Crack Use and HIV in African American Women

By

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Abstract

HIV is disproportionately prevalent among African American (AA) women nationally and in North Carolina specifically. AA women are also more likely to use crack some time in their lives than other ethnic groups due in part to poverty, distressed social support systems and disempowerment of gender relations. Crack is highly addictive and leads to transactional sex (TS) and inconsistent condom use which endangers the health of women and their partners. This paper tests the validity of that claim using data collected for a study at the University of North Carolina.

A survey of 120 AA women incarcerated in North Carolina correctional facilities was conducted by faculty of the Division of Infectious Diseases in the Department of Medicine of the School of Medicine at the University of North Carolina. The study provided data on which to test the influence of crack use on TS and inconsistent condom use in this paper. Responding to over 100 survey questions, the participants answered questions about various life experiences including substance use, condom use practices and TS.

Differences between crack users non-users of crack were measured using Pearson’s chi-squared test. The data were analyzed using Stata version 12.1. Using crack even once in a person’s life is found to be associated with HIV positive status in this sample. Women in this study who used crack were more likely to engage in TS. Crack use did not necessarily lead to inconsistent condom use. Understanding the influences of multilevel risk behaviors common in AA women’s lives is important for identifying opportunities for culturally appropriate interventions which are further discussed using the social ecological model (SEM) to frame public health solutions.
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CRACK USE AND HIV IN INCARCERATED AFRICAN AMERICAN WOMEN IN NORTH CAROLINA
Background

In the United States, HIV disproportionately affects the African American (AA) community (Cline, 2012). After AA men, AA women are most affected by HIV nationally, representing 63.5% of new infections, 15 times higher than rates among white women (CDC, 2011; Cline, 2012; Prejean et al, 2011). Among women in 2009, AA women had the highest HIV incidence rate at 40 per 100,000; Latinas had the second highest among women at approximately 12 per 100,000 in 2009 (Prejean et al, 2011). AA women living in the southern states are especially affected, representing 71% of new HIV cases among women between 2005 and 2008 (CDC, 2011; Prejean et al, 2011; Farel et al., 2013). In North Carolina, the HIV infection rate for AA women in 2010 was 30.5 per 100,000 populations (NCDHHS, 2012). In North Carolina, women contract HIV via heterosexual sex almost exclusively, with a small fraction contracting HIV via injection drug use (NCDHHS, 2012).

The complex profile of risk behaviors among HIV-infected AA women is an emerging interest in health research as the importance of multilevel risk factors beyond individual transmission is increasingly recognized. However, few studies have examined the intersection of contextual, interpersonal, and intrapersonal factors such as poverty, gender power dynamics, and high AA male incarceration rates that limit partner availability that put AA women at particular risk for contracting or transmitting HIV ((Adimora & Schoenbach, 2005; CDC, 2011; Paxton, Williams, Bolden, Guzman & Harawa, 2013). In this paper, we explore the relationship between crack use and HIV risk among incarcerated AA women in North Carolina.
Crack use among African American Population

Crack, a substance directly derived from the more expensive cocaine-base, is highly addictive and is widely available for low cost in most US cities (Dackis & O'Brien, 2001). White and AA women use illicit substances at similar rates of 11.9 and 12.2 per cent respectively though AA women are more likely to use crack than white women who favor cocaine, prescription pills and opioids (SAMHSA, 2013). Using crack is recognized as a risk factor that can result in behaviors that facilitate HIV infection (Brown, Smith & Hill, 2007).

In a study of male and female drug and alcohol abusers inconsistent condom use was more prevalent among the crack smokers than marijuana and alcohol in a study by Wang, et al. (2000). Despite having the knowledge that unprotected sex is a health risk, crack induced inhibitions can hinder healthy decision making and lead to unsafe sexual contact (Dackis & O'Brien, 2001). Because AA women are more likely to use crack and crack can lead to instances of unprotected sex, the health risks among a population struggling to prevent HIV transmission is compounded in the face of crack use.

Qualitative studies in AA communities show that crack addiction degrades social support networks and place a profound burden on families’ social support network, especially for those struggling with limited economic means, a common stress in disenfranchised groups like African Americans (Dunlap & Johnson, 1992; Minkler, Roe, & Robertson-Beckley, 1994).

The assumption of this paper is that AA women who use crack are more likely to engage in TS and more likely to use condoms inconsistently compared to AA women not using crack. We tested the association between crack use and TS and inconsistent condom use on data collected for a study at the Division of Infectious Diseases at the University of North Carolina.
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Drivers of HIV-Related Risk Behaviors

The efficiency of male to female HIV transmission through heterosexual contact places women at increased biological risk for contracting HIV (Duriux-Smith, TW, & Goodman, 1992). Additionally, the drivers of risk behavior discussed below describe how AA women sustain an increased ecological risk for infection as a result (Adimora and Schoenbach, 2005).

Coercion and intimidation

Studies of populations around the world show women who fear physical or psychological abuse from their partners are less likely to discuss or insist on condom use by their male partners (Kalichman, Williams, Cherry, Belcher, & Nachimson, 1998; Wood, Tortu, Rhodes & Deren, 1998). Another link between risk behaviors and HIV in women is the lack of agency with which women engage in sex acts. Women who are forced or coerced into sex have limited ability to negotiate condom use (Wingood & DiClemente, 1997). Research shows that women in abusive relationship are less likely to suggest that male partners use a condom use out of fear of retaliatory abuse (Johnson, et al., 1992; Kalichman et al., 1998). AA women often lack power in intimate relationships and therefore are susceptible to this kind of risk. (Kalichman et al., 1998).

Partner type and frequency

Studies show that women do not insist on using a condom in order to foster trust with their male partner (Nunn et al., 2012; Paxton et al., 2013). A perception of being at low HIV risk has been cited by women as a reason for not insisting on using a condom with a primary partner (Brown & Van Hook, 2006). This may suggest why men are more likely to use condoms with
secondary partners than with primary partners (Anderson, Wilson, Doll, Jones, & Barker, 1999; Wechsberg, Lam, Zule, & Bobashev, 2004). AA women are no less likely to exhibit these behaviors than women, and given the fact that they are more often engaging in sexual relationships with AA men, (the sub-group that maintains the highest rate of HIV in the US) (Paxton et al., 2013), they are at an increased risk for HIV.

Additionally, Williams et al found that condom use decline with frequency of sexual encounters, independent of partner type (2001). AA women who use crack are more likely to have multiple sexual partners than AA women not using crack (Wingood and DiClemente, 1998). Given that a greater proportion of AA women use crack compared to other women, this also places AA women disproportionately at risk.

**Transactional sex**

Transactional sex refers to sexual acts in exchange for any good, including money, food, shelter, transportation and drugs (Adimora and Schoenbach, 2005). A 2006 study by Brown and Van Hook, less than half of the AA women who engaged in TS used condoms during those acts. In these cases, perceived risk of HIV may be low or the power dynamic favors the drug seller who refuses to use a condom in exchange for crack (Brown & van Hook, 2006). Trading sex for goods is not limited to AA women but is noted as common among crack users, leaving the user vulnerable to infections communicated by their crack seller (Carlson & Siegal, 1991; Elwood, Williams, Bell, & Richard, 1997).

**Poverty**
Poverty, disempowerment, and homelessness create the conditions for AA women and further distress communities (Dunlap & Johnson, 1992; Elwood et al., 1997). Poverty and TS are common circumstances in the communities where substance abuse takes hold, resources needed to satiate substance cravings severely limits the ability to maintain a functional and healthy lifestyle (Dunkle, Wingood, Camp, & DiClemente, 2010). In a multi-site study of crack smokers for example, 43.1% of 1,055 crack users who traded sex for drugs were AA women (Elwood et al., 1997).

In summary, poverty, multiple partners, transactional sex, degraded social support and a culture that promotes male dominance may interact to increase women’s risk to HIV exposure. These drivers are all present among all African American women, but are especially exacerbated among the subset of women who are crack users. This makes this population especially vulnerable. We will explore some pathways through which this vulnerability is established in this paper among incarcerated AA women in North Carolina.

Specifically, this paper focuses on the risk arising from transactional sex and inconsistent condom use among African American women who are crack users. (NCDHHS, 2012). This paper features data from a study conducted for a research study at the University of North Carolina to test the association between crack use and HIV and test the influence of crack use on condom usage and TS.

**A Case Study of AA Women in the North Carolina Prisons**

**Background**
The high prevalence rate of HIV among incarcerated AA women, particularly in southern correctional facilities, make this topic timely and appropriate especially for southern states experiencing high HIV rates among incarcerated AA women similar to North Carolina (Hammet and Drachman-Jones, 2006). More than 650,000 people are released from US prisons annually (USDOJ, 2014). According to North Carolina Department of Health and Human services, prevalence of HIV is five times higher among AA women in North Carolina correctional facilities than AA women in the general population (as cited in Farel et al., 2013).

AA men and women are incarcerated at disproportionately higher rates relative to whites according to a report by Carson for the Department of Justice (2014). Nationally, AA women are incarcerated at 113 per 100,000 residents, approximately twice the rate of white women (Carson, 2014). In every state, AA women are incarcerated on drug offences at rates above white women though they use similar rates of illicit substances overall (SAMHSA, 2013). In North Carolina, AA women were incarcerated on drug offenses at 50.1 per 100,000 residents; white women incarcerated at 12.2 per 100,000 residents for the same drug offenses (Fellner, 2009).

The high HIV rates and disproportionate incarceration of AA women in prisons present a need to connect this vulnerable, incarcerated population with evidence-based interventions aimed to reduce risk behaviors and lower HIV transmission through linkage to medical care (Stephenson et al., 2006; Wohl et al., 2011). HIV prevention programs introduced in prison have been shown to influence post release risk behaviors such as condom use, in part, by connecting people with comprehensive health services (Grinstead, Zack & Faigeles 2001; Myers et al., 2005).

**Study Overview**
In 2013, faculty of the Division of Infectious Diseases at University of North Carolina conducted a case control study in the North Carolina prison system of 30 HIV-infected AA women and 90 HIV negative AA women. The purpose of this study was to compare the life experiences of HIV-infected AA women with those of uninfected AA women to better understand what conditions are precursors of HIV in this sample. The study involved a one-time, voluntary survey of approximately 120 questions administered using Audio Computer-Assisted Self-Interview software. The survey included questions anchored on the Social Ecological Model (SEM) as described by McLeroy, Bibeau, Steckler, & Glanz (1988). The survey questions regarded life conditions and experiences such as important relationships, employment status, emotional assistance received from the community, knowledge about HIV and other sexually transmitted infections, and substance use throughout the lifetime.

Together, study staff and prison health providers used the secure, electronic prison database to identify HIV-infected, AA English speaking women over 18 years old who had been in prison for five years or less. The criteria that limited participation to women incarcerated for five years or less was set to reduce recall bias on survey questions that asked specifically about the year or months prior to incarceration. The women identified as meeting the above criteria were approached by study staff in the clinic setting during the women’s scheduled clinic appointments. The women were invited to participate in the survey at their convenience. For the control group, HIV negative women were identified using the same database in the same way as the case group. The HIV negative women were approached intermittently with women identified as being HIV positive to avoid indirect disclosure. The HIV negative controls were age matched to the cases three to one.
This paper uses a few specific questions from this survey to explore the relationship between HIV, crack use and high risk behaviors.

The risk factors present in the general population are relevant to the incarcerated population as that is where the incarcerated sub-population originates and to where women return upon release. Therefore, the data from the prison study conducted by faculty at the Division of Infectious Diseases at University of North Carolina is relevant to study for insight into the experiences of AA women in the general population.

**Data Analysis**

Table 1 includes the relevant survey questions from which the data were derived. Table 2 provides characteristics of this study sample, including the reported income sources, low education levels and levels of reliable housing. These data shows that incarcerated women in general suffer from poor employment, low completion of high school degrees and alcohol and illegal substance use. HIV positive women have slightly poorer conditions that those who are HIV negative, though the largest difference is seen in crack use, lending credibility to the hypothesis that HIV status is correlated with crack use.

**Table 1. Survey Questions and Answer Options Administered to AA Women in North Carolina Prisons in 2013 and 2014 by Division of Infectious Diseases at the University of North Carolina.**

<table>
<thead>
<tr>
<th>Survey Questions</th>
<th>Answer Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever used crack?</td>
<td>No. Yes. Don’t know. Refuse to answer.</td>
</tr>
</tbody>
</table>
Of the men you have had sex with in your life, did you ever have sex because you needed money?  No. Yes. Refuse to answer.

Did you ever have sex because you needed drugs?  No. Yes. Refuse to answer.

Did you ever have sex because you needed a place to stay, clothing, food, or rides?  No. Yes. Refuse to answer.

In the year before this incarceration, when you had vaginal or anal sex, how often did you use a condom? Please include your partner's use of a male condom or your use of a female condom in your consideration.  *Always used a condom
Usually used a condom
Sometimes used a condom
Never used a condom
Did not have anal or vaginal sex with my primary partner
Refuse to Answer

* Women who reported always using a condom were classified as using condoms consistently.

**Table 2 Characteristic of Incarcerated African American Women Surveyed in North Carolina in 2013-2014 According to HIV Status**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HIV-(n=90)</th>
<th>HIV+(n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>74%</td>
<td>83%</td>
</tr>
<tr>
<td>High School or more</td>
<td>68%</td>
<td>63%</td>
</tr>
<tr>
<td>Reliable Housing Prior to Incarceration</td>
<td>91%</td>
<td>80%</td>
</tr>
<tr>
<td>Income Sources Prior to Incarceration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Employment</td>
<td>30%</td>
<td>23%</td>
</tr>
<tr>
<td>Family, friends, partner</td>
<td>27%</td>
<td>33%</td>
</tr>
</tbody>
</table>
Illegal employment (i.e. theft, hustling, selling drugs) & 20% & 20% \\

<table>
<thead>
<tr>
<th>Substances Used in Year Prior to Incarceration</th>
<th>Have Used Crack (n=68)</th>
<th>Never Used Crack (n=42)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crack</td>
<td>53%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>71%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>Opioids</td>
<td>17%</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3 Associations between Crack Use and Other Risk Behaviors among Sample of Incarcerated African American Women**

<table>
<thead>
<tr>
<th></th>
<th>Have Used Crack (n=68)</th>
<th>Never Used Crack (n=42)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV positive</td>
<td>78.6%</td>
<td>21.4%</td>
<td>0.018</td>
</tr>
<tr>
<td>Transactional Sex</td>
<td>76.5%</td>
<td>32.6%</td>
<td>&lt;0.00</td>
</tr>
<tr>
<td>Inconsistent Condom Use</td>
<td>80.0%</td>
<td>86.8%</td>
<td>0.38</td>
</tr>
</tbody>
</table>

_Prepared using Stata version 12.1_

**Results**

Table 3 shows the results of the analysis. We tested associations between crack use and HIV status, and between crack use and transactional sex and inconsistent condom use. Our
hypothesis is that crack users engage more often in transactional sex to support their habit, and use condoms more inconsistently, resulting in a higher prevalence of HIV.

Table 3 shows statistically significant relationships between crack use and HIV status and between crack use and transactional sex. No significant relationship was found between crack use and inconsistent condom use which was very high for both crack users and non-crack users.

The predominant result from this analysis shows that crack use has a strong association with HIV positive status. While both crack users and non-crack users in this sample appear to use condoms inconsistently, the higher prevalence of transactional sex among crack users exposes them to more opportunities for risky sex with multiple partners and this in turn makes them much more vulnerable to infection. The close relationship between crack use and TS described in Table 3 underscores the importance of curbing crack use in both HIV-infected and HIV uninfected populations to reduce the need to engage in TS and increase the risk of HIV transmission. In the following section we present recommendations at various levels to do this.

**Multilevel Recommendations Using the Social-Ecological Model**

The intersection of the crack and HIV epidemics among AA women creates the need for a public health response to curb the drivers of risk behaviors among women in the general population and among incarcerated populations. The Social Ecological Model (SEM) is a classic model for delineating influential factors of health conditions and understanding how different factors in a person’s life and or environment relate and influence a health condition. The SEM features concentric circles with the inner most circle representing the personal level such as the age, gender, individually held beliefs while the relational level represents the factors accompanying family and peers (Stokols, 1996). The community level indicates community
organizations, faith communities, and informal organizations where individuals participant and interact, while the political level classifies decisions and factors at policy levels, laws, and institutionalized government (Stokols, 1996). The different levels allows for closer examination of interacting factors. Health interventions are considered to be most effective when designed to address problems at multiple levels of the social ecological model (Stokols, 1996).

**Social-Ecological Model with Examples of Level Specific Features**

**Figure 1.**

The following are suggested interventions that focus on reducing risk behaviors that can give way to HIV infection among AA women in North Carolina. The concentration of HIV rates among AA women in prisons combine with the disproportionate incarceration rates of AA women general make correctional facilities a key environment for connected HIV-infected AA women with health resources (Hammett and Drachman-Jones, 2006; Wohl et al., 2011).
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Strengthening the HIV prevention and care programs in the prison setting for AA women and improving the planning for post-release coordinated care has been an effective strategy in other states and is supported by clinicians serving the North Carolina prison system (De Groot, 2000; Flanigan et al., 1996; Springer, Spaulding, Meyer & Altice, 2011). Though few public health interventions have been designed that specifically target AA women but those that do have shown distinct success in reducing crack use and subsequent TS while improving employment stability (Wechsberg, Lam, Zule, & Bobashev, 2004).

The interventions presented here each correspond to a different level of the SEM. The individual level interventions focus on crack reduction in women and in improving condom use among men. The relationship level intervention focuses on improving gender relationships among general and incarcerated populations to address the reasons why women do not assert control over condom use and why men choose not to use them. The community level suggestions propose a scale up of crack-use reduction programs that can benefit AA women after release from prison and women in the general population who are recovering from addiction. At the policy level, legislative actions are recommended to strengthen services and improve access to rehabilitative services for women in the general population and women transitioning care received in prison into the general population.

Individual Level

**Interventions for incarcerated AA women.** At the individual level of the SEM, women-focused crack use reduction programs tailored for AA women serve as a culturally compatible way to address the drivers of risk behaviors and health beliefs unique in this population (McCoy, McCoy & Lai, 1998). Programs for women in the prison setting, addressing HIV risk perception
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would serve to improve the perceived need for condoms among at-risk AA women and could be modified to explore ways to nurture stable relationships without resorting on unprotected sex (Brown and Van Hook, 2006).

**Interventions for incarcerated AA men:** The prison setting is a key environment to provide this kind of health behavior education programing to women but also to men. Targeting men for condom and TS interventions may be more effective than targeting women who hold less sexual decision making power according to research on intimate partner violence of between men and women in the Latino population (Amar & Raj, 2000). Since the data from the case study suggest low condom use among both crack users and non-users, strong peer counseling programs in male prisons may be appropriate has they have shown to improve male initiated condom use upon release in other states (Zack et al., 2001).

**Relationship Level**

**Gender relations for men and women:** For women, gender specific and culturally sensitive interventions have been effective at introducing condom negotiation stills and reducing gender power imbalance (Sterk et al., 2003, Voisin, 2002). Health campaigns in the general population that focus on managing relationship dynamics have been shown to be effective tools for influencing cultural specific behaviors like condom use decision making (El-Bassel, Caldeira, Ruglass & Gilbert, 2009). AA women in North Carolina could benefit from renewed public health campaigns that encourage women use condoms as protection against HIV infection when they have influence over decision making. Interventions like this can be targeted at both general and incarcerated women.
Condom use promotion among general and incarcerated men: Research shows that education, class and gender power imbalance between men and women are correlated with sexual risk behaviors (Amaro & Raj, 2000). The AA community in the general population and in the North Carolina correctional facilities would benefit from public health messaging aimed at improving male condom use attitudes and gender relations to share decision making with women in relationships. More interventions are needed in North Carolina to improve the condom use of AA men who are the primary source of HIV infection to AA women (NCDHHS, 2012).

Community Level

Resources for general and formerly incarcerated substance abusers: In North Carolina, the TROSA (Triangle Residential Option for Substance Abusers) organization has earned a reputation as an effective and affordable living, training and employment resource for former substance abusers. North Carolina could do more to serve recovering AA crack users and reduce related risk behaviors by encouraging the scaling up of community based programs like TROSA. For the general population, this rehabilitative model acts as a response to the crack element of the HIV and crack convergence in North Carolina’s AA communities. Pragmatic responses like TROSA can indirectly affect poverty, homelessness, and TS in communities by facilitating economic opportunities and empowerment among AA women after release from prison (Paxton et al., 2013; Wechsberg et al., 2003).

Policy Actions

Expanding Medicaid and incentives for care in North Carolina: Improving access and quality of health care for AA women in general North Carolina population is an important
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effort in both HIV prevention and drug rehabilitation resources. Health insurance most readily available to poor populations does not necessarily cover essential prevention services like substance treatment centers for recovering addicts (El-Bassel, Caldeira, Ruglass & Gilbert. 2009).

The Affordable Care Act made substance abuse treatment available to Medicaid beneficiaries in states that adopted the expansion though access as only treatment centers with fewer than 16 beds can receive reimbursement for care (Gorman, 2014). Providing increased access to crack rehabilitation deserves renewed attention in the form of accepting the Medicaid expansion in North Carolina and providing incentives for new treatment centers that are readily accessible to AA women in North Carolina (Gorman, 2014).

Budgeting for multi-level health interventions in North Carolina: Increasing the budget of the North Carolina Department of Health and Human Services is necessary to scale up proven interventions that reach AA communities across North Carolina. Public health lobbying efforts representing the interests of citizens with lower incomes would work to advocate for the necessary funding to support services that serve marginalized populations like AA women.

In addition to budgets, there needs to be political support for establishing programs to address crack use and HIV prevention within the operations of the North Carolina Department of Health and Human Services specific to AA women in the state. Connecting incarcerated AA women to these programs before release could then become a feature of a comprehensive treatment plan where women who receive care through the Department of Health would have a come into contact with the interventions more regularly (Stephenson et al., 2006; Wohl et al., 2011).
Conclusion

As shown from our analysis, crack use is a particular problem among AA women as it leads to risk behaviors such as transactional sex that make women susceptible to HIV infection. Crack use reduction programs are a means to limit risk behaviors that facilitate HIV transmission. When designing interventions, drivers of crack use specific to AA women should be considered such as gender power dynamics, poverty and multiple partners which may also affect risk behaviors. HIV prevention and crack use reduction programs should be aimed at both general and incarcerated populations in order to promote healthy behaviors upon release back into the general population.
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