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## Male and Female Stimulant Use Among Rural Kentuckians: The Contribution of Spirituality and Religiosity

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### Abstract

This study describes gender-specific patterns of drug use among active rural stimulant users and examines religiosity and spirituality as factors that may be related to stimulant use among males and females. The study includes a sample of 225 active rural stimulant users from Kentucky who were recruited using respondent driven sampling and completed face-to-face interviews. Findings suggest gender specific patterns among active rural stimulant users, with females reporting more amphetamine use. In addition, bivariate findings indicate that there is an inverse relationship between spirituality, religiosity, and stimulant use (specifically methamphetamine and amphetamine use), particularly for males. However, when further examining this relationship in multivariate models controlling for age and race, few significant findings were noted for spirituality and religiosity in predicting gender-specific stimulant use patterns. These findings suggest that treatment interventions that incorporate spirituality and religiosity should not only be gender specific, but should also target clients differentially. Findings on the degree of reported

spirituality and religiosity also suggest that religious and/or faithbased organizations could be utilized for drug use interventions for rural stimulant users.

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## Introduction

Spirituality and religiosity have been consistently shown to be inversely related with substance use (e.g., Koenig, George, Meador, & Blazer, 1994; Staton, Webster, Hiller, Rostosky, & Leukefeld, 2003), but these factors have not been examined among rural drug users. Drug use in rural areas, particularly stimulant use and abuse, is an increasing public health and policy concern. For example, nationwide survey data indicate that there was a two-fold increase in the number of individuals aged 12 and older reporting methamphetamine use in the past month who met diagnostic criteria for stimulant abuse or dependence between 2002 to 2004 (Substance Abuse and Mental Health Services Administration [SAMSHA], 2005). The purpose of this study is to examine patterns of stimulant use among rural individuals and the possible contribution of religiosity and spirituality to the understanding of gender-specific patterns of stimulant use.

There has been growing attention in the research literature on rural stimulant use in the last several years, sparked in part by the increased use and production of methamphetamine in predominantly rural areas (National Center on Addiction and Substance Abuse at Columbia University [CASA], 2000; National Drug Intelligence Center, 2005). Methamphetamine (meth) manufacturing increased in rural areas when “cooking” recipes became more readily available on the internet and were easily circulated among the small insular social networks that are common in rural areas (Sexton, Carlton, Leukefeld, & Booth, 2006). Therefore, the use of meth is likely to be more common in rural areas, especially when compared to cocaine, because the manufacturing ingredients like anhydrous ammonia (a farm fertilizer) are more readily available (Anglin, Burke, Perrochet, Stamper, & Dawud-Noursi, 2000; Freese, Miotto, & Reback, 2002; Freese, Obert, Dickow, Cohen, & Lord, 2000; Herz, 2000; Office of National Drug Control Policy [ONDCP], 2005).

Although stimulant use has been commonly reported in rural states (Maxwell, 2004), there is limited data to compare rural drug use patterns by gender or to understand factors that may be associated with gender-specific patterns of use, including religiosity and spirituality. Religiosity, and the related construct of spirituality, are important to consider in drug use research and have roots in the evolution of addiction treatment (White, 1998). Research indicates that religiosity and spirituality can be important for recovery from alcohol and drug dependence (Carrio, Gifford, & Moos, 2007; Koenig et al., 1994). Religiosity has been operationalized as public behaviors that demonstrate religious meaning or religious significance such as affiliation with a particular religious organization and/or attending religious services (Cochran, Beeghley, & Bock, 1988; Gorsuch, 1995). Spirituality has been typically conceptualized as a private, individual level construct that is composed of an individual's perceptions, beliefs, and feelings about a higher power, universal spirit, or ultimate purpose (Green, Fullilove, & Fullilove, 1998; Watkins, 1997).

Research suggests that religiosity and church attendance are important in the establishment and maintenance of rural community social networks (Burton, 2007). In fact, the experience

of going to church is not only a religious activity, but it can also be an expectation in many rural communities. Church participation in rural areas often defines a person's sense of community identity and community attachment since membership is largely determined by class, ethnicity, and family relationships (Bell, 1992; Bultena, 1944; Liu, Ryan, Aurbach, & Besser, 1998). These relationships can be important for substance users since research has shown that associations with people involved in a church makes conformity to nonsubstance abusing norms more likely, potentially related to the lack of reinforcement of drug using behaviors (Bahr, Hawks, & Wang, 1993; Cochran et al., 1988; Gorsuch, 1995). While this inverse relationship between spirituality, religiosity, and substance use has also been reported among drug users (Staton et al., 2003), the question of whether this relationship exists among rural stimulant users and whether it differentially relates to gender-specific substance use patterns has not been addressed in the literature.

Examining gender-specific patterns of stimulant use is important among rural drug users in order to tailor treatment assessment approaches and interventions to males and females, which can enhance treatment outcomes. Gender-specific patterns of use have been identified with males being more likely to report alcohol problems and women reporting problems attributed to cocaine and/or crack use (Acharyya & Zhang, 2003; Arfken, Klein, di Menza, & Schuster, 2001; Wechsberg, Craddock, & Hubbard, 1998). However, while women in community treatment samples are generally more likely to report *crack* cocaine use compared to males in treatment, findings from studies examining gender differences in *powder* cocaine use are not as consistent, and less likely to be observed when the sample includes primarily cocaine users (Pelissier & Jones, 2005).

Most of the research on gender differences among community treatment and out-of-treatment samples has been conducted with urban drug users. Thus, there is need for additional research on gender differences among rural stimulant users, and a need for research on factors that may help us to understand gender-specific patterns of use, which may include spirituality and religiosity.

While an inverse relationship is expected between spirituality, religiosity, and stimulant use among rural individuals, the relationship is expected to be more robust for rural women. Although studies on spirituality and religiosity among rural individuals are limited, alcohol researchers have noted that spirituality is an important factor in maintaining sobriety among women (Rankin, 2000), and spirituality is significantly correlated with reduced stress for women in recovery but not for men (Poage, Ketzenberger, & Olson, 2004). Women, as compared to men, are more likely to report increased hope, enhanced spiritual well-being, and are more likely to use techniques such as prayer to cope with chronic illness (Coleman et al., 2006; Hendricks-Ferguson, 2006). Spirituality and religiosity have also been used as important coping mechanisms for rural women living in poverty, and have been related to perceptions of wellness (Gill, 2005). These studies suggest that women in recovery may turn to religion and/or spirituality in times of stress more than men. However, it is not known how the relationship between religiosity and/or spirituality and substance use patterns may differ for rural male and female stimulant users.

This study adds to the limited literature on rural substance users by identifying gender-specific patterns of use, and it includes a focus on religiosity and spirituality as factors that may be related to patterns of stimulant use among males and females. The specific research objectives include (1) identifying gender-specific patterns of drug use among male and female active stimulant users, (b) examining bivariate correlations between spirituality, religiosity, and stimulant use separately for males and females, and (c) examining the extent to which spirituality and religiosity independently predict variance in male and female stimulant use patterns. It is expected that gender-specific patterns of use identified in other studies of urban drug users will also be found in this study. It is also expected that there will be an inverse relationship between spirituality, religiosity, and substance use across gender, but females who report increased spirituality and religiosity will also report significantly less drug use.

## Method

Data are derived from a natural history project of stimulant users in three rural counties (Edmonson, Logan, and Barren) in western Kentucky. Each of these counties had a total population of less than 60,000 people, included small communities with populations no greater than 20,000 people, and were similar in terms of race-ethnicity and socioeconomic status (U.S. Census Bureau, 2000). Specifically, African Americans represented about 5% of the three western Kentucky counties and about 20% of households had incomes under \$10,000.

## Participants

Participants ( $n=225$ ) were eligible for this study if they (1) reported recent (past 30 day) active illicit stimulant use, (2) were over the age of 18, (3) did not report recent formal substance abuse treatment (past 30 days), (4) currently lived in one of the three rural counties, and (5) provided consent to participate. Participants were recruited using respondent driven sampling (RDS), a variation of chain referral or “snowball” sampling which has been successful in recruiting samples of hidden populations, including active substance users in rural areas (Heckathorn, 1997, 2002; Wang et al., 2004). The basic premise of the RDS method is that it provides the opportunity to reach targeted groups through the recruitment of study “seeds”, who were identified in this study through ethnographic methods such as reaching out to community members familiar with the drug culture, “hanging out” in bars and at county fairs, and speaking with local treatment providers (Draus, Siegal, Carlson, Falck, & Wang, 2005). Study seeds were then asked to recruit eligible friends and acquaintances, so that the targeted sample “snowballed.” Additional information about RDS procedures used in this study is available elsewhere (Draus et al., 2005; Falck, Siegal, Wang, Carlson, & Draus, 2005; Siegal, Draus, Carlson, Falck, & Wang, 2006).

## Procedure

The study was approved by the University of Kentucky Institutional Review Board, and a Certificate of Confidentiality was obtained from the National Institute on Drug Abuse. Research staff initially contacted potential participants (seeds) who met study criteria to

inform them about the study. Study seeds, after providing informed consent and completing the baseline interview, were asked to give referral coupons to no more than three other active stimulant users who might wish to participate in the study. If a referral produced a contact, each seed received \$10 per contact for up to three contacts. Interviews were completed with 225 Kentucky participants (including seeds) between 2002 and 2004 using a computer assisted personal interview (CAPI). Respondents who completed the two- to three-hour interview were paid \$50 for their participation. Additional information on the study methodology is provided in Booth, Leukefeld, Falck, Wang, and Carlson (2006).

## Measures

Demographic characteristics, religiosity, spirituality, and substance use measures were used for the current study.

**Demographic characteristics**—Five demographic variables are used to profile the sample: age (continuous variable – number of years), race (White vs. non-White), years of education (continuous variable – number of years), employment (working full time or part time vs. not working) and marital status (single/never married vs. other).

**Religiosity**—Three separate questions assessing unique aspects of religiosity were analyzed: intensity of religious feelings (Adlaf & Smart, 1985), religious importance (Mann, McKeown, Bacon, Vesselinov, & Bush, 2007) and church attendance (Johnson, Larson, Li, & Jang, 2000). Because each of these items measures a unique dimension of religiosity, each was included as a separate variable in the analysis rather than being combined into a composite religiosity score of religiosity. Specifically, Likert-type responses to the following questions were used to assess religiosity: (a) *feel religious*: How religious do you feel you are? (five point response ranging from “not at all” to “very”), (b) *religious importance*: How important is religion in your life? (five point response ranging from “not at all” to “very”), and (c) *church attendance*: How often do you go to church? (three point response ranging from “do not attend” to “at least monthly”).

**Spirituality**—Spirituality was defined in this analysis as an individual’s perceived connectedness with a higher power (Burkhardt, 1989). Connectedness was assessed along a five point Likert scale from “no belief in a higher power” to “extremely connected with a higher power.”

**Substance use**—Because this sample was recruited as active stimulant users, substance use measures included lifetime use, use during the past six months, and use during the past 30 days for crack cocaine, powder cocaine, nonpharmaceutical methamphetamine, and other amphetamines. Multiple substance use was also examined as self-reported use of more than one substance in the same day. Lifetime use of each of the four stimulants was measured using a dichotomous variable (ever used, 0-no, 1-yes), past six month use was measured using a categorical variable to assess frequency (0-did not use; 1-used monthly; 2-used at least weekly). Past 30 day use was measured by the actual number of days the participants reported use. In addition, two variables were computed in SPSS to assess use across types of

substances: number of days used any stimulant in the past 30 days and highest frequency of use of any stimulant in the past six months.

### Analytic Strategy

To meet the objectives for this study, a series of bivariate and multivariate analyses were performed. For objective 1, t-tests and chi-square analyses were used to explore gender specific patterns of stimulant use among male and female participants. For objective 2, bivariate correlation analyses were conducted to explore the relationship between spirituality, religiosity, and stimulant use, stratified by gender. Finally, for study objective 3, Ordinary least squares (OLS) regression models were used to examine the extent to which spirituality and religiosity independently predict variance in male and female stimulant use patterns. Separate multivariate models were run for males and females for each of the four stimulant use categories. Variables in the multivariate model included current measures of religiosity and spirituality as predictors of past 30 day stimulant use. Age and race were entered as control variables based on previous literature that suggests they may be differentially related to spirituality (Haight, 1998; Johnson et al., 2000; Koenig, 1995; Sloan, Bagiella, & Powell, 1999). Only models that include significant associations between religiosity, spirituality, and stimulant use variables will be reported in tabular form. Potential multicollinearity between variables was assessed with variance inflation factors, none of which exceeded the recommended critical value of four (Fisher & Mason, 1981; Menard, 1997).

## Results

### Demographics

Demographic variables were examined to profile the sample of rural stimulant users. The average age of the sample was 32.2 ( $SD=10.4$ , Range 18–58); more than half (57.3%) were male, and the majority (81.8%) were White. A small percentage of participants (15.6%) reported being married or living as married. The average number of years of education was 11.4 ( $SD=1.9$ , Range 4–16), and 42.2% of the sample reported working full or part time in the 30 days prior to the interview.

### Gender-Specific Patterns of Substance Use

As shown in Table 1, gender-specific patterns of use were observed for lifetime substance use, with a higher percentage of men reporting powder cocaine use [ $\chi^2(1, N=225)=6.9, p<.01$ ] compared to women. There were no significant differences between males and females on lifetime use of crack cocaine, methamphetamines, or amphetamines.

There were also gender-specific patterns of use noted for frequency of substance use in the past six months and number of days of use in the past 30 days. Specifically, a higher percentage of females reported using amphetamines [ $\chi^2(2, N=225)=8.0, p<.05$ ] at least weekly in the past six months compared to males. In addition, females reported using amphetamines [ $t(223)=2.84, p<.001$ ] on more days in the past 30 days compared to males.



Variables were computed in SPSS to assess frequency of use of any stimulant in the past 6 months and number of days of stimulant use in the past 30 days. Overall, 87.1% of the sample reported using stimulants at least weekly during the past six months, with a higher percentage of males reporting weekly use (91.5%) compared to females [(81.3%),  $\chi^2(1, N=225)=5.1, p<.05$ ], Respondents also reported an average of 18.5 days of stimulant use in the past 30 days. These findings did not differ by gender.

### **Spirituality, Religiosity, and Stimulant Use**

As shown in Table 1, there were no significant differences on any of the measures of spirituality and religiosity by gender. The majority of participants in this sample reported being at least somewhat religious (85%), considered religion at least somewhat important (86%), and reported being somewhat connected to a higher power (93%). In addition, about one third of the sample (31%) reported attending church at least monthly.

Bivariate relationships between spirituality, religiosity, and stimulant use were examined separately for males and females. For females, the measure of religious importance was significantly and positively correlated with frequency of crack cocaine use in the past six months and with the number of days of crack use in the past 30 days (see Table 2). Conversely, religious importance was significantly and negatively correlated with both the frequency of methamphetamine use in the past six months and number of days of meth use in the past 30 days. Also, females who attended church more frequently used amphetamines on fewer days in the past month. Females who reported more connectedness with a higher power reported less frequency of amphetamine use in the past six months and fewer days of amphetamine use in the past month. Connectedness was also significantly and negatively correlated with overall number of days of stimulant use in the past 30 days for females.

A number of significant relationships between measures of spirituality and religiosity and stimulant use were found for males (see Table 3). Specifically, males who reported feeling more religious were significantly less likely to frequently use methamphetamines in the past six months and reported fewer days of methamphetamine and amphetamine use in the past month. Religious feeling was also negatively correlated with overall frequency of stimulant use in the past six months. There was a positive relationship between feeling more religious and increased frequency of crack use among males in the past six months. Religious importance was negatively and significantly correlated with several of the substance use variables. The only exception was a positive correlation with crack use. In addition, males who reported more frequent church attendance reported decreased frequency of methamphetamine use in the past six months. Finally, connectedness with a higher power was negatively correlated with the frequency of use of several drugs during the past six months as well as the number of days of amphetamine and methamphetamine use in the past 30 days. Males who reported increased connectedness with a higher power also reported fewer days of any stimulant use in the past six months.

### **Multivariate Models**

Ordinary least squares (OLS) regression models were used to examine the extent to which spirituality and religiosity predict variance in male and female stimulant use patterns. Each

multivariate model controlled for age and race and examined the independent contributions of three religiosity and one spirituality variables as predictors of past 30 day stimulant use. Individual regression models for crack use, amphetamine use, methamphetamine use, and multiple substance use were examined for males and for females.

As shown in Table 4, only two models (amphetamine use and multiple substance use) had any significant spirituality and religiosity predictors at the  $p < .05$  level when controlling for age and race. In model 1, with the sample of male rural stimulant users ( $n=129$ ), only one variable was a significant predictor of the number of days amphetamines were used in the past 30 days. Specifically, the more connected male rural stimulant users were to a higher power, the fewer days of amphetamine use were reported. Overall, the model explained 7% of the variance in amphetamine use among rural male stimulant users. In model 1, with the female sample of rural stimulant users ( $n=96$ ), connectedness was also significant, although only marginally so. In addition, attending church was marginally protective against the number of days amphetamines were used in the past 30 days for females. Model 1 explained about 7% of the variance in amphetamine use among males, but explained 11% of the variance in amphetamine use among females.

Model 2 in Table 4 examines the predictors of the number of days multiple substances were used in the past 30 days for both males and females. In the sample of male rural stimulant users, none of the variables were significant. In model 2, with the sample of female rural stimulant users, older women were more likely to report more days of multiple substance use. In addition, having religious feelings was a significant positive predictor of multiple substance use in the past 30 days, while being connected to a higher power was protective against using multiple substances. Overall, model 2 explained about the same amount of variance in the number of days multiple substances were used in the past 30 days for both the male ( $R^2=.103$ ) and female ( $R^2=.117$ ) samples.

## Discussion

This study builds on a growing body of literature on rural stimulant use and examines the contribution of spirituality and religiosity to gender-specific patterns of stimulant use among active users living in rural areas. Spirituality and religiosity have been shown to be inversely related with substance use (e.g., Koenig et al., 1994; Staton et al., 2003), but these factors have not been examined among rural drug users. The purpose of this study was to examine patterns of stimulant use among rural males and females, and the possible association between stimulant use, religiosity, and spirituality by gender. Examining gender-specific patterns of stimulant use and the role of spirituality and religiosity is a contribution to the literature given the importance of religiosity and spirituality in rural areas.

The first objective of the current study was to identify gender-specific patterns of stimulant use among male and female active users. It was expected that findings reported in other studies (typically focused on urban community treatment samples) would also be observed in rural drug users, particularly female crack cocaine users. This hypothesis was not supported because there were no differences between males and females for crack cocaine use. However, a higher percentage of males did report lifetime use of powder cocaine



compared to females. In contrast, females reported more frequent amphetamine use in the previous six months and in the past 30 days.

The finding that females reported more recent amphetamine use has also been reported in other studies (Compton et al., 2000). However, more males reported a history of powder cocaine use, but there were no gender differences in lifetime or recent use of crack cocaine. While this was not expected, this finding is supported by others who suggest there are less distinguishable gender differences in trends of crack use when the sample includes primarily cocaine users (Pelissier & Jones, 2005). Therefore, because this analysis included active stimulant users, it is possible that the lack of gender-specific patterns of use may be partially explained by substances of choice for the targeted sample of active stimulant users.

It is also possible that the few differences between males and females may be associated with the availability of crack cocaine in rural areas. The fact that a higher percentage of both males and females in this sample reported using methamphetamines rather than crack or powder cocaine may be an indicator that women in this study had less opportunity to use cocaine than women in urban areas. Therefore, the relationship between the availability of specific types of stimulants in rural areas and stimulant use should be examined by gender in future research.

Although not a specific objective of the study, it should be noted that the majority of participants in this sample reported a high degree of religiosity and spirituality. This finding was somewhat surprising among this sample of active stimulant users given the expected inverse trends in spirituality, religiosity, and substance use documented in the literature (e.g., Koenig et al., 1994; Staton et al., 2003). While further research is warranted, the degree of religiosity and spirituality may be uniquely associated with the culture of the rural areas targeted in this study. Studies have shown that there is something unique about religious affiliation in rural communities which can define a person's sense of community identity and community attachment (Bell, 1992; Bultena, 1944; Liu et al., 1998). The finding related to spirituality and religiosity among this sample of rural stimulant users suggests support for the use of religious and/or faith based organizations as potential sites and resources for interventions for out-of-treatment drug users in rural areas.

The second objective of this study was to examine bivariate correlations between spirituality, religiosity, and stimulant use by gender. It was expected that there would be an inverse relationship between spirituality, religiosity, and stimulant use. This hypothesis was supported, particularly for males. Specifically, perceived importance of religion was negatively and significantly related to most of the substances examined, both for frequency of use and days of use in the past 30 days.

The inverse relationship between spirituality, religiosity, and substance use was expected based on other research. For example, previous studies have shown that current drug and alcohol use has an inverse relationship with spirituality (Staton et al., 2003), and recovery can be enhanced by having a deeper sense of spirituality (Carroll, 1993; Watkins, 1997). However, differences in the relationship between spirituality, religiosity, and substance use among rural males and females have received limited research attention. Based on research

with women in recovery, it was expected that higher spirituality and/or religiosity would be significantly correlated with less drug use among women compared to men. However, the bivariate analysis indicated more significant findings for males. This finding may suggest that spirituality and/or religiosity have more “influence” on drug using behavior for rural male stimulant users than females. The one exception to these findings was the positive correlation between crack cocaine use and measures of religiosity and spirituality, which should be examined in future research.

In order to further understand the complex relationship between spirituality, religiosity, and stimulant use by gender, the third objective of this study examined the extent to which spirituality and religiosity independently predicted variance in male and female stimulant use patterns. Overall, findings from the multivariate models suggest that religiosity and spirituality variables did not account for a high degree of variance in any of the measures of stimulant use. Only one significant predictor (connectedness) emerged in one male stimulant use model (amphetamine use in the past 30 days), and it was marginally related to amphetamine use and multiple substance use for females. Only one predictor (religious feeling) emerged as significant in the female models (multiple substance use). In addition, church attendance was marginally significant for amphetamine use among females. It is not clear why these particular measures of religiosity and spirituality emerged as significant predictors for these particular substances, but the lack of significance overall of the variables in the other models raises questions about other potential variables of influence. In other words, findings from the multivariate models suggest that there may be something meaningful about religion and spirituality among stimulant users that is not directly related to gender or their frequency of drug use, which should be the focus of future research on rural stimulant users.

Several study limitations should be noted. First, study participants were not a random sample of drug users in each county. However, participants were selected using RDS, which has been found to provide representative sampling of community drug abusers (Heckathorn, 2002; Wang et al., 2004). Second, this study used self-reported data, which can be influenced by recall and truthfulness. Participants were not asked to provide a urine sample to validate self-reported drug use. While self-report data have been shown to be valid when compared to urinalysis (Del Boca & Noll, 2000; Rutherford, Cacciola, Alterman, McKay, & Cook, 2000), it is a limitation. It is also possible that the sampling strategy of targeting active stimulant users might compromise drug use variance. This limitation should be considered in future studies focused on rural spirituality, religiosity, and stimulant use. Finally, this study utilizes cross-sectional data which may not fully capture changes in the relationship between spirituality, religiosity, and stimulant use over time. Future research should look at how this relationship changes over time in a longitudinal model.

Despite these limitations, findings from this study have important implications for further understanding spirituality, religiosity, and gender-specific patterns of stimulant use. First, findings from this study suggest rural females report more amphetamine use. However, there were no differences between males and females in crack cocaine use, which is similar to other studies of cocaine users but different from substance users entering community treatment (Arfken et al., 2001; Wechsberg et al., 1998). Second, findings from this study

suggest there is an inverse relationship between spirituality, religiosity, and stimulant use, particularly among males. However, when this relationship was examined using multivariate models controlling for age and race, significant predictors of stimulant use were limited.

Findings from this study also have implications for future research. For example, future studies on rural stimulant users should incorporate a focus on race because research has shown that spirituality is particularly salient among African American communities (Brome, Owens, Allen, & Vevaina, 2000). One study of rural drug users indicated a “Christian upbringing” was important to maintain despite drug use, a reliance on God was important for regaining and/or maintaining sobriety, and practicing private expressions of religiosity (prayer, Bible reading) rather than public expressions (church attendance) was more comfortable for African Americans (Brown, 2006). Because race could be one of the factors underlying the relationship between gender, religiosity and spirituality, and stimulant use, future research should examine this association with attention to possible racial/ethnic differences.

These findings imply that religion and spirituality may be important areas to consider when designing treatment interventions for rural substance users. Future research is warranted to better understand the relationship between spirituality, religiosity, and stimulant use by gender among active rural stimulant users, but these findings suggest that treatment interventions which incorporate spirituality and religiosity should be gender-specific and should be considered for inclusion in programming in religious and/or faith based organizations in rural communities.

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**Table 1**

## Gender Differences in Substance Use, Spirituality, and Religiosity

	<b>Males (n=129)</b>	<b>Females (n=96)</b>	<b>Total sample (n=225)</b>
<i>Percent reporting lifetime use</i>			
Crack	74.4%	74.0%	74.2%
Cocaine **	89.9%	77.1%	84.4%
Methamphetamine	74.4%	77.1%	75.6%
Amphetamine	48.1%	54.2%	50.7%
<i>Percent reporting at least weekly use in the past six months</i>			
Crack	18.6%	27.1%	22.2%
Cocaine	14.0%	12.5%	13.3%
Methamphetamine	36.4%	32.3%	34.7%
Amphetamine *	2.3%	11.5%	6.2%
<i>Average number of days used in the past 30 – M(SD)</i>			
Crack	2.8 (6.0)	3.5 (6.4)	3.1 (6.2)
Cocaine	1.5 (3.4)	1.3 (3.5)	1.4 (3.5)
Methamphetamine	5.5 (8.2)	4.8 (7.0)	5.2 (7.7)
Amphetamine ***	0.3 (1.6)	1.7 (5.3)	0.9 (3.7)
Multiple substances	9.8 (9.1)	8.9 (9.9)	9.5 (9.4)
Any drug use	18.1 (10.2)	17.4 (10.5)	17.8 (10.3)
<i>Any stimulant use</i>			
Number of days of any stimulant use in the past 30	19.3 (9.8)	17.5 (10.7)	18.5 (10.2)
Used stimulants at least weekly in past six months *	91.5%	81.3%	87.1%
<i>Spirituality and religiosity</i>			
Consider self to be at least somewhat religious	82.9%	87.5%	84.9%
Consider religion at least somewhat important	82.2%	91.7%	86.2%
Attended church monthly	29.5%	33.3%	31.1%
Reporting at least some connection to a higher power	92.2%	94.8%	93.3%

Note:

\*  
 $p < .05$ \*\*  
 $p < .01$ \*\*\*  
 $p < .001$



**Table 2**

Bivariate Correlations Between Spirituality, Religiosity, and Substance Use for Females (n=96)

	How religious do you feel you are?	How important is religion in your life?	How often do you go to church?	How connected are you with a higher power?
<i>Frequency of use in the past six months</i>				
Powder cocaine	.139	.108	.088	.110
Crack cocaine	.085	.300**	.112	.054
Methamphetamine	-.018	-.244*	-.181	-.045
Amphetamine	-.143	-.171	-.155	-.269**
<i>Days of use in the past 30 days</i>				
Powder cocaine	.068	.087	.036	.040
Crack cocaine	-.020	.233*	.040	-.050
Methamphetamine	-.018	-.217*	-.117	-.047
Amphetamine	-.144	-.178	-.230*	-.247*
Multiple substances	.136	.004	-.134	-.085
<i>Any stimulant use</i>				
Number of days of any stimulant use in the past 30	.064	-.037	-.046	-.211*
Frequency of use of any substance in past six months	-.011	.012	-.038	-.182

Note:

\*  $p < .05$

\*\*  $p < .01$

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**Table 3**

Bivariate Correlations Between Spirituality, Religiosity, and Substance Use for Males (n=129)

	How religious do you feel you are?	How important is religion in your life?	How often do you go to church?	How connected are you wife a higher power?
<i>Frequency of stimulant use in the past six months</i>				
Powder cocaine	-.001	-.065	-.095	.022
Crack cocaine	.190*	.205*	.128	.217*
Methamphetamine	-.326***	-.318***	-.194*	-.319***
Amphetamine	-.161	-.189*	-.021	-.173*
<i>Days of stimulant use in the past 30 days</i>				
Powder cocaine	-.073	-.072	.023	-.072
Crack cocaine	.139	.234**	.056	.132
Methamphetamine	-.279**	-.309***	-.112	-.260**
Amphetamine	-.193*	-.194*	-.064	-.269**
Multiple substances	-.292**	-.265**	-.048	-.234**
<i>Any stimulant use</i>				
Number of days of any stimulant use in the past 30	-.158	-.185*	-.134	-.154
Frequency of use of any stimulant in past six months	-.188*	-.216*	-.162	-.212*

Note:

\*  $P < .05$ \*\*  $P < .01$ \*\*\*  $P < .001$

**Table 4**

## Independent Predictors of Stimulant Use by Gender

	Males		Females	
	$\beta$	<i>p</i>	<b>B</b>	<i>p</i>
Model 1: <i>Amphetamine use past 30 days</i>				
Age	-.045	.635	.104	.321
Race	-.060	.556	-.074	.492
Religious feeling	-.013	.932	.045	.730
Religious importance	.005	.977	-.120	.337
Church attendance	.003	.977	-.188 <sup>†</sup>	.084
Connectedness	-.278 <sup>*</sup>	.041	-.221 <sup>†</sup>	.068
<i>R</i> <sup>2</sup>	.076		.115	
Model 2: <i>Multiple substance use past 30 days</i>				
Age	-.095	.317	.198 <sup>†</sup>	.061
Race	.059	.558	-.073	.495
Religious Feeling	-.192	.213	.290 <sup>*</sup>	.029
Religious Importance	-.030	.858	-.097	.437
Church Attendance	.023	.798	-.155	.153
Connectedness	-.057	.668	-.223 <sup>†</sup>	.065
<i>R</i> <sup>2</sup>	.103		.117	

\* Statistical significance noted at  $p < .05$

<sup>†</sup> Marginal statistical significance noted at  $p < .10$