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The Association Between Religiosity and Substance Use Patterns Among Women Involved in the Criminal Justice System

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Abstract

A growing body of research is exploring the association between religiosity and drug use. Thus, this analysis examines the association between religiosity and substance use patterns among females in the criminal justice system. Data derived from 318 women recruited from a Municipal Drug Court System in St. Louis, Missouri, were used to determine the association between religiosity and substance use patterns. Results indicate that religiosity decreased the odds of cocaine use, observed for both crack/cocaine (CC) use alone (adjusted odds ratio [AOR] = 0.41) and crack/cocaine + marijuana (CC + MJ) (AOR = 0.32). Interestingly, this association was not found for MJ use alone. Other variables that were significantly associated with CC + MJ use included being non-Black (CC + MJ: AOR = 0.46; MJ: AOR = 0.28), 4+ arrests (CC + MJ: AOR = 4.66; CC: AOR = 2.64), and <30 years of age (CC + MJ: AOR = 0.37; CC: AOR = 0.16; MJ: AOR = 2.84). Future drug prevention and interventions should consider the potential protective effects of religiosity on substance use.

Keywords

religiosity; religion; women; criminal justice; substance use

Introduction

Substance Use, the Criminal Justice System, and Religiosity

With nearly 23 million people in need of substance use treatment, it is evident that new and effective interventions are needed to curb this epidemic, especially in criminal justice populations (National Institute on Drug Abuse [NIDA], 2015). The prevalence of substance

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use among those in the criminal justice system has been shown to be up to 5 times that of those in the general population (Fulkerson, Keena, & O'Brien, 2013; Harner & Riley, 2013; Staton-Tindall, Harp, Winston, Webster, & Pangburn, 2015). Specifically, particular attention should be focused toward women in the criminal justice system, who are more likely to have issues related to substance use than male offenders (Hall, Golder, Conley, & Sawning, 2013; Scott, Grella, Dennis, & Funk, 2014).

Currently, the most prevalent form of drug-related services in the criminal justice system centers around education and awareness as this approach operates on the key sentiment that substance use is a part of a larger and complex behavioral issue (Staton-Tindall et al., 2015). A growing body of research is exploring and acknowledging the impact of religiosity on substance use outcomes (Acheampong, Lasopa, Striley, & Cottler, 2015; Cheney et al., 2014; Gmel et al., 2013; Hampton, Halkitis, & Mattis, 2010; Longshore, Anglin, & Conner, 2009). While religiosity has been defined as observable experiences, feelings, and activities that pertain to spiritual or divine beings, or routine engagement in ritualistic behaviors, it is mainly defined in prior research as the level of an individual's participation in organized religion (e.g., attending religious services and activities; Acheampong et al., 2015; Chang et al., 2018; Gallucci, Hackman, & Wilkerson, 2018). Research by Gmel et al. (2013) found that religiosity reduced the odds of using all types of substances (alcohol and illicit substances) after adjusting for various confounders. A qualitative study on cocaine use highlighted the importance of religion and spirituality among minorities; findings suggest that addressing the influence of religion and spirituality is culturally sensitive and may be important in reducing cocaine use in high-risk populations (Cheney et al., 2014). Finally, Acheampong and colleagues (2015) showed that the association between religiosity and substance use was strong among women in an analysis aimed to assess gender differences between religion and simultaneous polysubstance use among community-recruited substance users.

The link between religiosity and substance use may be explained by the social control theory, which theorizes that an individual's commitment, attachments, beliefs, and involvements can prohibit deviant behaviors (Hirschi, 1969). Religiosity has been associated with prosocial behaviors, defined as behaviors that are beneficial to one's self and others (Shariff, Willard, Andersen, & Norenzayan, 2016; Ulmer, Desmond, Jang, & Johnson, 2012), which may explain its association with decreased odds of substance use. Alternatively, Sussman, Reynaud, Aubin, and Leventhal (2011) have also argued that drug addiction and belief in a Higher Power may in a sense be addictive behaviors. The authors argue that these factors may share common mesolimbic dopaminergic pathways in the brain and tend to produce similar intense emotions, suggesting that religiosity may serve as an alternate addiction to those who use substances.

Gaps in the Literature/Aim of Study

Although women are now the fastest growing prison population, and are more likely to have issues related to substance use than their male counterparts, data on substance use among this subgroup of women are limited (Hall et al., 2013; Scott et al., 2014). Thus, this analysis examines the association between religiosity and substance use patterns among women who

were primarily in drug court, an alternative to incarceration program. We also consider traditional correlates of substance use (e.g., unstable parent–child relationships, social support, and various markers of social economic statuses; Degenhardt & Hall, 2012; Osborne, Serdarevic, Crooke, Striley, & Cottler, 2017; Tolou-Shams, Hadley, Conrad, & Brown, 2012); however, we seek to understand these social factors as they relate to recent substance use among females involved in the criminal justice system.

Furthermore, Gallagher and colleagues (2015) found that drug court participants who reported crack/cocaine (CC) as their drug of choice had significantly worse drug court outcomes than participants who preferred other substances. As religiosity has been shown to be protective against deviant behaviors, we, therefore, hypothesize that though religiosity will be associated with decreased odds of use all substances, this reduction will be more pronounced among those who use CC alone or in combination with any other drug. We also hypothesize that unstable parent–child relationship, lack of social support, and lower socioeconomic status will be positively associated with the heaviest of drug use. To our knowledge, this is among the first study to evaluate religiosity and substance use among women. With the scarcity of information on females in therapeutic justice programs, this is also one of the few studies that assesses religiosity among females in the criminal justice system.

Method

Overall Outreach and Data Collection

Baseline data used in this analysis are from a National Institute of Nursing Research (NINR)–funded study, Sisters Teaching Options for Prevention (STOP, $N = 318$) (R01NR09180, principal investigator [PI]: L.B.C.). The aim of STOP was to reduce risky behaviors, including drug use behaviors, among female offenders with a two-armed intervention focused on behavioral change through peer-partnered case management (J. E. Johnson et al., 2011; Reingle et al., 2013). Women were recruited from a drug court, which is a type of therapeutic justice program to rehabilitate rather than incarcerate those with substance use disorders (Fulkerson et al., 2013). Participants for STOP were recruited while in court by STOP research staff, who were unaffiliated with the court system, between the years 2005 and 2008. STOP staff approached potentially eligible women after they met with the judge and provided the women with details regarding the study. To be eligible, women had to be at least 18 years of age, present in court, community released through probation or paroled, and intend to remain in St. Louis, Missouri, the study area, for the next 12 months. Interested and eligible women were offered transportation to the field site where informed consent was administered or were scheduled an interview date at the field site at a later time (J. E. Johnson et al., 2011). This study was approved by the Washington University in St. Louis's Institutional Review Board.

Measures

STOP research staff interviewed participants using the Washington University Risk Behavior Assessment (WU-RBA; Shacham & Cottler, 2010). The WU-RBA, adapted from NIDA's Risk Behavior Assessment, assessed drug use and demographic information (Needle et al.,

1995). Information in this analysis includes past 30-day drug use, religiosity, and socio-demographic variables.

Religiosity

To assess religiosity, participants were asked three questions: (a) “In the past 12 months, have you sought the help or advice of a priest, rabbi, or other member of the religious community?” (b) “How important is religion/spirituality to you?” and (c) “In the past 12 months, how often have you attended religious services at a church, mosque, temple, shrine, or synagogue?” Those categorized as religious met all three criteria: (a) sought advice from a member of a religious community member in the past 12 months, (b) reported that religion/spirituality was very important to them, and (c) sometimes or often attended religious services in the past 12 months. We chose to define religiosity as multiple components to derive a more holistic measure of religiosity as using a single indicator such as religious attendance, or perceived relationship with a higher power, as prior studies have done, may not suffice or capture the intricacies of religiosity (Bakken, DeCamp, & Visher, 2014). A prior study examining religion using these same criteria has been previously published (Acheampong et al., 2015).

Recent Substance Use

Past 30-day substance use was used to assess recent drug use as commonly done in the substance use literature (Cohn, Johnson, Ehlke, & Villanti, 2016; J. Johnson, Hodgkin, & Harris, 2017; R. M. Johnson et al., 2016; Liebling et al., 2016; Veliz, Epstein-Ngo, Zdroik, Boyd, & McCabe, 2016). To assess recent drug use, participants were asked, “How many days have you used (crack/cocaine, stimulants, opioids, marijuana) in any way in the last 30 days?” All women in the sample used either marijuana (MJ), CC, or both. There were 11 participants who used these substances and other illicit substances (MJ + other substance [no CC], $n = 1$; MJ + CC + other illicit substances, $n = 10$). For the purposes of this study, these women were categorized as either MJ or MJ + CC, depending on whether they used one or both substances. Therefore, a composite variable was created that categorized participants as MJ use only, CC use only, or MJ + CC use in the past 30 days.

Covariates

As mentioned prior, included in this study are social and environmental factors that have been traditionally associated with substance use. Such factors include number of arrests greater than the 25th percentile (4+ lifetime arrests vs. less than 4 lifetime arrests), past family disruption (separated 6+ months from parents vs. never separated 6+ months from parents), and social support (defined as having someone you could talk to and ask for favors vs. none). Socio-demographic factors included age (18–29 years of age vs. 30+), race (Black vs. non-Black), education (high school diploma+ vs. no high school diploma), and unstable housing (living on the streets, with others, halfway house vs. living in own house or apartment).

Statistical Analysis

SAS statistical software 9.4 (SAS Institute Inc., Cary, NC, USA) was used to conduct all analyses. Chi-square analyses and multinomial logistic regression analysis were conducted to determine the association between religiosity, socio-demographic characteristics, and substance use patterns.

Results

Substance Use Patterns and Demographic Characteristics

Among our sample, almost half of all women (47%) reported ever using MJ and/or CC in the past 30 days (Table 1); 16% used both MJ + CC, 18% used CC only, and 13% used MJ only. Almost one fourth (22%) of the sample met criteria for being religious/spiritual. Over one fourth (28%) of the non-using women were religious, 19% of MJ only users and 16% of CC only users were religious, while the least religious women were CC + MJ users (12%).

Regarding the socio-demographic characteristics of the sample (Table 1), 70% of women self-identified as being Black, a third (33%) were 30 years of age or younger, and almost half (46%) had less than a high school diploma. Around three fourths of the sample reported having an unstable housing situation (76%) or being separated from their parents for at least 6 months before the age of 15 (72%), while 22% reported having no one to talk to or ask for help. Drug-using behaviors were prevalent among the women in the sample; around one fourth of the women (23%) reported a history of injection drug use. Bivariate analyses showed that religiosity, race, age, being separated from parents as a child, and having 4 or more arrests were significantly associated with substance use at the .05 significance level.

Unadjusted Multinomial Regression

In the unadjusted multinomial regression, religiosity was significantly associated with MJ + CC use (see Table 2). Specifically, those categorized as being religious as compared with those who were not had 64% decreased odds of reporting the simultaneous use of CC + MJ than reporting no drug use. Although no statistically significant association between religiosity and CC or MJ use alone was observed, there was a trend toward decreased odds of MJ (39%) and CC (52%) use among those who identified as being religious compared with those who were not.

Regarding other socio-demographic variables in the analyses (Table 2), non-Black participants compared with Black participants had a 65% decreased odds of reporting MJ use alone, while no other significant racial differences were observed among different substance use groups. Interestingly, we found that younger women, compared with older women, had an 87% decreased odds of reporting CC use alone, a 70% reduced odds of reporting CC + MJ use, and a nearly 3 times increased odds of reporting MJ use alone. Finally, those who were separated 6 or more months from at least one parent before the age of 15 compared with those who were not were 4 times significantly more likely to report MJ use only; however, they were considerably less likely to use CC only. No significant associations with being separated from parents and comorbid CC + MJ use was evident.

Adjusted Multinomial Regression

After adjusting for potential confounders, religiosity had a protective impact on comorbid CC + MJ use and CC use only. Specifically, women who were religious were around 70% less likely to report CC + MJ use compared with those who were not religious. Similarly, women who were religious also showed a 59% statistically significant decrease in CC use only compared with women who did not consider themselves religious. It is interesting to note that the association between religion/spirituality and CC + MJ use, and CC strengthened in the adjusted model as compared with the unadjusted model. The results of the adjusted model still showed a nonsignificant association between religiosity and MJ use only.

The associations between potential confounders and substance use among the women in our sample are shown in Table 3. Results showed that having an arrest history of 4 or more times was positively associated with CC only (adjusted odds ratio [AOR] = 2.64) and CC + MJ use (AOR = 4.66) but not with MJ use alone. Race was another important variable in our model; a significant association was found for race and all substance use groups involving MJ. It was observed that women who identified themselves as non-Black, compared with those women who were Black, were 64% less likely to report CC + MJ use and 72% less likely to report MJ use only. Furthermore, younger women compared with older women had a 70% decrease in odds of CC + MJ use, an 84% decrease in odds of CC use only, and a nearly 3 times increase in odds of MJ use only. Parental separation was the only variable not associated with substance use in the adjusted model.

Discussion

Our main aim in this study was to assess the association between religiosity and recent substance use patterns among women involved in the criminal justice system. We found that among our sample, women used MJ and/or CC almost exclusively. The drug patterns found were not surprising as MJ has the highest rates of abuse or dependence than any other illicit drug, and has also been attributed to adverse criminal justice outcomes (NIDA, 2015; Savage, King, Clark, & Cropsey, 2017; Volkow, Baler, Compton, & Weiss, 2014). CC, also a commonly used illicit drug, is used in the United States at one of the highest rates in the world (NIDA, 2015; Werb et al., 2010). Other studies including similar samples of women have found that substances typically used in this population are MJ and CC (DuBois et al., 2009; J. E. Johnson et al., 2011).

Our results supported our hypothesis that religiosity would be associated with reduced likelihood of substance use among our sample, even after controlling for several socio-demographic variables and other covariates. Specifically, religiosity was associated with the most substantial decrease in odds of comorbid CC + MJ use, followed by CC use alone, but not for MJ use only. Our findings are consistent with results from a qualitative study conducted by Harner and Riley (2013) which found that religion was linked with improved substance use outcomes in a population of incarcerated females. We hypothesize that the lack of significance for MJ use only could be attributed to the normalization of MJ use, which may suggest that the reasoning process to MJ use might be different compared with the reasoning to use other substances like cocaine and alcohol.

We also aimed to elucidate further specific understudied areas in substance use research such as the prevalence of use and types of substances used among women in an alternative incarceration program (El-Bassel & Strathdee, 2015). With this study, we found a robust association between religiosity and substance use patterns even while adjusting for social risk factors, such as unstable parent–child relationships, social support, and various markers of social economic status. In accordance with our hypothesis, race, number of arrests, and age were positively associated with substance use. These correlates of substance use have also been found in previous studies on women (Evans, Grella, Washington, & Upchurch, 2017; Strathdee et al., 2015).

Although we hypothesized that unstable parent–child relationship and lack of social support would be associated with substance use among women in the criminal justice system, we failed to find a positive association in our sample. The lack of a significant relationship between variables indicative of lower socioeconomic status (education and unstable housing) and substance use was not expected as substance use has been shown to be exacerbated in women who are low-income, homeless, and lack financial and social support (Blankenship, Reinhard, Sherman, El-Bassel, 2015; Gallagher et al., 2015; Peters, Kremling, Bekman, & Caudy, 2012; Strathdee et al., 2015). The lack of a significant finding with socioeconomic status variables may be attributed to the fact that our sample comprised an extremely high-risk group of women.

Limitations and Strengths

There are several limitations associated with this study. While we aimed to provide a holistic measure of religiosity, it is difficult to fully quantify the multidimensionality of this construct, especially given the moral implications of criminal justice involvement and substance use. As such, our definition of religiosity may not capture individuals who may be religious but avoid advice seeking from religious leaders due to stigma. Also, our sample of women was not randomly chosen; thus, findings may not be generalizable to all women within the criminal justice system. Other limitations include the cross-sectional nature of this analysis, thus limiting directional casual inference as well as the reliance on self-report measures. However, this study boasts several strengths, including using a reliable instrument to assess substance use and other variables of interest (Shacham & Cottler, 2010), along with providing more information on religiosity and substance use among a group of women often underrepresented in research. Our study also features a more holistic measure of religiosity, differing from many prior studies on religion that use a single indicator (Bakken et al., 2014).

Conclusion

Our analyses provide further support that religiosity is associated with decreased likelihood of recent substance use, particularly CC use and comorbid CC and MJ use. In our sample of women involved with the criminal justice system, those who perceived themselves as religious had decreased odds of comorbid CC + MJ use and CC use only. Researchers have noted that although evidence suggests the protective effects of religiosity and substance use, this potentially promising aspect is missing in many substance use interventions (Elkonin,

Brown, & Naicker, 2014). Well-known substance use interventions that incorporate religiosity are Alcoholic Anonymous and Narcotics Anonymous. These programs foster a belief in a Higher Power who is able to disentangle individuals from addictions (Alcohol Anonymous, 2018). With scripture reading, meditation, and other religious activities as core components, these programs have been linked with reductions in substance use and cessation of substance use (Cheney et al., 2014; Karriker-Jaffe, Klinger, Witbrodt, & Kaskutas, 2017). As such, the potential impact of faith-based substance use interventions should not be minimized, and such interventions should be made available to those who are interested (Bakken et al., 2014).

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Biography

Abenaa A. Jones, PhD, is a postdoctoral fellow in the Department of Mental Health at the Johns Hopkins University Bloomberg School of Public Health. Her current research focuses on risk factors and interventions pertaining to drug use and HIV/AIDS.

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Table 1.Demographic Characteristics of the Sample ($N = 318$).

| Demographic characteristics | Crack/cocaine and marijuana use ($n = 49$) (16%) | Crack/cocaine use only ($n = 58$) (18%) | Marijuana use only ($n = 42$) (13%) | No use ($n = 169$) (53%) | Total ($N = 318$) (100%) | <i>p</i> value |
|----------------------------------|--|---|---------------------------------------|----------------------------|----------------------------|----------------|
| Religiosity | 6 (12%) | 9 (16%) | 8 (19%) | 47 (28%) | 70 (22%) | .05 |
| Black | 37 (76%) | 44 (76%) | 35 (83%) | 108 (64%) | 224 (70%) | .04 |
| 18–29 years of age | 7 (14%) | 4 (7%) | 27 (64%) | 61 (36%) | 99 (33%) | <.0001 |
| Has social support | 40 (82%) | 43 (74%) | 32 (76%) | 132 (78%) | 247 (78%) | .82 |
| Less than high school diploma | 25 (51%) | 30 (52%) | 16 (38%) | 76 (45%) | 147 (46%) | .50 |
| Separated from parents 6+ months | 30 (61%) | 35 (60%) | 39 (93%) | 126 (75%) | 230 (72%) | <.001 |
| 4 + arrests | 43 (88%) | 47 (81%) | 28 (67%) | 106 (63%) | 224 (70%) | <.01 |
| Unstable housing | 40 (82%) | 42 (72%) | 28 (67%) | 133 (79%) | 243 (76%) | .26 |
| Ever injected drugs | 10 (20%) | 12 (21%) | 5 (12%) | 45 (27%) | 72 (23%) | .21 |

Table 2.Unadjusted Multinomial Regression Assessing Correlates of Substance Use ($N = 318$).

| Variables | Cocaine/crack + Marijuana OR (95% Wald CI) | Cocaine/crack OR (95% Wald CI) | Marijuana OR (95% Wald CI) |
|---------------------|--|--------------------------------|----------------------------|
| Religiosity | | | |
| Yes | 0.36 [0.15, 0.91] | 0.48 [0.22, 1.05] | 0.61 [0.26, 1.42] |
| No | 1.0 | 1.0 | 1.0 |
| Race | | | |
| Other races | 0.57 [0.28, 1.18] | 0.56 [0.29, 1.11] | 0.35 [0.15, 0.85] |
| Black | 1.0 | 1.0 | 1.0 |
| Arrest history | | | |
| >4 arrests | 4.23 [1.71, 10.57] | 2.54 [1.23, 5.25] | 1.19 [0.58, 2.43] |
| <3 arrests | 1.0 | 1.0 | 1.0 |
| Age | | | |
| <30 | 0.30 [0.13, 0.70] | 0.13 [0.05, 0.38] | 3.19 [1.58, 6.45] |
| >30 | 1.0 | 1.0 | 1.0 |
| Parental separation | | | |
| Yes | 0.54 [0.28, 1.05] | 0.52 [0.28, 0.98] | 4.44 [1.30, 15.09] |
| No | 1.0 | 1.0 | 1.0 |

Note. OR = odds ratio; CI = confidence interval.

Table 3.Adjusted Multinomial Regression Assessing Correlates of Substance Use ($N= 318$).

| Variables | Cocaine/crack + Marijuana OR (95% Wald CI) | Cocaine/crack OR (95% Wald CI) | Marijuana OR (95% Wald CI) |
|---------------------|--|--------------------------------|----------------------------|
| Religiosity | | | |
| Yes | 0.32 [0.12, 0.82] | 0.41 [0.18, 0.92] | 0.58 [0.24, 1.41] |
| No | 1.0 | 1.0 | 1.0 |
| Race | | | |
| Other races | 0.46 [0.22, 0.99] | 0.50 [0.24, 1.03] | 0.28 [0.11, 0.70] |
| Black | 1.0 | 1.0 | 1.0 |
| Arrest history | | | |
| >4 arrests | 4.66 [1.81, 11.95] | 2.64 [1.22, 5.73] | 1.58 [0.73, 3.41] |
| <3 arrests | 1.0 | 1.0 | 1.0 |
| Age | | | |
| <30 | 0.37 [0.15, 0.90] | 0.16 [0.05, 0.46] | 2.84 [1.36, 6.00] |
| >31 | 1.0 | 1.0 | 1.0 |
| Parental separation | | | |
| Yes | 0.65 [0.31, 1.34] | 0.69 [0.35, 1.36] | 3.29 [0.93, 11.67] |
| No | 1.0 | 1.0 | 1.0 |

Note. OR = odds ratio; CI = confidence interval.