depressed mood, condom use

The prevention of sexually transmitted diseases (STDs), including human immuno-deficiency virus (HIV), has become a primary issue for public health officials. Adolescents are at particularly high risk of contracting STDs [1, 2]. However, the prevalence and risk of contracting STDs and HIV vary among the subgroups of adolescents, with incarcerated youth being at especially high risk [3, 4]. Compared to a sample of adolescents in the United States, it has been reported that incarcerated youth are more sexually active and more involved in high-risk sexual intercourse, including having unprotected sex with multiple partners. These adolescents are also more likely to use alcohol and other drugs, which is conducive to HIV exposure [5]. While the most

effective means of preventing STDs and HIV infection among adolescents is consistent and proper condom use, condom use among this population is extremely poor [6].

Despite these alarming findings, the number of studies focusing on unprotected sex among this population is small, with most previous studies having focused on the higher prevalence of STDs and the frequency of high-risk sexual behaviors, rather than investigating the barriers to condom use or interventions promoting condom use [3-7]. If progress is to be made in these areas, more theory-based studies will be essential.

The transtheoretical model of change provides a useful framework for studying and understanding the adoption of condom use [8]. The basic premise of this theory is that behavior change is a process and not an event, and that individuals are at varying levels or stages of readiness for change. People at different points, or stages of change, in the process of change can benefit from different inter-

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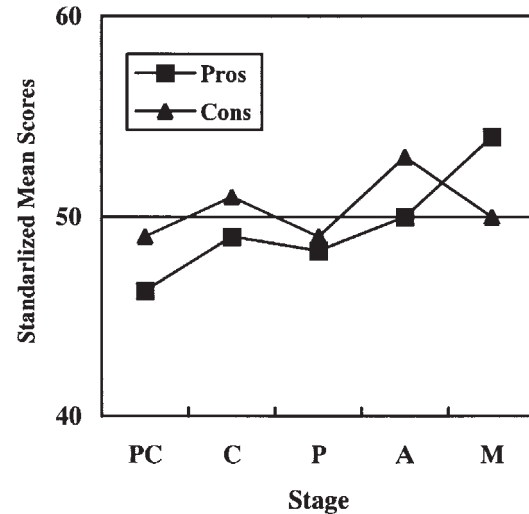
ventions, matched to their present stage [9]. Previous research has identified 5 stages of change: (a) precontemplation (not thinking about changing); (b) contemplation (seriously thinking about changing); (c) preparation (ready to change); (d) action (actively engaged in the new behavior); and (e) maintenance (sustaining the behavior change over time). This theory incorporates a variable called "decisional balance," which involves the perceived advantages (pros) and disadvantages (cons) of the specific behavior change under study. Decisional balance represents the cognitive and motivational aspects of an individual's decision to change a behavior. Individuals tend to weigh the perceived pros against the cons in adopting a new behavior [10]. Research has shown that a positive decisional balance is a good predictor of successful behavior change across a broad range of behaviors, including condom use [11-13].

Recently, Grimley *et al.* have examined the distribution of stages of change for condom use among incarcerated adolescents based on the above theory [14]. The study revealed that nearly 60% of the study sample was not using condoms regularly, and that more than 80% was not ready to begin using a condom every time they had sex with a primary partner. In this study, the decisional balance scale developed by Galavotti *et al.* [12] was used to assess the perceived pros and cons of condom use with primary and non-primary partners.

Empirically, there is a consistent relationship between the pros and cons of a behavior change across the stages of change [11]. With 12 out of 12 problem behaviors, 1) the cons of making the behavior change have been demonstrated to consistently outweigh the pros during the precontemplation stage; 2) before the action stage, a crossover of pros and cons occurs; and 3) in a progression from precontemplation to action, there is an approximately a one standard deviation increase in the pros. With regard to condom use among college students, the same pattern was found [16]. However, based on preliminary analyses of decisional balance scale responses, anticipated patterns were not replicated within the sample in this study. The analysis revealed that, regarding condom use with primary and non-primary partners, a crossover of pros and cons did not occur before the action stage (See Fig. 1). In addition, there was not one standard deviation increase in pros from precontemplation to action regarding condom use with a primary partner.

As mentioned above, higher perceived pros in contrast to cons is a strong predictor of increased readiness

Pros and Cons of Condom Use with a Primary Partner



Pros and Cons of Condom Use with Non-Primary Partners

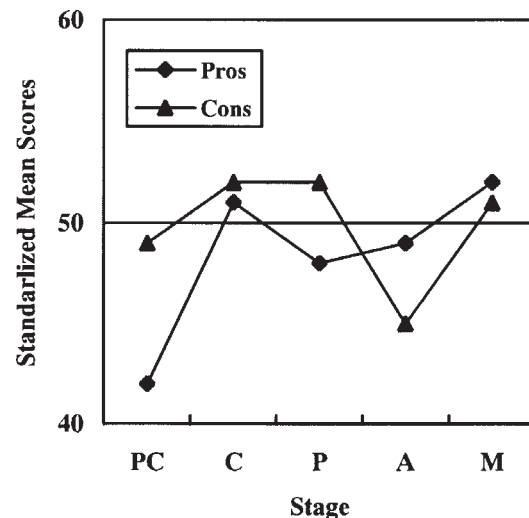


Fig. 1 Standardized mean scores for the decisional balance of condom use with primary and non-primary partners across stages among the study sample. PC, Precontemplation; C, Contemplation; P, Preparation; A, Action; M, Maintenance.

to change. However, in this sample, increased pros was not a strong predictor of readiness to adopt condom use.

Rather, there are a number of adolescents in this sample who, despite perceiving pros that outweigh cons, report a lack of intention to use condoms consistently. Interventions based on the transtheoretical model of change typically target an increase in the pros as a primary strategy to promote behavior change in “early-stage” individuals [16]. However, based on preliminary analyses, application of this strategy within incarcerated adolescents would not be justified. Many of these adolescents seem to be engaging in an “inconsistent” behavior pattern. In other words, they are not using condoms (*i.e.*, in Precontemplation or Contemplation stages), despite perceiving a larger number of pros than cons. Therefore, as an initial step in developing potentially effective intervention strategies for this adolescent subgroup, it is essential to examine this “inconsistent” behavior pattern.

One possible hypothesis regarding this atypical relationship between decisional balance and the stage of change involves the potential high incidence of depression in this sub-population. Compared to a normative sample, incarcerated youth have been reported to have a higher incidence of psychological disorder, including depression [17–19]. Depression involves an experience of symptoms including depressed mood, low energy, lack of interest in formerly pleasurable activities, and feelings of worthlessness [20]. It is therefore reasonable to hypothesize that it may be such symptoms of depression that are contributing to these individuals’ lack of interest and commitment to engaging in consistent condom use, even though they seem to be sufficiently aware of the advantages of using a condom. In other words, many of these incarcerated youth seem to have knowledge and awareness regarding the advantages of consistent condom use, but perhaps do not have the energy or future orientation to follow through and actually use condoms.

The aim of the present study was to determine the association of depressed mood and the “inconsistent” behavior pattern (*i.e.*, the lack of consistent condom use despite having higher perceived pros over cons) that has been revealed within preliminary analyses of these data. Pursuing this aim may provide insight into the potential relationships between decisional balance, stage of change, and depressed mood, that could be useful with regard to the design and development of future interventions targeting condom use in incarcerated adolescents.

Methods

Original Study. The original study was conducted using juvenile offenders who were admitted to the Jefferson County Youth Detention Center (JCYDC) in Birmingham, Alabama. The purpose of the study was to determine the prevalence, age of onset, and motivational readiness to change multiple risk behaviors among juvenile offenders. Multiple risk behaviors included tobacco use, alcohol use, drug use, unprotected sex with a primary partner, and unprotected sex with non-primary partners.

Participants. The sample consisted of 204 youths who were admitted to the Jefferson County Youth Detention Center (JCYDC) in Birmingham, Alabama from June through October 1998. All adolescents in the study were charged with at least one delinquent act, which ranged from property crimes such as burglary, shoplifting, and receiving stolen property, to violent acts and drug-related crimes. A recent study of STD screening results in this youth detention facility [4] described an 18% prevalence of gonorrhea and chlamydia.

Each respondent gave written informed consent. The criteria for exclusion were age (< 14 years) or lack of consent. Only one person (0.5%) refused to participate. There was no compensation for participation. The study was approved by the Institutional Review Board for Human Subject Use at the University of Alabama at Birmingham and by the Institutional Review Board at the JCYDC. Eleven percent ($n = 23$) of the sample was female and 89% ($n = 180$) was male. Given the small number of females in the sample, any comparisons to their counterparts would be unreliable due to the lack of statistical power. Therefore, only data from males were used.

Data Collection. Data were collected through confidential, 30-min personal interviews using a quantitative questionnaire. It was conducted in complete privacy by one of 2 trained interviewers in rooms within the JCYDC made available to the project staff.

Measures. The survey used in the original study contained 5 general content domains: (a) demographic information; (b) cigarette smoking, alcohol use, drug use, and sexual history; (c) depressed mood; (d) stage of change for each of the risk behaviors; and (e) decisional balance (pros and cons) for changing each of the risk behaviors. In this study, data pertaining to demographics, sexual history, depressed mood, stage of change, and decisional balance for condom use with

primary and non-primary partners were used.

Depressed mood. Three items were used to assess the frequency of the following symptoms: feeling depressed, feeling lonely, and feeling sad. Response options were 1) less than 1 day; 2) 1 to 2 days; 3) 3 to 4 days; and 4) 5 to 7 days.

Stages of Change. Separate 5-item staging algorithms were used to assess an individual's stage of change for consistent condom use with primary and non-primary partners, respectively. Items used to assess condom use with a main partner are provided in Table 1.

Decisional Balance. The pros and cons of using condoms with a primary partner were assessed via a 13-item scale (4 pros and 9 cons). The pros and cons of using condoms with non-primary partners were assessed via a separate 10-item scale (4 pros and 6 cons). Item content for the pros of each measure involves the advantages of condom use, including protection from STDs, protection for a partner, availability, and personal responsibility for safer sex. Cons of condom use include a partner's negative reaction to condom use, including less perceived sexual enjoyment, inappropriate size, breakage,

embarrassment of purchasing a condom, and reliance on a partner's compliance. Each participant was asked to rate how important each statement was to his decision as to whether to use condoms. A 5-point Likert response format was used by respondents to rate items from 1: not important to 5: extremely important.

Inconsistent behavior. The construct of "inconsistent behavior" associated with condom use emerged out of preliminary analyses of these data. Specifically, it was recognized that, contrary to findings within a number of previous studies, there appeared to be a substantial cohort of study participants in pre-action stages of change (precontemplation, contemplation, and preparation) whose "pros" of condom use outweighed their "cons" of condom use. To explore these findings further, definitions of "consistent" and "inconsistent" behavior were created. These definitions integrated the individual's consistency of condom use and decisional balance for condom use. Individuals whose standardized pros were greater than his standardized cons, but who reported not using condoms consistently, were classified as engaging in an "inconsistent" behavior pattern. Individuals whose standardized pros were greater than standardized cons, and who reported using condoms consistently, were classified as engaging in a "consistent" behavior pattern.

Table 1 Algorithm: Condom Use with a Main Partner

Q1. Do you have a main partner of the opposite sex? 1. No (Skip to OTHER Partner section) 2. Yes
Q2. When you have vaginal sex with your main partner, how often do you use a condom? 1) Every time (Go on to Q3) 2) Almost every time (Go on to Q4) 3) Sometimes (Go on to Q4) 4) Almost never (Go on to Q4) 5) Never (Go on to Q4)
Q3. How long have you been using condoms every time you have vaginal sex with your main partner? 1) Less than 6 months (Action) 2) More than 6 months (Maintenance)
Q4. Are you seriously thinking about using condoms every time you have vaginal sex with your main partner in the next 6 months ? 1) No (Precontemplation) 2) Yes
Q5. Are you seriously thinking about using condoms every time you have vaginal sex with your main partner in the next 30 days? 1) No (Contemplation) 2) Yes (If Q2=2, Preparation; else Contemplation) (Go on to OTHER partner section)

Results

Brief Description of the Sample. The study sample consisted of 180 male incarcerated youth. Participants were between the ages of 14 and 19 years (mean = 16.2 years). The racial and ethnic composition of the sample was 80% African American and 20% white. In terms of sexual history, 97% (174/180) of the sample reported ever having sex; 99% (173/174) of these individuals reported engaging in sexual intercourse with only female partners, with only one participant reporting a history of bisexual experiences. The mean number of sexual partners since becoming sexually active was 10.6. Seventy-nine percent (n = 103) reported having a primary sex partner, and 64% reported having sexual intercourse with someone other than a primary partner.

Prevalence of Condom Use and Depressed mood

Condom Use. Regarding condom use, only participants who reported having sexual intercourse in the

past 3 months were assessed with regard to condom use. Among participants who had a primary partner, 60% were not using a condom “every time” they engaged in sex. Thirty-four percent (34%) stated they “never” or “almost never” used a condom with a primary partner. Among participants who reported having non-primary partners, 25% were not using condoms every time. Thirteen percent (13%) stated they “never” or “almost never” used condoms with non-primary partners.

Depressed mood. On average, study participants had the 3 depressed mood-related symptoms from 2.4 to 2.5 times in the past week. There was no significant difference between depressed mood mean scores of those who reported having sexual intercourse in the past 3 months and those who did not. The coefficient alpha for the 3-item depressed mood scale was 0.79.

Stage of change distributions. Stage of change distributions of consistent condom use with primary and non-primary partners for individuals who reported having sexual intercourse in the past 3 months are presented in Figs. 2 and 3.

Decisional balance with respect to condom use. Tables 2 and 3 present a summary of data associated with items used to assess decisional balance with respect to condom use with primary and non-primary partners. The “pro” of condom use rated as most impor-

tant (*i.e.*, highest mean) with regard to the decision to consistently use condoms with a primary partner was “You would be safer from disease.” The “con” of condom use rated as most important with regard to consistent condom use with a primary partner was “Condoms can tear or break.” With non-primary partners, the “pro” rated most important, on average, was protection from disease, and the “con” rated most important was difficulty in getting a partner’s cooperation. For condom use with a primary partner, the coefficient alpha for the pros scale was 0.62, and the coefficient alpha for the cons scale was 0.66. For condom use with non-primary partners, the coefficient alphas for the pros and cons scales were 0.42 and 0.54, respectively.

Association of inconsistent behavior pattern and depressed mood

A *t*-test was conducted to compare mean depressed mood scores across participants categorized as “inconsistent” and “consistent,” using the definition described earlier. To reiterate, individuals reporting inconsistent condom use whose standardized pros outweighed standardized cons of condom use were categorized as exhibiting an “inconsistent” behavior pattern. Individuals reporting consistent condom use and whose standardized pros

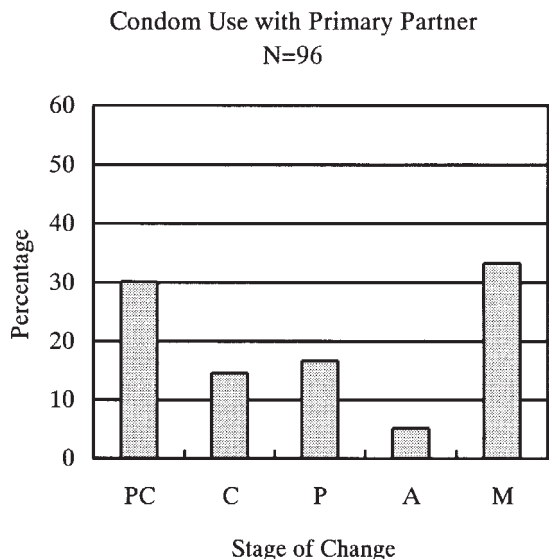


Fig 2. The stage distribution of condom use with a primary partner (n = 96). PC, Precontemplation; C, Contemplation; P, Preparation; A, Action; M, Maintenance.

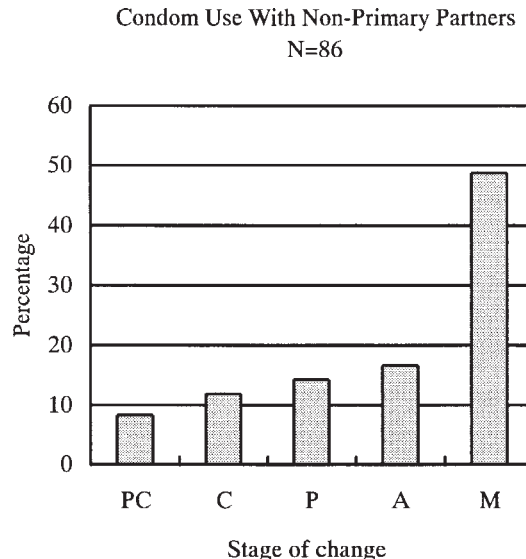


Fig 3. The stage distribution of condom use with non-primary partners (n = 86). PC, Precontemplation; C, Contemplation; P, Preparation; A, Action; M, Maintenance.

Table 2 Decisional Balance of Condom Use with a main partner (n = 96)

Scale item	Mean	SD
Condom use with a primary partner (n = 96)		
Pros ($\alpha = 0.62$)		
1. You would be safer from disease.	4.40	1.29
2. You would feel more responsible.	3.86	1.53
3. It protects your partner as well as yourself.	4.24	1.30
4. Condoms are easy to get.	3.63	1.69
Cons ($\alpha = 0.66$)		
5. Condoms make sex feel unnatural.	2.26	1.55
6. It would be too much trouble.	1.78	1.43
7. Your partner would be angry.	2.12	1.68
8. Your partner would think that you didn't trust her/him.	2.66	1.80
9. You or your partner would not get pregnant and the two of you want to have a baby.	2.42	1.72
10. You would have to rely on your partner's cooperation.	2.87	1.74
11. Condoms can tear or break.	3.94	1.50
12. Most condoms don't fit right.	2.87	1.77
13. I am embarrassed to buy condoms	1.38	1.09

Table 3 Condom use with non-primary partners (n = 86)

Scale item	Mean	SD
Condom use with non primary partners (n = 86)		
Pros ($\alpha = 0.42$)		
1. You would be safer from disease	4.87	0.52
2. You would feel more responsible	4.13	1.27
3. You (or your partner) would be safer from pregnancy	4.34	1.35
4. Condoms are easy to get	3.55	1.82
Cons ($\alpha = 0.54$)		
5. It would make sex feel unnatural	2.39	1.62
6. It would be too much trouble	1.68	1.31
7. Your partner would be upset	1.53	1.18
8. My partner would think I "played around"	1.72	1.42
9. You would have to rely on a partner's cooperation	2.66	1.72
10. My partner would be upset if I talked about using condoms	1.45	1.17

outweighed standardized cons were categorized as exhibiting a "consistent" behavior pattern.

With regard to consistent condom use with a primary partner, mean depressed mood scores for those categorized as "inconsistent" were not significantly different from those categorized as "consistent."

When considering consistent condom use with non-primary partners, the mean depressed mood score of those categorized as "inconsistent" was significantly different than the mean depressed mood score of those categorized as "consistent" ($P < 0.001$). The direction of

the difference was consistent with our hypothesis that the participants categorized as "inconsistent" would score higher on the depressed mood scale. Results of these analyses are summarized in Table 4. The 2 groups did not differ significantly with regard to age, number of sexual partners, and early sexual experiences.

Discussion

The purpose of the present study was to examine the association of depressed mood and an "inconsistent"

Table 4 Mean depressed mood scores by behavior pattern type

Condom Use Behavior	"Inconsistent"	"Consistent"	Two tailed <i>t</i> -test Significance
Condom use with a primary partner	2.38 (n = 29)	2.29 (n = 23)	NS
Condom use with non-primary partners	3.27 (n = 17)	2.22 (n = 27)	< 0.001

"Inconsistent" group includes participants possessing pros higher than cons, and not using a condom consistently. "Consistent" group includes participants possessing pros higher than cons, and using a condom consistently.

behavior pattern (*i.e.*, the lack of consistent condom use despite reporting "pros" greater than "cons"). It was hypothesized that participants who are behaving "inconsistently" will be more likely to have higher depressed mood scores in contrast to study participants who are behaving "consistently". This hypothesis was made based on the assumption that depressed mood contributes to the presence of the atypical relationship between stages of change and decisional balance, which was observed in the preliminary analysis of these data. It was notable that of the 103 sexually active individuals who had a primary partner, 62 of 103 participants (60%) were not using condoms consistently. Contrary to the tenet that individuals with higher pros in contrast to cons are likely to be in the "later" stages (*i.e.*, preparation, action, maintenance), a sizable proportion of inconsistent condom users (48%) reported the pros of condom use as outweighing the cons. Apparently these individuals had an awareness of the benefits of consistent condom use to a degree typically sufficient to encourage intention to or actual engagement in consistent condom use. One possible explanation for the "inconsistent" behavior pattern was that these individuals were experiencing symptoms of depressed mood and therefore did not have the energy or future orientation necessary to follow through with the safer, more healthy behavior, even though cognitively they were aware of the advantages outweighing the disadvantages.

Although this was the first study investigating the relationship between "inconsistent" and "consistent" behavior patterns and depressed mood, the counter-intuitive association between high-risk sexual behavior and protective factors for STD prevention (*i.e.*, higher pros over cons for condom use) has been observed in previous studies. Lanier *et al.* identified a significant increase in knowledge about HIV between 1988 and 1996 among

juveniles in Alabama and Florida correctional facilities [7]. However, despite this positive finding, a significant increase in sexual risk behavior was observed at the same time. These findings support the examination of potential factors that could contribute to this "inconsistent" behavior pattern found in adolescents. In other words, what is it that might be causing adolescents to engage in high-risk behaviors regardless of their "knowing better?"

In the current study, depressed mood was hypothesized as a mediator of this "inconsistent" behavior pattern. Results revealed an association between depressed mood and engagement in an "inconsistent" behavior pattern with respect to condom use with non-primary partners (*i.e.*, higher pros in contrast to cons and inconsistent condom use with non-primary partners). Specifically, these findings suggest that, at least with regard to some adolescents, sufficient knowledge, awareness, and valuation of the advantages of condom use may be circumvented by depressed symptoms with respect to engagement in high-risk sexual behaviors. Therefore, although this study was cross-sectional, these findings suggest that alleviating depressed symptoms by assessment and treatment could potentially reduce the incidence of high-risk sexual behaviors among incarcerated youths.

It is acknowledged that this study had a number of limitations that must be considered. First, although the direction of the difference was consistent with our hypothesis that the participants categorized as "inconsistent" would score higher on depressive mood scale, an association between depressed mood and "inconsistent" behavior pattern was not observed in condom use with a primary partner. This result suggests that in condom use with a primary partner, there are other mediators contributing to the inconsistent behavior pattern. In future research, other psychological disorders (*i.e.*, impulsiveness and self-centeredness), which are highly observed among

incarcerated adolescents [20] need to be examined as possible factors associated with the inconsistent behavior pattern. Second, the cross-sectional design does not allow for the drawing of conclusions regarding causal relationships. We have speculated that depressed symptoms may contribute to high-risk behavior. However, these data do not allow us to rule out the reverse interpretation and the possibility that there are other confounding factors contributing to their high-risk behavior. Third, the sample size was small. A longitudinal study using a larger sample and investigating the hypothesized relationship could potentially further our understanding of the issues raised within this preliminary study. Fourth, all data reported in this study are based on the self-report. With self-report data, there is always the risk of recall bias or a social desirability effect when assessing behaviors and attitudes associated with sensitive topic areas. Lastly, in that the hypothesis tested within this study arose out of unanticipated preliminary findings (*i.e.*, the relationships between the pros and the cons of condom use and stage of change were not consistent with previous findings) we relied on the existing 3-item measure of “depressed mood.” Future studies should employ measures of depressed mood or depression with established reliability and validity.

In conclusion, the findings reported within the context of the preliminary study suggest a possible relationship between depressed mood, an “inconsistent behavior pattern,” and subsequent high-risk sexual behavior within a sample of incarcerated youth. Further studies are required to confirm any such relationship, as well as any relationship between depressed mood and engagement in other risk behaviors (*i.e.*, alcohol use, drug use, *etc.*). However, the current study findings suggest that assessment and treatment of depressed mood within this high-risk population could contribute to a reduction in high-risk sexual behaviors. Furthermore, these findings suggest a potential explanation for the atypical relationship between the stages of change, and the pros and cons of condom use that were found within this sample of incarcerated adolescent males.

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