SOCIAL LOCATIONS, RELIGIOSITY, AND THE CO-OCCURRENCE OF 
SUBSTANCE ABUSE AND PSYCHOLOGICAL DISTRESS

by

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ABSTRACT

With data from the 2007 National Survey on Drug Use and Health, the study examined effects of social locations upon the co-occurrence of substance abuse and psychological distress. Also explored was whether and how religiosity mediated the relationship between these social locations and co-occurring behaviors. Religiosity was used as an indicator of the four bonding elements of the social control theory, and was theorized to both neutralize stress and provide support among disadvantaged individuals. The general results indicate that men, White individuals, and those living in poverty were more likely to exhibit co-occurring drug abuse and psychological distress. In addition, co-occurring behaviors were less likely to be found among married individuals and those reporting higher levels of education. Furthermore, those individuals with higher levels of religiosity were generally less likely to exhibit co-occurring behaviors. Policy implications and further research needs are discussed.
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LIST OF TABLES

1. Descriptive Statistics for All Variables ................................................................. 42

2. Correlations of All Included Variables for Respondents ........................................ 44

3. Determination of the Log Odds of Drug Abuse and Psychological Distress .............. 45
LIST OF FIGURES

1. Stress-Social Support Model Explaining Co-occurring Drug Abuse and Psychological Distress……………………………………………………………………………………… 16
CHAPTER 1
INTRODUCTION

Quality of life of Americans is an issue of much concern to government agencies and American citizens alike (DHHS, 2001). Quality of life is comprised of numerous factors, including the status of an individual’s physical, mental, and emotional health, along with the ability to successfully function in a given social setting (Roth, Lowery, Davis, & Wilkins, 2005). Quality of life can often be expressed through an individual’s self-reported satisfaction with, happiness with, or trust in the society in which he or she resides (Hughes & Thomas, 1998). However, when quality of life is linked to such aspects as mental health (Keyes, 2007) and other physical health issues (Gallicchio, Hoffman, & Helzlsouer, 2007), and socially disadvantaged groups of people are at greater risk for mental health problems (Aneshensel, Rutter, & Lachenbruch, 1991), it becomes clear that the quality of life for socially disadvantaged individuals is a matter of concern.

Socially disadvantaged groups include minorities, individuals with low socioeconomic statuses, and women (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Aneshensel, 2005) as it is thought that all of these groups face resource and power deprivation due to the social organization of American society (Aneshensel, Rutter, & Lachenbruch, 1991). These socially disadvantaged groups often suffer from hopelessness and alienation (Lo, 2003), as well as frustration and disappointment (Rothman, 2005), which can lead to disillusionment among these groups as a product of the American social stratification system (Rothman, 2005). As a result of these conditions and the resulting strain placed upon them, these disadvantaged groups
are thought to report higher levels of drug abuse and mental illness in the form of serious psychological distress (SPD) (Shih & Simon, 2008). Drug abuse and mental health are serious issues in the United States (Anthony, Warner, & Kessler, 1994; Soni, 2009; Rice, Kelman, & Miller, 1991). The prevalence of drug abuse (SAMHSA, 2009) and mental illness (Pratt & Brody, 2008; Pratt, Dey, & Cohen, 2007) individually is high, but the high rates of co-occurring substance use and mental health disorders (NIDA, 2007, 2009), and the resulting individual and societal costs (Caulkins, 2005; NIDA, 2008; Soni, 2009), illustrate that an already serious issue can and will become much worse if certain key elements, such as social locations, exacerbate them.

Every year in the United States, approximately 16 million Americans spend $60 billion on illicit drugs (Caulkins, 2005). Approximately 47% of all Americans age 12 and over reported lifetime illicit drug use in 2008, while 82.2% reported lifetime alcohol use and 69.6% reported lifetime use of tobacco products (SAMHSA, 2009). Of the 47% who reported lifetime use of illicit drugs, the majority (51.3%) was male, ages 18 to 25 (56.6%) and ages 26 and older (48%) (SAMHSA, 2009). The National Institute on Drug Abuse (2008) states that the annual cost of substance abuse by Americans in the United States is over half a trillion dollars. Costs of drug use can be determined and described using numerous methods, including finding the direct economic costs of drug use such as medical bills, calculating indirect costs resulting from loss of productivity and other sources, and by analyzing psychosocial costs (Hodgson & Meiners, 1982; Mark, Woody, Juday & Herbert, 2001). Harwood, Fountain and Livermore (1999) indicate that in addition to these costs, the costs incurred while attempting to stop and treat drug abuse should be considered as well. Thus, drug use and abuse are serious, and seriously expensive, issues for the United States.
According to the National Institute of Mental Health (NIMH), approximately 26%, or 57 million, of Americans age 18 or older suffers from a mental disorder in a given year (2009). Furthermore, 45% of these 57 million American adults actually suffer from two or more, or co-occurring, diagnosable mental disorders, and 6% suffer from serious mental illnesses (NIMH, 2009). Soni (2009) states that mental disorders are a costly problem in the United States, as 36.2 million people reported mental health expenditures in 2006. The National Health and Nutrition Exam Survey (NHANES) 2005-2006 reported that approximately 1 of 12 Americans ages 12 and over reported depressive episodes in a two week period (Pratt & Brody, 2008). Serious psychological distress, also called SPD, is a psychiatric term encompassing numerous aspects of an individual’s mental, emotional, and physical states, including restlessness, nervousness, hopelessness, sadness or depression, energy levels, and feeling of worthlessness (Pratt, Dey, & Cohen, 2007). From 2001 to 2004, the prevalence rate of serious psychological distress among American adults not in prisons or mental hospitals was 3.1% (Pratt, Dey, & Cohen, 2007), indicating both the seriousness and the prevalence of psychological distress in the general population.

Rice, Kelman and Miller (1991) state that drug abuse and mental illness are major sources of illness and early death in the United States. Comorbidity, also known as a dual diagnosis or the occurrence of both a substance abuse disorder and a mental disorder in the same person, is disturbingly common (NIDA, 2007, 2009). The National Institute on Drug Abuse (2007) found that six out of ten people suffering from a substance abuse disorder also suffer from a mental disorder. Those individuals diagnosed with either a substance abuse or mental disorder are over twice as likely to be diagnosed with a co-occurring disorder when compared to the general population (NIDA, 2009). Furthermore, from 1995 to 2001 the proportion of admissions
to treatment programs for co-occurring disorders jumped from 12 to 16% (Office of Applied Statistics, 2004).

However, despite this growing occurrence of co-occurring disorders in the United States, both government and private research indicates that treatment for co-occurring disorders is either ineffective (Rosenberg, 2008), not available (NIDA, 2007) or not sought by many individuals (Kessler et al., 1996). The disparity between the number of individuals reporting co-occurring disorders and the number of individuals who seek treatment has been attributed to several factors including being part of a disadvantaged group, such as being a racial minority, or having little to no income and no health insurance (Wang et al., 2005). This discrepancy between the prevalence of and treatment for these disorders can have serious risks and costs for American society, as noted by Rosenberg (2008, p.1): “The cost of not treating or ineffectively treating these individuals is untold in terms of human misery, lost productivity, and costs to the taxpayer including the cost of incarceration.” Keyes (2007) reported that those adults who report a relatively high quality of life and mental health also report less co-occurring behaviors. However, Keyes is quick to point out that less than one-fifth of the adult population in America indicates a high quality of life, and thus a healthy mental state.

Social location factors are major predictors of and influencers on drug abuse and psychological distress. Gender, race, and socioeconomic status can all be considered social location factors, as each of these categories revolve around issues of equality, power and resource deprivation, and the resultant stress from being disadvantaged. Demographically, women are more likely to exhibit anxiety disorders (NIDA, 2007; Fusilier, Ganster, & Mayes, 1986; Jang & Johnson, 2005; Dalgard et al., 2006) including depression, when reporting co-occurring disorders (NIDA, 2007), than are men, who are more likely to exhibit such mental
disorders as antisocial personality disorder (APD) (NIDA, 2007). In addition, though whites report higher levels of comorbidity than minorities, minorities such as African Americans and American Indians report very high numbers of serious mental illness and comorbidity in relation to the percent of the population their individual minority groups represent (Park, 2006). In a review of comorbidity research, Dickey and Azeni (1996) found that over 20% of the homeless population in the United States exhibited both mental illness and substance use disorders. This has serious implications for social inequality research, as those in lower socioeconomic statuses are less likely to afford treatment for, and thus report, co-occurring behaviors. These lower socioeconomic statuses are therefore the groups in which co-occurring behaviors are more likely to occur (Dickey & Azeni, 1996). The structural disadvantages present in the American social system are damaging to the mental health of these individuals due to the stress they encounter (Aneshensel, 1992), and promote risky behavior such as substance abuse (Dickey & Azeni, 1996). However, individuals in these lower social statuses often develop ways to cope with these social disadvantages (Aneshensel, 1992), including seeking social support through institutions such as religion to reduce the negative effects of this stratification system. Thus, religion is an important yet understudied phenomenon which can reduce the stress and other negative impacts resulting from the social stratification system.

Research suggests that a high level of religiosity is fairly common among Americans (Edlund et al., 2009). Religiosity is defined as a concept comprised of dimensions, including believing, feeling and doing, as well as modes, including personal and institutional modes (Cornwall et al., 1986). However, religiosity is thought to be more complex than the aforementioned three dimensions and two modes, and researchers have suggested new and improved models of religiosity including up to ten dimensions of religiosity (Mueller, 1980;
Cornwall, 1986; Kendler et al., 2003; Vaillancourt, 2008) which might better analyze not only religion, but the role of religion in regards to such aspects as drug abuse and mental health in the United States (Edlund et al., 2009). These ten dimensions include Glock’s (1962) original five dimensions of belief, experience, practice, theology (or knowledge) and ethics (or consequences), as well as five new dimensions including identity (intimate involvement), statuses (social roles), affiliation (adherence), community (congregation and collectivity), and deity (relation to the divine) (Vaillancourt, 2008).

The relationship between religiosity and co-occurring behaviors is greatly understudied, possibly due to the complex nature of religion and the fact that there is no standardized measure of religiosity in research (Kendler et al., 2003). Despite these shortcomings, a significant association between religiosity and substance abuse has been discovered, with the majority of religiosity measures predicting less risk for alcohol and substance use disorders the higher the rate of religiosity reported (Koenig, 2001; Kendler et al., 2003; Edlund et al., 2009). Furthermore, in regards to religiosity and psychological distress, Sowell and associates (2000) determined that individuals reporting higher levels of religiosity also indicated lower levels of psychological distress than do those individuals who report lower levels of religiosity. Overall, research suggests that religiosity encourages healthier lifestyles (Weiss, Chitwood, & Sanchez, 2008; Ellison, 1993; Sherkat & Ellison, 1999), as well as higher reported levels of happiness and morale (Koenig, 2001).

This study focuses on drug abuse and psychological distress as co-occurring phenomena among non-institutionalized American citizens utilizing a combined stress-social support theory. This focus on psychological distress instead of other, more serious mental illnesses (as psychological distress is a nonspecific measure of mental illness), allows for an analysis of the
prevalence of less serious mental health issues, and thus hopefully provides more detailed results as to how prevalent mental health issues really are in American society. As the socially disadvantaged are thought to experience health problems more so than those individuals with power and resources, this study is organized to specifically address the etiology of these health problems in the form of co-occurring drug abuse and psychological distress with the aim of proposing future policy implications regarding this issue. As the prevalence of co-occurring behaviors and religiosity in relation to social location in American society have all been established, it is the goal of this study to link these concepts, first theoretically and then with results from the 2007 National Survey on Drug Abuse and Health, to analyze how the intersection of social organization, co-occurring behaviors, and social institutions such as religion impacts American citizens. In this study, religiosity is included as a possible mediator between social locations and co-occurring behaviors.

Significance

The present study is significant in two different aspects. The first aspect is the stress-social support theory that is used to analyze the relationship between social locations and co-occurring drug abuse and psychological distress, as this is the first study that the authors are aware of that applies this theory to the investigation of co-occurring behaviors. Essentially, this model states that the social arrangements in American society create disadvantaged individuals who lack the resources and social support to adequately cope with the stress from status differences. The second significant aspect of the current study involves the use of religiosity as a mediator of co-occurring behaviors, as it is hypothesized that religiosity serves as a social support factor through which a disadvantaged individual obtains the resources and support necessary to successfully cope with stress resulting from detrimental and prejudicial conditions.
CHAPTER 2
LITERATURE REVIEW

Co-occurring drug abuse and mental illness is prevalent in the United States (NIDA, 2007), as is the more specific instance of co-occurring drug abuse and psychological distress (Psychiatric Services, 2006; Rosenberg, 2008; Kessler et al., 1996). In 2004, 4.6 million adults reported co-occurring substance use and serious psychological distress, but only 6 percent reported receiving treatment for these health problems (SAMHSA, 2005, as cited in Rosenberg, 2008). This number rose in 2005, with 5.2 million adults age 18 or over reporting co-occurring substance use and serious psychological distress (Psychiatric Services, 2006). According to the National Institute on Drug Abuse (NIDA), co-occurring disorders can occur from one of three scenarios: mental illness resulting from drug abuse, drug abuse resulting from mental illness, or drug abuse and mental illness resulting together from common risk factors (NIDA, 2007). Oftentimes, one mental health problem results from the other, as with psychological distress that occurs from frequent and severe drug abuse (Dennis & Key, 1995), or drug abuse that results from mental illness (RachBeisel, Scott, & Dixon, 1999), and more specifically psychological distress (Kessler et al., 1996; Manchikanti et al., 2007), from possible self-medication (Dennis & Key, 1995). Regardless of which occurs first, both drug abuse and mental illness serve as a risk factor for the appearance of the other (NIDA, 2007). Furthermore, there are many reasons why drug abuse and mental illness co-occur, including: overlapping genetic vulnerabilities, overlapping environmental triggers, involvement of similar brain regions, and the fact that drug abuse and mental illness are developmental disorders (NIDA, 2007).
Institute of Drug Abuse (2007) reported that due to the stigma placed on co-occurring disorders by society, individuals often do not receive any treatment, and if they do it may not be effective. In addition, the cost of treatment for co-occurring disorders is substantially higher than for drug abuse alone, posing yet another obstacle to the necessary treatment for these disorders (Dickey & Azeni, 1996). However, researchers emphasize that with greater scientific understanding of the genetic factors at the root of co-occurring behaviors, greater societal understanding should also come.

The analyses in the proceeding sections aim to address the gaps in the existing literature through the examination of co-occurring behaviors in relation to social location and religiosity utilizing a national sample of individuals age eighteen and older. The following discussion is divided into four main sections. First, the theoretical framework of the current study, which examines the complex relationship between social locations, religiosity, and co-occurring substance abuse and psychological distress utilizing a combined stress-social support theoretical framework, is presented in detail. Following the theoretical framework is a discussion of the literature pertinent to the major elements of this study. Immediately after the literature review of each of these issues are the hypotheses for each relationship between social location, religiosity, and co-occurring behaviors. The second section introduces the sample, design, and measures of the study, as well as a description of the data analysis methods utilized. The third and next section will present the results, followed by the fourth section which is comprised of a discussion of and conclusions surrounding the findings.

**Theoretical Framework**

The social organization of American society allows for the creation and perpetuation of social inequalities among different groups of citizens (Aneshensel, Rutter, & Lachenbruch, 1991;
Aneshensel, 1992; Aneshensel, 2009; Grusky, 2001; Rothman, 2005). Grusky (2001) and Rothman (2005) outline the definition of a stratification system and creation of social inequalities, indicating that through a system of rewards, social institutions define and perpetuate what is good and acceptable in society, and in so doing operate in such a way that only those individuals selected and rewarded by these institutions will reap the benefits. According to Grusky (2001), the aforementioned stratification system utilizes a combination of rewards and ascriptive processes, or the determination of social standing based upon inherited traits such as race, gender, and parent’s socioeconomic status. These rewards and ascriptive processes can thus lead to the creation and generational perpetuation, or status crystallization, of social inequalities (Grusky, 2001). Failure to understand social inequalities and how they are created and perpetuated through this stratification system, as well as how they interact with individual health conditions, can have serious consequences (Marmot, Kogevinas, & Elston, 1987).

Race, gender and socioeconomic status are all considered social inequality factors, or social locations, as they are all constructed and determined by the system of social stratification in the United States (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Kaufman & Cooper, 1999). The existence and perpetuation of these inequalities has been credited to the social structure in America (Kaufman & Cooper, 1999), which promotes racism through a “racial caste system” (Kaufman & Cooper, 1999, p.117), sexism through the generational transmission of values and beliefs favorable towards patriarchal ideals (Aneshensel, 1992) as well as an ingrained distinction between expectations for males and females (Rothman, 2005), and a clear delineation between those individuals who hold the wealth and power in the country and those who do not through an economic system which perpetuates this capitalist-worker mentality (Kaufman & Cooper, 1999). These social inequalities affect a variety of aspects from
socioeconomic, gender, and racial disparities in economics, employment and wage differences (Grusky, 2001; Roscigno & Ainsworth-Darnell, 1999; Williams et al., 1997; Williams & Rucker, 2000) to socioeconomic and racial inequalities in education (Kane, 1995; Roscigno & Ainsworth-Darnell, 1999; Williams & Rucker, 2000), as well as racial differences in housing and the criminal justice system (Williams & Rucker, 2000). The all-encompassing nature of this stratification leads to great strain among the disadvantaged individuals in these institutions (Aneshensel, Rutter, & Lachenbruch, 1991), as well as increased rates of health problems and death (Reuss, 2001).

Research on race, ethnicity, and health outcomes has, at times, attributed health differences between races to biological determinants, without considering individual and sociological factors which might actually be two sources of a more complex cause (Williams et al., 1997). Racial and ethnic inequalities in health are in some ways inextricably linked to socioeconomic status in the United States (Roscigno & Ainsworth-Darnell, 1999; Williams et al., 1997). The link between socioeconomic status as an indicator of social location and health has been attributed to access to resources including “money, knowledge, power, prestige…” (Link & Phelan, 1995, p.87). The unequal distribution of income, wealth and power in the United States is at the root of socioeconomic status as an indicator of social location, as well as an element of the American stratification system (Kaufman & Cooper, 1999; Rothman, 2005; Williams et al., 1997). Historically, societies have created divisions between individuals and groups, placing them into classes based upon differences in wealth and power, and more recently in income (Grusky, 2001). As racial minorities are often located in lower socioeconomic statuses, research concludes that this unequal distribution of income is often determined upon racial and ethnic
lines, indicating the inherent bias in the American social structure (Rothman, 2005; Williams et al., 1997).

Furthermore, a well-established relationship between minority status, low socioeconomic standing, and negative health outcomes has led Williams and associates (1997) to conclude that “differences between the races in socio-economic circumstances are centrally responsible for racial variations in health” (p.336). The aforementioned combined racial and economic discrimination is also often combined with gender divisions in social inequality research, but Grusky (2001) proposes that in reality, these groups may cope with their situations in very different ways depending upon the resources and support they have, and how they utilize them.

Aneshensel and associates (1991) proposed a model to explain the relationship between the three aforementioned markers of social placement: gender, race, and socioeconomic status. These markers of social placement result from the unfair treatment of certain groups of individuals. Furthermore, the outcomes of this unfair treatment, and the stress resulting from that treatment, include health and mental health problems such as drug abuse and mental illness. This process describes how social organization results in detrimental conditions for disadvantaged groups, thus creating stress and tension among these groups and leading to mental health problems, physical health problems, and criminal behavior such as drug use (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Aneshensel, 2009). In this model, the social stratification of individuals results in disadvantaged individuals due to their race, gender, or socioeconomic status, and who do not possess the power and/or resources to adequately cope with the unfair treatment they are subjected to (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Aneshensel, 2005). Furthermore, stress affects all individuals in this social stratification system differently as stress occurs due to a separation between external conditions
and an individual’s ability to handle those conditions based on their values, beliefs, behaviors, and resources (Aneshensel, 1992). Thus, levels of reported stress, and consequences of that stress, differ depending upon the event and individual (Aneshensel, 1992). These stressful conditions then lead to negative living and health conditions, resulting in mental disorders or psychological distress, as well as substance abuse disorders (Aneshensel, Rutter, & Lachenbruch, 1991).

Religiosity as a mechanism of social control has been examined by previous research (McIntosh, Fitch, Wilson, & Nyberg, 1981; Newcomb, 1994; Parker et al., 2003; Jang & Johnson, 2001; Hawkins, Jenson, Catalano, & Lishner, 1988; Thomas, Farrell, & Barnes, 1996; Cretacci, 2003; Longshore et al., 2004) and is used in the current study as an indicator of social support. The utilization of social control theory, and the bonds between an individual and the community in which they reside, for this study is important to explicating the impact of religiosity as a predictor of co-occurring behaviors, along with social locations. As social control theory is a deviance theory, the theory elements attempt to explain conforming behavior and why individuals avoid deviant behavior (Cretacci, 2003; Lilly, Cullen, & Ball, 2007), such as drug use. The essence of social control theory are the bonds between an individual and social institutions which have the power to control that individual through social conformity and prevent criminal or deviant behavior (Lilly, Cullen, & Ball, 2007). When the bonds between an individual and society weaken or break, that individual is more likely to commit crime or engage in deviant behaviors (Cretacci, 2003).

The bonds that are hypothesized to reduce deviant/criminal behavior through interaction with others are divided into four categories: attachment, commitment, involvement, and belief. Attachment consists of shared emotional ties and relationships between an individual and a
community (Cretacci, 2003). Individual involvement in conventional goals and activities comprises the “commitment” element of social control theory (Lilly, Cullen, & Ball, 2007; Greenberg, 1999). Theoretically, an individual’s involvement in and dedication to these goals and activities will prevent them from engaging in criminal activity (Cretacci, 2003).

Involvement as an element of social control theory entails the amount of time an individual spends on the aforementioned goals and activities. The more time an individual dedicates to an activity, the less likely they are to commit crime (Kempf-Leonard & Decker, 1994; Lilly, Cullen, & Ball, 2007). The final bonding element is belief, or an individual’s dedication to the rules and norms of their society (Junger & Marshall, 1997; Lilly, Cullen, & Ball, 2007). Essentially, the “belief” element states that if an individual does not share a dedication to societal rules and laws, they are more likely to commit a crime as they do not share the societal view that a given crime is actually a crime (Cretacci, 2003).

Utilizing these categories and considering previous research (Junger & Polder, 1993; Amoateng & Bahr, 1986; Burkett, 1993; Benda & Corwyn, 1997; Jang & Johnson, 2001; Koenig, 2001), religiosity may be considered an element of social control and bonding, as it not only neutralizes the stress felt by disadvantaged individuals but also provides social support (Koenig, 2001; Eskin, 2004). Social support is defined as social interaction which meets a person’s basic social needs, including security, belonging, affection and identity (Cobb, 1976; Thoits, 1982). Religiosity can thus be considered a resource through which the four bonding elements of social control theory serve as indicators of social support, which reduces exposure to stress as well as mental health problems such as psychological distress (Parker et al., 2003) and drug use. Religious individuals gain advantages or obtain social support through their attachment to other participants in a religious organization (Marcos & Bahr, 1995), their
commitment to religious goals (Longshore et al., 2004), their sharing of strong religious beliefs (Cretacci, 2003), and their involvement in religious activities.

In a review of the literature on social capital and social inequalities, Smith (2000) determined that compared to white men, women and racial minorities are less likely to report social support which can aid them in finding jobs and generating income, thus illustrating the pervasiveness of the unfair treatment in American society which results in disadvantaged individuals, along with the serious impact of low social support on socially disadvantaged individuals. Antonucci (1985, as cited in Taylor & Chatters, 1988, p.194) described religion and religiosity in terms of church-based networks, by first defining social networks as: “comprised of individuals who because of bonds of obligation, mutuality, and commitment provide and receive assistance.” From this definition, religiosity becomes a method of social control through which an individual bonds to religious others and a religious organization due to shared religious activities, beliefs, and responsibilities. Through this interaction and bonding, social support networks based on religion are formed, and are hypothesized in the current study to aid in reducing the strain on disadvantaged individuals by meeting these individuals’ basic social needs (Cobb, 1976; Thoits, 1982).

Drug abuse and psychological distress as co-occurring behaviors are linked to social locations and religiosity as demonstrated by the stress-social support theory. According to this theory, social locations often result in stress from being in a disadvantaged position, such as a low socioeconomic status or a racial minority, as these groups may lack the resources or social support to properly cope with the social and economic situations in which they find themselves (Aneshensel, Rutter, & Lachenbruch, 1991). This stress results in negative consequences for individual health, such as mental health disorders and/or substance abuse disorders (Aneshensel,
1992). However, religiosity is hypothesized a mediator between social locations and co-occurring drug abuse and psychological distress.

Figure 1. Stress-Social Support Model Explaining Co-occurring Drug Abuse and Psychological Distress

Gender, Religiosity, and Co-occurring Behaviors

The nature of the American system of social stratification indicates fundamental differences in the opportunities and expectations for men and women (Bird & Rieker, 1999). According to Rothman (2005, p.22), gender is “the social characteristics that distinguish the sexes” which are “embedded in the social and cultural heritage of a group.” This social embeddedness results in differential treatment of men and women (Rothman, 2005). These differences also extend to health problems among men and women, with women often associated with and reporting higher rates of health problems than men (Spitzer, 2005). In an analysis of
research on gender health problems, Spitzer (2005) found that though women may generally live longer than men, women are more likely to live unhealthier lives due to illness. The theoretical foundation for the current study proposes that, as women are thought to suffer from greater amounts of stress due to social arrangements, social expectations, and lower social status, women are also going to report higher rates of co-occurring drug abuse and psychological distress. However, a review of the literature yielded mixed results when discussing gender in relation to drug abuse, psychological distress, and co-occurring behaviors.

Gender roles and gender status are suggested to be primary causes for health problems, as stratification and expectations based upon gender not only determine the amount of resources available to men and women, but also the number and intensity of stressors men and women face (Bird & Rieker, 1999; Spitzer, 2005; Artazcoz, Borrell, & Benach, 2001; Lundberg, & Parr, 2000, as cited in Spitzer, 2005; Moss, 2002; Watkins & Whaley, 2000, as cited in Spitzer, 2005). Furthermore, according to Spitzer (2005) these “health inequalities emerge from the dynamic intersections of the demands of multiple gender roles, environmental exposures…economic disparities, the costs of poverty, social marginalization and racism, aging, health conditions and interactions with health services and health behaviors” (S80).

The effects of the aforementioned social stratification and gender inequality can be seen in the differences in rates and types of drug use between men and women. In regards to gender and substance abuse, men are generally more likely than women to use and abuse alcohol and illegal drugs (Mosher & Akins, 2007; Muthén & Muthén, 2000; Merline et al., 2004; Crum et al., 1992; Green, Freeborn, & Polen, 2001). However, this trend reverses itself when one analyzes gender usage of legal prescribed and over-the-counter medications. Researchers have determined that women are much more likely to self-medicate using these drugs to treat mental
and emotional disorders (Ensminger & Everett, 2001 as cited in Mosher & Akins, 2007; Merline et al., 2004). Mosher and Akins (2007) attribute this tendency for women to use and abuse prescription medications such as Valium to self-medicate as a perceived socially acceptable response to the social stresses and health problems that women face. The perception that the issues women face are medically treatable allows for women to legitimize their drug abuse (Mosher & Akins, 2007). In essence, women are using and abusing drugs in ways that are deemed socially acceptable due to existing gender expectations. Furthermore, Kauffman, Silver and Poulin (1997) determined that women were more likely than men to point to stress and relationship issues as situational factors capable of inducing drug and alcohol abuse—a finding which supports previous research that women are more likely to engage in alcohol and drug abuse due to relationship problems (Gerstein et al., 1979). Women were also more likely to say that the risks associated with drug and alcohol abuse were more severe than were men, providing support of women’s negative views of drug abuse, along with the stigma society and women attach to drug and alcohol abuse (Spigner, Hawkins, & Loren, 1993, as cited in Kauffman, Silver, & Poulin, 1997; Mosher & Akins, 2007; Logan, 1999).

Gender differences and gender roles are also thought to impact the rates of mental illness among both genders, but particularly among women (Carmen, Russo, & Miller, 1981; Sheppard, 2002). The American socialization process provides a basis for gender roles and stereotypes, and is responsible for inculcating feelings of inferiority, and eventually low self-esteem, among women (Carmen, Russo, & Miller, 1981; Sheppard, 2002). The stress placed upon women from the expectations and number of roles present in American society, combined with inferiority and low self-esteem, can result in depression and other health issues (Sheppard, 2002). Aranda and associates (2001) determined that men and women report different sources of psychological
distress as well, as women were more likely to identify stress from household responsibilities as the source for their distress and men were more likely to report economic and job responsibilities as sources of their distress. These findings lend credence to the notion of gender roles and other social locations as root causes of health problems. Hence, the relationship between gender and serious psychological distress is such that not only were women more likely than men to report serious mental illness in the past year (Epstein et al., 2004), but also more likely than men to have reported serious psychological distress in the year (McVeigh et al., 2006) and the past month (Pratt, Dey, & Cohen, 2007; Herman-Stahl et al., 2007; McGuire et al., 2009; SAMHSA, 2009).

The relationship between gender and co-occurring substance abuse and serious psychological distress is understudied; however the present study attempts to establish this relationship utilizing the expectations and differences between men and women as described earlier. In terms of co-occurring drug abuse and mental illness, men are more likely to express antisocial personality disorder as one possible mental disorder when reporting co-occurring behaviors, whereas women are more likely to report major depression, posttraumatic stress disorder (PTSD) and other anxiety disorders (NIDA, 2007). A review of the literature illustrates that overall, men are more likely to report co-occurring drug abuse and psychological distress or serious mental disorder than are women (Epstein et al., 2004; Office of Applied Studies, 2004; Park, 2006; Park, 2009). However, researchers such as Tsai and associates (2009) and RachBeisel and colleagues (1999) often focus on women when studying co-occurring behaviors due to the particularly detrimental effects upon women in relation to these disorders. Not only do approximately 1.1 million women report co-occurring alcohol use and serious psychological distress every year (Tsai, Floyd, O’Connor, & Velasquez, 2009), women are also at risk for
increased physical health problems, “sexually transmitted diseases, including HIV and AIDS, and sexual and physical violence” (RachBeisel, Scott, & Dixon, 1999, p.1430) due to these co-occurring disorders and the behaviors these behaviors elicit.

Social support has been found to effectively reduce the levels of anxiety, depression and somatic symptoms reported by men and women (Fusilier, Ganster, & Mayes, 1986). Social support has also been found to decrease rates of alcohol use and abuse among both men and women (Green, Freeborn, & Polen, 2001). Research has determined that social support from such networks as friends, family and co-workers decreased levels of depression (Dalgard et al., 2006), as well as anxiety and general somatic complaints such as headaches (Fusilier, Ganster, & Mayes, 1986), among both men and women. Interestingly, when Fusilier and associates (1986) conducted a comparison between men and women, they found that social support from friends and family was not significant for women in regards to depression, but was inversely significant for men, indicating that higher amounts of social support were associated with lower levels of depression. However, support from such networks as co-workers reduced anxiety for women but was not significant for men. In addition, the researchers did not find any differences in reported levels of social support between men and women from such networks as friends, family, and co-workers, despite the common perception that women report higher levels of social support (Fusilier, Ganster, & Mayes, 1986). Mixed results have been documented as to which group, men or women (Dalgard et al., 2006), report higher levels of social support.

Religiosity is thought to augment social support and thus increase psychological well-being (Sherkat & Reed, 1992). Additionally, religiosity has been found to mediate the relationship between gender, strain, and mental distress and delinquency (Jang & Johnson, 2005). In a study comparing the mediating effect of religion on the relationship between strain
and aggression, Jang and Johnson (2005) found that not only were women generally more religious than men and that religion buffered the effects of mental distress upon delinquency more for women, but also that women were less likely to act out in aggression or delinquency when under stress because of these increased levels of religiosity. Furthermore, high levels of religiosity are thought to decrease substance abuse as Green and associates (2001) determined that men and women who reported higher rates of church attendance reported lower levels of alcohol use. However, Green and associates did report disparate findings compared to other research in that men and women who reported higher levels of social support from friends, family, and social clubs also reported higher levels of alcohol use due to social drinking with these groups (Green, Freeborn, & Polen, 2001).

H1: Gender will have an effect on co-occurring drug abuse and psychological distress.

H2: Religiosity will mediate the effects of gender on co-occurring behaviors.

Race, Religiosity, and Co-occurring Behaviors

Race as an element of social inequality has been traced back to social arrangements in American society which perpetuate the disadvantaged status of racial minorities through both individual beliefs and institutional practices (Williams & Rucker, 2000). Negative stereotypes (Williams & Rucker, 2000), discrimination (Williams & Rucker, 2000; Gary, 2005), and stigma (Gary, 2005) are associated with a minority racial status, and result in stress upon the individuals in these minority categories (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Aneshensel, 2009). This stress is thought to result in health problems, as discriminatory practices and prejudiced attitudes are present in medical institutions and medical care as well (Williams & Rucker, 2000). As racial minorities suffer from low income and prejudiced institutions, they often receive less quality services such as health care (Williams & Rucker,
as well as more attention from the criminal justice system, thus increasing their stress. The current study proposes a stress-social support theory, in which racial minorities experience greater amounts of stress due to a lower social status. These elevated amounts of stress are hypothesized to result in higher levels of psychological distress and deviant behavior due to a lack of resources combined with an attempt to cope with the stress these racial minorities are experiencing. However, a review of the literature found that research findings are mixed as to the precise relationship between race and co-occurring behaviors.

In a literature review of alcohol and drug use and abuse among different races and ethnicities, mixed results were found as to which races had highest rates of use and abuse. Generally, non-Hispanic Whites drink more than other racial and ethnic groups (Green, Freeborn, & Polen, 2001), with those individuals reporting their race/ethnicity as non-black, non-Hispanic reporting the highest levels of heavy drinking, followed by Hispanics and then Blacks (Muthén & Muthén, 2000). However, in a literature review focusing on the rates of alcohol use and abuse by racial minorities, the present study found that these findings have been questioned in studies such as that conducted by Beals and associates (2005), who determined that American Indians had a generally higher level of alcohol dependence than the rest of the American population in relation to the proportion of the population they represent. In addition, in a meta-analysis of existing research on alcohol use and abuse by American Indians, May (1982) found that of the four Indian tribes studied, two of them had rates of alcohol use higher than the average for all ethnic groups in the United States combined, and the other two had rates equal to or below the average. Furthermore, according to the National Institute on Drug Abuse (2003), Asian/Pacific Islander was the fastest growing race for alcohol and drug abuse.
Further mixed results were found in an analysis of drug use and abuse by race/ethnicity, which found that American Indians/Alaskan Natives (11.1%) and individuals reporting multiple races (9.8%) indicated the highest percentage past year drug abuse and dependence (SAMHSA, 2009). Blacks (8.8%) and non-Hispanic Whites (9.0%) reported similar percentages of illicit drug abuse and dependence, while Hispanics (9.5%) reported slightly higher rates and Asians (4.2%) reported the lowest levels of illicit drug use (Mosher & Akins, 2007; NIDA, 2003; SAMHSA, 2009). The relationship between age and race also presents an interesting research topic, as studies such as that conducted by Muthén & Muthén (2000) determined that for certain races there is a reversal of trends depending on age. Thus, though Blacks were the least likely to engage in heavy drinking behaviors at age 25, by age 37 this trend is completely reversed and Blacks report higher rates of drinking behaviors than do Hispanics and non-Blacks, non-Hispanics (Muthén & Muthén, 2000).

Due to these variations in reports on race and drug abuse, a common theme in race/ethnicity and drug abuse research is the necessity to not only examine the difference in drug and alcohol usage across all of these racial and ethnic categories, but also within the individual categories as well. The reason for this is that several of these categories are comprised of subcategories, such as Hispanics (Cubans, Mexican Americans, Puerto Ricans, other Hispanics) and Asian/Pacific Islander (Chinese, Japanese, Indian, Korean, Filipino, Southeast Asian, Polynesian, Micronesian, Melanesian), which differ greatly in frequency and severity of drug and alcohol abuse (Makimoto, 1998; Nagasawa, Qian, & Wong, 2000; NIDA, 2003; Nielsen, 2000). Additionally, one must take into account the traditions that exist in each of these races and ethnicities, as the United States deems peyote use illegal as it is technically a hallucinogen (May, 1982). May (1982) warns that drug and alcohol abuse statistics must be considered in
specific terms of race and ethnicity, as the rates of drug and alcohol use and abuse may not be so high if their culture was better understood by American society and policy. Further research supports May’s suggestion, as differences in racial minority drug use are attributed not only to socioeconomic status, but also to differences in the acculturation process (Nielsen, 2000). The American lifestyle, including expectations, goals, advertising, and availability of drugs or alcohol, are all thought to increase drinking behaviors for Hispanics and other minorities as they attempt to adjust from the way of life in their country of origin to that in the United States (Maxwell & Jacobson, 1989, as cited in Nielsen, 2000; Watts & Rabow, 1983, as cited in Nielsen, 2000; Gruenewald et al., 1993).

Race as an element of social location is another predictor of psychological distress (Pratt, Dey, & Cohen, 2007; Schutt, Meschede, & Rierdan, 1994). According to Gary (2005), minorities face double stigma when they experience mental illness, as they are stigmatized by their minority status and by their mental status. This double stigmatization results not only in poor health care for racial minorities, as they often lack both the financial resources and social support to seek care for their mental illnesses, but also the perpetuation of disadvantaged statuses based upon race in the United States (Gary, 2005) due to a lack of resources and concentration of racial and ethnic minorities in disadvantageous conditions (Wang et al., 2005; Williams & Rucker, 2000). The National Survey on Drug Use and Health (NSDUH) reported that in 2008, Blacks (5.3%) and individuals who claimed two or more races (7.9%) reported the highest rates of serious psychological distress in the past month, with Whites, Hispanics, Asians, and American Indians reporting 4.3%, 4.9%, 3.0%, and 4.5% respectively (SAMHSA, 2009). Furthermore, overall, individuals reporting more than one race and American Indians/Alaska Natives were more likely to report higher levels of serious mental illness in the past year as
measured by the K6 scale, which is also the scale used to measure serious psychological distress (Epstein et al., 2004). In addition, McVeigh and associates (2006) found that in New York City, both Blacks and Hispanics reported higher rates of psychological distress in 2003 than did Whites, and those who reported their race as Other reported the same rates of psychological distress in the past year as Whites. The authors propose that these higher rates reported by racial minorities may be due to the concentration of conditions conducive to the development of psychological distress, such as poverty, poor health conditions, and a high concentration of single people in New York City (McVeigh et al., 2006). An issue that is often addressed when discussing the relationship between race and mental illness or psychological distress is racism. According to research, the high levels of psychological distress reported by Blacks and other minorities relative to the overall population for each minority category can be attributed to the individual and structural racism present in American society (Mirowsky and Ross, 1989; Ross and Van Willingen, 1996; Schulz et al., 2000).

In terms of race and ethnicity, a review of the existing literature indicates that Whites are thought to report co-occurring disorders in higher rates than are minorities (Epstein et al., 2004; Park, 2006; Smith et al., 2006). However, in a study on mentally ill jail detainees and lifetime prevalence rates, Abram and Teplin (1991) found that among the severely mentally ill, Blacks were more likely than Whites to report a co-occurring drug disorder.

Religiosity is an important aspect of life for many individuals and is reported in higher levels among Hispanics, Blacks, and other minorities in relation to Whites (Chatters et al., 2009; Franzini, Ribble, & Wingfield, 2005; Krause & Chatters, 2005). The role of religion in the lives of racial minorities is important for bonding minorities to individuals and institutions in the communities they reside, while also serving as a source of social, emotional and financial
support (Chatters et al., 2009). Religion is thus thought to increase overall physical health of minorities, including a reduction of stress and heart disease among African Americans (Scandrett, 1996), as well as ease the plight of minorities in need such as food and education provided to Hispanics who did not have either (Franzini, Ribble, & Wingfield, 2005). Marks and associates (2005) found that not only did religion serve as a positive coping mechanism for African Americans and healthier lifestyles, but respondents also self-reported that religion decreased drug and alcohol abuse along with general criminal behavior. In addition, African Americans described the importance of religion as a social support mechanism, indicating that “Church family is family” (Marks et al., 2005, p.460). Marks and colleagues indicate the importance of this sentiment that religion is a major source of social support, proposing a link between increased religiosity, higher levels of social support, and longer and healthier lives for African Americans. Further research has determined that minorities who report higher levels of religiosity also report lower levels of mental illness and physical health problems (Chatters et al., 2009).

$H_3$: Race will have an effect on co-occurring behaviors.

$H_4$: Religiosity will mediate the effects of race on co-occurring behaviors.

**Socioeconomic status, Religiosity, and Co-occurring Behaviors**

Socioeconomic status is defined by three elements: education, income, and occupation (Rothman, 2005). This multifaceted definition of socioeconomic is important, as these elements have been linked to mental illness (Fryers, Melzer, & Jenkins, 2003; Fryers et al., 2005), along with drug use (Crum, Helzer, & Anthony, 1993; Crum et al., 1992; Kauffman, Silver, & Poulin, 1997; Makimoto, 1998; Merline et al., 2004; Mosher & Akins, 2007; Muthén & Muthén, 2000; Nielsen, 2000) and comorbidity (Epstein et al., 2004; Park, 2006; SAMHSA, 2006).
Socioeconomic status is often associated or equated with social class, which Rothman (2005, p.6) describes as “a group of individuals or families who occupy a similar position in the economic system of production, distribution, and consumption of goods and services in industrial societies.”

Socioeconomic status is often used as a primary measure of drug abuse, and allows for the analysis of “differences in economic prosperity and educational attainment” (Mosher & Akins, 2007, p.134). The relationship between socioeconomic status and drug abuse has been examined and acknowledged in research studies (Mosher & Akins, 2007; Merline et al., 2004; Makimoto, 1998; Room, 2005; Nielsen, 2000; Kauffman, Silver, & Poulin, 1997), as it has serious implications for American society. Research suggests that the relationship between socioeconomic status and drug abuse is such that those individuals reporting lower levels of socioeconomic status are more likely to report drug abuse (Mosher & Akins, 2007; Merline et al., 2004; Makimoto, 1998; Nielsen, 2000; Kauffman, Silver, & Poulin, 1997). However, some research has found that drug use occurs in those reporting higher socioeconomic statuses as well, as nearly 10% of professional men in one research study reported marijuana use in the 30 days prior to the study (Merline et al., 2004).

Generally, it is believed that those individuals with a college degree exhibit lower levels of drug and alcohol abuse than do individuals who obtained a high school degree or dropped out of college or high school (Crum, Helzer, & Anthony, 1993; Crum et al., 1992; Merline et al., 2004; Muthén & Muthén, 2000). In a study conducted by Crum and Anthony (2000), the relationship between educational level and alcohol abuse in regards to race and ethnicity was examined to determine possible risk factors. The results of this study indicate that, regardless of race or ethnicity, those individuals who dropped out of high school had a greater chance of
abusing alcohol than did those individuals who obtained an associate degree of higher in college (Crum & Anthony, 2000). Furthermore, individuals who went to college but did not earn a degree were more likely to exhibit alcohol abuse, but this was significant only for the White respondents in the study. In a synthesis of the study results and the existing literature on race, education, and alcohol abuse, the authors suggest that their findings may be due in part to sociocultural factors such as racial difference in perceptions and expectations of educational attainment due to different social statuses, and propose that possible risk factors for alcohol abuse include a co-occurring mental disorder (Crum & Anthony, 2000). Due to the small sample size for several of the racial and educational categories, however, further extrapolation on the link between education and alcohol use for Blacks was not possible for this study (Crum & Anthony, 2000).

The social locations of race and socioeconomic status often interact. Thus, the need to study nuances of socioeconomic status not only exists across races, but also within them. Makimoto (1998) discusses the differences in socioeconomic status within the Asian/Pacific Islander race, as Japanese, Filipino, and Indian individuals report higher socioeconomic statuses than do Southeast Asians and Pacific Islanders. This may be attributable to the amount of time these individuals reside in the United States, thus indicating a greater opportunity to find employment and amass wealth, along with educational preparation, including mastery of the English language and knowledge of the American workforce (Makimoto, 1998). Familiarity with American customs and the ability to acclimate to American society is discussed in research studies focusing on minorities (Nielsen, 2000; Makimoto, 1998; Mosher & Akins, 2007; NIDA, 2003), as employment and location of residence (urban versus suburban) are major risk factors for drug abuse (Mosher & Akins, 2007; NIDA, 2003).
Low socioeconomic status is also considered a predictor of psychological distress (Fryers, Melzer & Jenkins, 2003; Pratt, Dey, & Cohen, 2007; Schutt, Meschede, & Rierdan, 1994; Shih & Simon, 2008; Witt et al., 2009; Herman-Stahl et al., 2007; McVeigh et al., 2006; Shih et al., 2006; McGuire et al., 2009). According to Fryers and associates (2003), not only are severe mental illnesses more likely in lower social classes than in upper classes, but less severe mental disorders such as depression and anxiety are more common as well. Additionally, individuals reporting an income below the United States poverty line were more likely to report higher rates of serious psychological distress than were those individuals above the poverty line (Fryers, Melzer & Jenkins, 2003; Pratt, Dey, & Cohen, 2007). Similar to the present study’s theory that the strain from being disadvantaged results in negative health behaviors, Fryers and associates (2003) propose that these elements—unemployment, lower levels of education, and little wealth or assets—may serve to increase anxiety and depression in lower classes, and that is why the prevalence for these mental illnesses are greater among this group of individuals.

In another study on the link between socioeconomic status and psychological distress, Schutt, and associates (1994) attempted to determine not only the relationship between these two concepts, but also the effects of this relationship as well. The study was conducted with a sample of 218 homeless sheltered adults, and determined that these homeless adults’ low socioeconomic status resulted in suicidal thoughts and further distress over the traumatic experiences which are inherent to a life on the streets. The level of psychological distress and suicidal thoughts that the authors found in this study were much higher than those reported in the general population. In addition, an association between psychological distress and health problems including alcohol and drug use, physical health issues, and nightmares was also found.
Education is also thought to affect mental health, as those individuals with less than a high school diploma generally report higher levels of psychological distress (Pratt, Dey, & Cohen, 2007; Witt et al., 2009; McGuire et al., 2009). Furthermore, education as a contributing factor of co-occurring disorders mirrors the effects of education on either substance abuse or psychological distress: most individuals reporting co-occurring disorders also report lower levels of education (Park, 2006). In recognition of the serious effects of the social stratification system as measured by education and its impact on the occurrence of co-occurring disorders, SAMHSA created a program in 2001 entitled National Outcome Measures (NOMs) for Co-Occurring Disorders (SAMHSA, 2006). In this program, SAMHSA directly addresses 10 risk factors for co-occurring disorders and methods for which co-occurring disorders can be successfully treated. One such risk factor and method of treatment was education, which the NOMs program addressed by helping individuals enroll and stay in school, as well as increasing alcohol, tobacco, and other drug school suspensions and expulsions (SAMSHSA, 2006).

Research has determined that in terms of co-occurring disorders, individuals who report co-occurring substance abuse and mental health disorders are more likely to report lower levels of income, employment and occupation than individuals reporting either substance abuse or mental health disorders (Park, 2006). The study by Schutt and associates (1994) mentioned earlier thus provides support for the findings that individuals reporting lower socioeconomic statuses are more likely to report co-occurring substance abuse and mental disorders (Epstein et al., 2004; Park, 2006). However, Schutt and colleagues (1994) did determine that social support was a protective factor for homeless individuals against suicidal thoughts and other health issues. This proposal that social support can successfully mediate the relationship between social class
and mental illness is expounded upon in the current study utilizing religion as a social bonding mechanism and source of social support.

Those individuals in lower social classes are thought to have access to fewer resources and less social support than those in higher social classes (Adler et al., 1994). Hence, these individuals have often experienced higher levels of stress due to their disadvantaged position, as they do not have the social support that allows individuals in higher social classes to counteract the consequences of stress (Adler et al., 1994). In light of this, researchers have hypothesized that not only can religion serve as a bonding mechanism through which individuals build bonds with and establish social support within the community in which they reside, but also that religion helps unify social classes based on shared beliefs, ideas, and economic interests (Mirola, 2001). Thus, “religion shapes the structure of inequality. It shapes how people—rich and poor—view their economic interests and what actions they have to take to achieve them” (Mirola, 2001, p.149). According to Mirola (2001), not only can religion serve as a unifying body for a group of individuals in a given social class, but also as a method of enlightenment about the world in which that group resides in relation to their social position.

The established link between lower education levels and higher rates of drug abuse and mental illness has led researchers to consider possible mediators of this relationship. Schieman (2008) conducted a study to determine the impact of religion on this aforementioned relationship. The findings indicated that not only did those individuals who reported higher levels of education also report lower rates of drug abuse and psychological distress, but also that religiosity served as a stronger mediator for those individuals who reported lower levels of education. Thus, individuals who reported lower levels of education but higher levels of religiosity also reported reduced rates of drug use and psychological distress (Schieman, 2008).
H₅: Higher levels of income will be associated with decreased odds of an individual ever having exhibited co-occurring behaviors.

H₆: Religiosity will mediate the effects of income on co-occurring behaviors.

H₇: Higher levels of education will be associated with decreased odds of an individual ever having exhibited co-occurring drug abuse and psychological distress.

H₈: Religiosity will mediate the effects of education on co-occurring behaviors.

Age, Marital Status, and Co-occurring Behaviors

Age and marital status were used as control variables in the current study as much research has been conducted linking both age and marital status to psychological distress and drug use. The current study thus controls for these two variables, as the authors did not want them to unduly influence the effect of social location upon co-occurring behaviors.

Age. When utilizing age as a factor and predictor of drug use, it is generally acknowledged that older adolescents and young adults are the most likely to use illegal drugs (Mosher & Akins, 2007; SAMHSA, 2000 as cited in Van Etten & Anthony, 2001). The trend in age for drug use illustrates that although adolescent males report initial drug usage at younger ages than do females, the trend in drug use for male and female adolescents is fairly similar (Johnston et al., 2003, as cited in Mosher & Akins, 2007). This trend changes dramatically in adulthood, however, as males are much more likely than females to use drugs after the age of 26 (Mosher & Akins, 2007; Merline et al., 2004). Researchers attribute this difference in drug use and abuse as individuals age to differences in socialization practices between men and women (Mosher & Akins, 2007; Kauffman, Silver, & Poulin, 1997; Ensminger & Everett, 2001, as cited in Mosher & Akins, 2007). Essentially, men are more likely to use drugs as they are socialized to be “more self-reliant, risk-taking, and assertive” whereas women are raised “to be more
nurturing and deferential” (Mosher & Akins, 2007, p.153). Women are thus more likely to report drug use and abuse as risky, and avoid it due to the perceived stigma society attaches to female drug use (Mosher & Akins, 2007). Hence, the similarity in drug use rates in adolescence between males and females is thought to be due to the fact that the social stigma is less for both men and women when they are younger.

Researchers have determined that overall, those individuals who are in young adulthood are more likely to express psychological distress than those in midlife (Jorm et al., 2005). There is some debate as to whether psychological distress increases among the elderly, as some researchers propose that factors such as ill health and lower levels of education lead to higher reported rates of psychological distress among the elderly (Schieman, van Gundy, & Taylor, 2001) while others propose that this increase among the elderly may simply be due to varying methods of measurement in research studies (Jorm et al., 2005). There are several factors influencing the relationship between age and psychological distress, as religion, education, marital status, and increased control over life events are all thought to contribute to levels of psychological distress (Schieman, van Gundy, & Taylor, 2001). Hence, those individuals in midlife may be married, report higher levels of religiosity and education, and indicate increased feelings of control over their lives. Due to these factors, these midlife individuals will not only report decreased levels of psychological distress, but overall healthier lives (Schieman, van Gundy, & Taylor, 2001). Furthermore, Park (2006) determined that younger individuals ages 18-44 are more likely to exhibit co-occurring drug abuse and psychological distress than individuals 45 and over. The current study proposes that younger individuals will be associated with increased odds of ever exhibiting co-occurring behaviors.
Marital Status. Marriage has been established as a social control and protective factor for both drug abuse (Merline et al., 2004; Yamaguchi & Kandel, 1985; Crum et al., 1992) and psychological distress (Pratt, Dey, & Cohen, 2007; Shih & Simon, 2008; Witt et al., 2009). Marital status remains one of the most significant protective factors and predictors of drug and alcohol abuse (Merline et al., 2004). In addition, Pratt and associates (2007) found that those individuals who were married reported lower levels of psychological distress. Other research has found that individuals who were previously or never married reported higher levels of psychological distress than did married individuals (McVeigh et al., 2006; McGuire et al., 2009). Furthermore, individuals who are married are less likely to report co-occurring mental health and drug disorders than are those who are single (Park, 2006). For the present study, we hypothesize that married individuals will have decreased odds of ever exhibiting co-occurring drug abuse and psychological distress.
CHAPTER 3

METHODS

Design and Sample

This study is based upon survey data taken from the 2007 National Survey on Drug Use and Health. This survey was sponsored by the Office of Applied Studies (OAS), a subsidiary of the Substance Abuse and Mental Health Services Administration (SAMHSA), and conducted by RTI International. The population for this study was noninstitutionalized United States citizens. The study was conducted to determine the extent of the use of illicit drugs in the American civilian population, along with the frequency of occurrence of mental disorders in this population. Respondents were questioned on their lifetime, annual, and daily usage of illicit drugs, along with questions regarding their mental status and any mental diagnoses received.

The cross-sectional survey was administered by approximately 700 field interviewers to participants in all 50 states, plus the District of Columbia. The original study sample was comprised of 67,870 noninstitutionalized American citizens. However, the size of the public use sample was 55,435. Participant selection was conducted using several stages, including the definition of sampling units, the selection of dwelling units, and finally the determination of participants.

The sampling procedures for the National Survey on Drug Use and Health consisted of three major stages. The first stage, or the definition of sampling units, included state sampling, census tracts and area segments. The second stage, or selection of dwelling units, consisted of dividing possible participants into five age brackets to increase precision: 12-17 years, 18 to 25
years, 26-34 years, 35-49 years, and 50 years and older. Each ascertained segment was visited and a list of all eligible addresses of dwelling units was comprised to allow for systematic sampling of participants. The third and final stage, or determination of participants, was conducted by field interviewers who visited each eligible dwelling unit to determine who would be interviewed and to conduct the interview. New or previously missed dwelling units were also noted by the field interviewers so they could be added to the sample. Field interviewers utilized handheld computers for all of the aforementioned duties. Quarterly progress reports were collected.

As data were not collected from the entire population, weighting was utilized to ensure the data collected was representative of the population as a whole and to adjust for sampling inaccuracy. The weighting process is important for large samples as it eventually allows for generalizability of results obtained in the study. Basic sampling weights were essentially determined with the decision that the smaller the chance a respondent had of being selected to participate, the larger the weight given to them. The chance a respondent had of being selected to participate was determined at four stages: census tract selection, area segment selection, dwelling unit selection, and respondent within dwelling unit selection.

Measures

**Dependent Variable.** One dependent variable was measured: the co-occurrence of drug abuse and psychological distress in the past year. In order to assess the behaviors as co-occurring, questions from the 2007 National Survey on Drug Abuse and Health regarding drug abuse and psychological distress were combined to create a trichotomous dependent variable.

There were nine substances measured in the 2007 National Survey on Drug Abuse and Health, including: alcohol, cocaine, hallucinogens, heroin, inhalants, marijuana, pain relievers,
sedatives, stimulants, and tranquilizers. Substance dependence was measured using seven criteria determined from the fourth edition of the Diagnostic and Statistic Manual of Mental Disorders (DSM-IV). There were six basic criteria for all types of substance use when measuring dependence: amount of time spent in the past month obtaining the substance, inability to control substance use, higher amounts of substance use to obtain the same effects as previous use, inability to cease substance use even when the respondent wanted to, continued substance use despite emotional, mental, and physical health problems, and reported reduced involvement in activities due to substance use. The seventh criterion differed depending on alcohol or specific type of substance use, and involved the specific type of withdrawal symptoms a respondent encountered when they tried to cut back or stop using different types of substances. Respondents who self-reported three or more of these criteria met the requirements for substance dependence in the past year and were used to indicate the presence of substance dependence in the study.

In the 2007 National Survey on Drug Use and Health, substance abuse was measured using four basic criteria for all substances measured. The respondent was determined to have abused a substance if they self-reported at least one of the four criteria in the past year and did not report substance dependence in the past year. The four basic criteria included: experiencing several types of serious problems at work due to substance use, regular use of the substance which resulted in physical danger for the respondent, use of the substance which resulted in repeated problems with the law, and self-reported problems with family and friends due to substance abuse and continued use of the substance despite the fact that use of that substance was the root of these problems. The operationalization of substance abuse in the present study is
indicated by the self-report of dependence or abuse of at least one of these nine substances in the past year.

The measures for Serious Psychological Distress (SPD) were determined using the K6 scale for nonspecific psychological distress. The six criteria asked the respondent to think about the one month out of the past year they were at their worst emotionally, and then report on how many times in that month they experienced nervousness, hopelessness, restlessness, depression, low energy levels, and worthlessness. The responses for these questions were 0) none of the time/don’t know/refused, 1) a little of the time, 2) some of the time, 3) most of the time, and 4) all of the time. Thus, the highest value for one response was 4, with a range of 0 to 24 for all six responses totaled. These individual questions were then combined into one final analysis variable for determination of serious psychological distress based upon this total score of 0 to 24. An adult was classified with SPD if they scored a 13 or higher on the K6 scale, and were then used in the present study to indicate the presence of SPD.

The dependent variable measuring combined substance abuse and psychological distress was a recoded variable comprised of three categories including the presence of co-occurring serious psychological distress and substance abuse in the past year, the presence of either serious psychological distress or substance abuse in the past year, and the reference category, which was no reported presence of serious psychological distress or substance abuse.

*Independent Variables.* A total of four independent variables were examined in this study to indicate social location, including gender, income, education, and race. The original study variable for gender was recoded into a dichotomous variable using female as the reference group. Two dichotomous variables were constructed from the three-category income measure to become 100-199% of the U.S. census poverty threshold, and greater than or equal to 200% of
U.S. census poverty threshold, with <100% of U.S. census poverty threshold as the reference group. Education was measured as a continuous variable, with a response scale offering 1) less than high school education, 2) high school graduate, 3) some college, and 4) college graduate. The three-category race variable was recoded into two dichotomous variables, Black and Hispanic, with White as the reference group. All racial/ethnic groups other than white, Black, and Hispanic were excluded from the present study.

To measure religiosity, a 4-item index was created. This index includes three items measuring the importance of religious beliefs to the respondent—namely, in regards to sharing religious beliefs with one’s friends (indicating attachment), the impact of religious beliefs upon making decisions (indicating commitment), and the overall importance of religious beliefs to the respondent (indicating belief). The responses for these statements range from 1) strongly disagree to 4) strongly agree. The one remaining item in the index involves a 6-point scale measuring involvement through the number of church services a respondent had attended in the past 12 months, with the response categories 1) 0 times, 2) 1 to 2 times, 3) 3 to 5 times, 4) 6 to 24 times, 5) 25 to 52 times, and 6) more than 52 times. Because two response scales were used, we obtained standardized scores for all four items, which were summed to produce an index score. The index had moderately high consistency (alpha=.82).

**Control Variables.** The control variables were age and marital status. Marital status was recoded into a dichotomous variable with non-married individuals as the reference group. Age was measured as a continuous variable with responses including 1) 18-25, 2) 26-34, and 3) 35 or older.
Data Analysis

The current study attempted to explain the trichotomous outcome variable of co-occurring drug abuse and psychological distress among a national sample of non-institutionalized Americans. In particular, multinomial logistic regression was used to analyze the effects of social location factors including gender, income, education and race, along with religiosity, on drug abuse and psychological distress. Marital status and age were controlled for. With nonoccurrence of drug abuse and psychological distress as the reference category, the results from the multinomial regression allow for a comparison of effects of social location factors and religiosity on the presence of either drug abuse or psychological distress, and the presence of co-occurring behaviors, as opposed to the reference group of the presence of neither drug abuse nor psychological distress. A two-step procedure was employed to first regress co-occurring behaviors on all social location factors and control variables. The second-step added religiosity to the model, thereby providing a way to evaluate whether religiosity mediated the effects of social location factors on the trichotomous outcome variable.
CHAPTER 4

RESULTS

The goal of the present study was to delineate the process, proposed by a stress-social support model, by which social locations result in co-occurring drug abuse and psychological distress. Specifically, the effects of gender, race/ethnicity, and socioeconomic status on co-occurring drug abuse and psychological distress were investigated. Also considered was the mediating role of religiosity in the relationship between social locations and co-occurring behaviors.

In order to gain a better understanding of the sample, descriptive statistics were calculated for all the independent and dependent variables (see Table 1).
The current study sample was 37,708 due to the omission of individuals who were 12 to 17 years of age. Furthermore, 3,058 of respondents reported their race as Other and were excluded from our data analysis. In the sample utilized for this study, 74.6% of respondents self-reported neither serious psychological distress nor drug abuse, while 4.3% of the sample self-reported co-occurring behaviors and 21.1% reported either drug abuse or psychological distress. Of the 21.1% of respondents who reported either behavior, 10.6% reported psychological distress while 10.5% reported drug abuse.

### Table 1

**Descriptive Statistics for All Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percent</th>
<th>Mean</th>
<th>Cases</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Abuse/ Psychological Distress</td>
<td></td>
<td></td>
<td>52230</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>74.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Either Behavior</td>
<td>21.1</td>
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<td></td>
</tr>
<tr>
<td>Both Behaviors</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>52230</td>
<td>0.499</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>53.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td>52230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>71.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>12.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>2.530</td>
<td>52230</td>
<td>1.012</td>
<td></td>
</tr>
<tr>
<td>Poverty</td>
<td></td>
<td>51188</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>16.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oneabovepoor</td>
<td>20.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twoabovepoor</td>
<td>62.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>2.880</td>
<td>52230</td>
<td>0.913</td>
<td></td>
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<tr>
<td>Married</td>
<td></td>
<td>52230</td>
<td>0.485</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>38.3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>61.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religiosity</td>
<td>0.011</td>
<td>51032</td>
<td>3.221</td>
<td></td>
</tr>
</tbody>
</table>
With respect to gender, 46.5% of respondents were male. The racial composition of the sample indicated that the majority of the sample was white (71.4%), while Hispanics comprised 16% of the sample and Blacks comprised 12.6% of the sample. Most respondents (62.8%) indicated an income 200% or more above the poverty line, while 16.5% indicated poverty and 20.7% self-reported 100% above poverty. Additionally, 38.3% of the respondents reported they were married. Since items in the religiosity index were standardized before being summed, the average index score of .011 closely approached the midpoint.

Before starting the two-step multinomial logistic regression, we looked for collinearity among the predictors. Table 2 contains correlations for all included variables. No correlation coefficient was outside the acceptable parameters, and the results indicate that multicollinearity was not a concern. As correlation analyses cannot use categorical variables, the dependent variable of co-occurring drug abuse and psychological distress was recoded into a dichotomous variable entitled “Co-occurring Dum” (see Table 2), with the response categories 1) having both behaviors and 0) having neither behavior. Furthermore, we computed tolerance statistics, indicating that no serious distortion of the multivariate data analyses would be caused by multicollinearity. The results from the correlation analysis indicate that overall, correlation coefficients confirmed the expected directions between the dependent and independent variables.
Table 2

*Correlations of All Included Variables for Respondents*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Co-occurringDum</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Male</td>
<td>.006</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: White</td>
<td>.018**</td>
<td>.012**</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Black</td>
<td>-.007</td>
<td>-.032**</td>
<td>-.601**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>5: Hispanic</td>
<td>-.016**</td>
<td>.015**</td>
<td>-.689**</td>
<td>-.166**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: &lt;100%Poverty</td>
<td>.046**</td>
<td>-.069**</td>
<td>-.191**</td>
<td>.139**</td>
<td>.110**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7: 100-199%Poverty</td>
<td>.010*</td>
<td>-.026**</td>
<td>-.111**</td>
<td>.035**</td>
<td>.106**</td>
<td>-.227**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8: 200%&gt;Poverty</td>
<td>-.044**</td>
<td>.074**</td>
<td>.240**</td>
<td>-.136**</td>
<td>-.173**</td>
<td>-.577**</td>
<td>-.664**</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9: Married</td>
<td>-.110**</td>
<td>-.030**</td>
<td>.121**</td>
<td>-.145**</td>
<td>-.018**</td>
<td>-.172**</td>
<td>-.079**</td>
<td>.199**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10: Education</td>
<td>-.043**</td>
<td>-.064**</td>
<td>.224**</td>
<td>-.074**</td>
<td>-.210**</td>
<td>-.210**</td>
<td>-.189**</td>
<td>.320**</td>
<td>.137**</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>11: Age</td>
<td>-.102**</td>
<td>-.023**</td>
<td>.096**</td>
<td>-.034**</td>
<td>-.088**</td>
<td>-.165**</td>
<td>-.075**</td>
<td>.190**</td>
<td>.461**</td>
<td>.128**</td>
<td>1</td>
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</tr>
<tr>
<td>12: Religiosity</td>
<td>-.086**</td>
<td>-.122**</td>
<td>-.114**</td>
<td>.134**</td>
<td>.019**</td>
<td>-.005**</td>
<td>.001</td>
<td>.003</td>
<td>.174**</td>
<td>.055**</td>
<td>.146**</td>
<td>1</td>
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</table>

*p<.05

**p<.01
The multinomial regression process for the current study involved a comparison of the categories “respondents who reported drug abuse and psychological distress” and “respondents who reported drug abuse or psychological distress” to the reference category of respondents who reported never having co-occurring behaviors. Multinomial regression analysis of the sample shows that every social location variable except two, gender and education, significantly explained either behavior, as well as co-occurring behaviors, both before and after religiosity was entered into the model (Table 3).

Table 3.

*Determinants of the Log Odds of Drug Abuse and Psychological Distress (N=52,230)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Either Behavior</th>
<th></th>
<th></th>
<th>Both Behavior</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Step</td>
<td>2nd Step</td>
<td>1st Step</td>
<td>2nd Step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>.099**</td>
<td>1.104</td>
<td>.049*</td>
<td>1.05</td>
<td>0.052</td>
<td>1.054</td>
</tr>
<tr>
<td>Poverty (Poor as reference)</td>
<td>-.072*</td>
<td>0.931</td>
<td>-.071*</td>
<td>0.931</td>
<td>-.235**</td>
<td>0.791</td>
</tr>
<tr>
<td>100%-199% Poverty</td>
<td>-.251**</td>
<td>0.778</td>
<td>-.265**</td>
<td>0.768</td>
<td>-.376**</td>
<td>0.686</td>
</tr>
<tr>
<td>200%&gt;Poverty</td>
<td>-.029*</td>
<td>0.972</td>
<td>-.021</td>
<td>0.98</td>
<td>-.157**</td>
<td>0.855</td>
</tr>
<tr>
<td>Education</td>
<td>-.029*</td>
<td>0.972</td>
<td>-.021</td>
<td>0.98</td>
<td>-.157**</td>
<td>0.855</td>
</tr>
<tr>
<td>Race (White as reference)</td>
<td>-.501**</td>
<td>0.606</td>
<td>-.398**</td>
<td>0.672</td>
<td>-.577**</td>
<td>0.562</td>
</tr>
<tr>
<td>Black</td>
<td>-.400**</td>
<td>0.67</td>
<td>-.344**</td>
<td>0.709</td>
<td>-.636**</td>
<td>0.53</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-.277**</td>
<td>0.758</td>
<td>-.257**</td>
<td>0.773</td>
<td>-.444**</td>
<td>0.641</td>
</tr>
<tr>
<td>Age</td>
<td>-.615**</td>
<td>0.541</td>
<td>-.562**</td>
<td>0.57</td>
<td>-.1226**</td>
<td>0.294</td>
</tr>
<tr>
<td>Married</td>
<td>-.064**</td>
<td>0.938</td>
<td>-.544**</td>
<td>0.938</td>
<td>-.718**</td>
<td></td>
</tr>
<tr>
<td>Religiosity</td>
<td>0.034</td>
<td>-0.053</td>
<td>-0.542**</td>
<td>0.053</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Chi-Square</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R²</td>
<td>3099.00**</td>
<td>3541.00**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*p&lt;.05</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>**p&lt;.01</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Gender was significant in explaining the occurrence of either behavior, but not co-occurring behaviors. Thus, males were more likely than female respondents to report the occurrence of either behavior. Education was significant in explaining either behavior before the addition of religiosity, along with both behaviors, but not either behavior after the addition of religiosity in the model. The directions for income level and education in relation to the dependent variable were as expected, as the lower the levels of education and income, the higher the levels of either behavior or co-occurring behaviors reported. The results for race indicated that both Hispanics and Blacks were less likely than Whites to report either or co-occurring behaviors. Generally, religiosity mediated the effect of social locations on reporting either or both behaviors, as the coefficients were reduced after the addition of religiosity in the model. The inclusion of religion was not found to reduce the impact of the 200% or above income on either or co-occurring behaviors. Overall, it was determined that every one unit of religiosity was associated with a 10.4% decrease in the likelihood a respondent would report co-occurring behaviors.

While considering the results for either behavior it was determined that before inclusion of religiosity, males were 10.4% more likely than women to report either drug abuse or psychological distress. The inclusion of religiosity in the model generates some mediation of the effects that gender wields on either drug abuse or psychological distress. Nevertheless, men were 5% more likely than women to report either drug abuse or psychological distress. Furthermore, those individuals who were 200% or more above the poverty line were 22.2% less likely to report either behavior before the inclusion of religiosity. However, after the inclusion of religiosity the results for individuals 200% or more above the poverty line were 23.2% less likely to report either behavior. The results for the 100 to 199% above poverty category indicate a significant, negative relationship with either behavior which was slightly mediated by
religiosity. For race, Blacks were 32.8% less likely to report either behavior while Hispanics were 29.1% less likely to report either drug abuse or psychological distress compared to Whites. In addition, the results for age and marital status were as expected, indicating that younger, not married individuals were more likely to report either behavior.

For both behaviors after the inclusion of religiosity, those individuals 100% above poverty were 20.9% less likely than were individuals living in poverty to report co-occurring behaviors, while individuals 200% or more above the poverty level were 32.4% less likely to report co-occurring drug abuse and psychological distress. Furthermore, an increase in every one level of education was associated with a 13.5% decrease in the likelihood of reporting co-occurring behaviors. In addition, Blacks were 35.2% less likely than Whites to report co-occurring behaviors while Hispanics were 41.5% less likely to report co-occurring behaviors after the inclusion of religiosity.
CHAPTER 5
DISCUSSION AND CONCLUSIONS

Social arrangements in American society create and perpetuate unequal conditions for individuals in several social locations including gender, socioeconomic status, and race (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Kaufman & Cooper, 1999). The disadvantaged statuses which emerge and are perpetuated by these arrangements often result in stress (Aneshensel, 1992) and health problems (Aneshensel, Rutter, & Lachenbruch, 1991). Drug abuse and mental disorders (Pratt & Brody, 2008) are two common consequences of disadvantaged social locations (Shih & Simon, 2008) and the stress inherent to them (Aneshensel, Rutter, & Lachenbruch, 1991; Aneshensel, 1992; Aneshensel, 2009). Co-occurring drug abuse and psychological distress as an effect of the resource deprivation and increased stress experienced by disadvantaged individuals was thus the focus of this study.

The current study is the first that we are aware of to examine the relationship between social locations and co-occurring drug abuse and psychological distress using religiosity as an indicator of social support. Utilizing these social locations as a cause of co-occurring drug abuse and psychological distress, the present study sought to explain these behaviors within a combined stress-social support theoretical framework. The present study’s results indicate that for disadvantaged individuals, two of the three social locations studied, female gender and minority race/ethnicity, did not result in higher levels of co-occurring behaviors, but that lower levels of education and income did. Furthermore, religiosity did generally mediate the impact of social locations on co-occurring behaviors.
Gender, income, education, and race were the social location factors explored in the current study. For this study, gender was not a significant factor for explaining co-occurring behaviors. However, men were more likely than women to report either drug abuse or psychological distress, a finding supported by previous research (Epstein et al., 2004; Office of Applied Studies, 2004; Park, 2006; Park, 2009). The present results support the literature’s general position that Whites are more likely than minorities to report co-occurring drug abuse and psychological distress (Epstein et al., 2004; Park, 2006; Smith et al., 2006). In addition, previous research support the current study’s findings that lower income individuals (Epstein et al., 2004; Park, 2006; Schutt et al., 1994) and individuals reporting lower levels of education (Park, 2006; SAMHSA, 2006) reported higher rates of co-occurring behaviors. Both of the control variables were significantly, negatively related to co-occurring behaviors both before and after inclusion of religiosity, indicating a general agreement with the literature on age (Park, 2006) and marital status (Park, 2006) in relation to co-occurring behaviors. The present study found that social support through religiosity generally neutralized the negative impact of social locations upon drug abuse and psychological distress as they occurred singly or simultaneously with each other (Green, Freeborn, & Polen, 2001; Marks et al., 2005; Chatters et al., 2009; Schieman, van Gundy, & Taylor, 2001; Schieman, 2008).

While females were more likely than males to be associated with high levels of social disadvantages, our results indicate that women were less likely to report either drug abuse or psychological distress. As the results discuss either behavior with no specification for drug abuse or psychological distress, the results were not inconsistent with the literature indicating that males are more likely to report drug abuse than are women (Mosher & Akins, 2007; Muthén & Muthén, 2000; Merline et al., 2004; Crum et al., 1992; Green, Freeborn, & Polen, 2001), while
women are more likely to report higher levels of serious psychological distress (McVeigh et al., 2006; Pratt, Dey, & Cohen, 2007; Herman-Stahl et al., 2007; McGuire et al., 2009; SAMHSA, 2009). Males and females react to high levels of stress differently, manifesting their problems in either drug abuse or psychological distress. These differences in coping may not only arise from the gender roles and stereotypes present in American society (Bird & Rieker, 1999; Spitzer, 2005; Artazcoz, Borrell, & Benach, 2001; Mosher & Akins, 2007; Moss, 2002), but also from a shift in societal attitudes toward drug use. The medicalization of American society is a growing trend, and encompasses a burgeoning pharmaceutical company presence in the media along with an increase in attitudes favorable towards prescription and illicit drug use such as Valium and marijuana. As the American population ages and prescription drugs become a common method of treatment, the use of these drugs to self-medicate and the rates of dependence and abuse of these prescription medications will rise. Future policies may wish to address this shift in attitudes regarding prescription and illicit drugs so that upcoming generations of American youths learn about the benefits of these medications, along with the risks of misuse or prolonged abuse of prescription and illegal drugs. Although the current study does not address drug use and psychological distress among juveniles, previous research has found that young women are more likely than young men to abuse prescription drugs (NIDA, n.d.).

As another social disadvantaged status, racial minorities were found in the current study to be less likely than Whites to report either and co-occurring behaviors as suggested by previous literature (Muthén & Muthén, 2000; Green, Freeborn, & Polen, 2001; Epstein et al., 2004; Park, 2006; Smith et al., 2006). While the stress-social support model proposed in the current study suggested that minorities would be more likely to exhibit co-occurring behaviors due to their disadvantaged status, the social stress theory postulates that overall mental health problems result
from disadvantaged social locations and exposure to stress (Aneshensel et al., 1991). The inconsistency between the predictions from the social support-stress model and the current results could be attributed to the selection of a specific mental health problem for the current study.

Overall, racial minorities often report lower levels of lifetime and current mental health disorders than Whites (Epstein et al., 2004; SAMHSA, 2009; Abram & Teplin, 1991). However, the differences in rates of lifetime mental health disorders between Whites and minorities were much more substantial than rates of current mental health disorders (Kip, Peters, & Morrison-Rodriguez, 2002). For minorities, the onset of substance abuse or mental health problems are often proceeded by deleterious health conditions (Kip et al., 2002) as they often receive less and lower quality health care (Reuss, 2001; Williams & Rucker, 2000) and discriminatory health practices which compound the stress they experience (Reuss, 2001; Williams & Rucker, 2000). As this hidden social stress process is not explicitly illustrated in the current findings, future research is necessary to further explore this topic.

The results for the two measures of socioeconomic status indicate an overall support for the theoretical model proposed in the current study, as those disadvantaged individuals with lower levels of income and education were more likely to report either and co-occurring behaviors (Mosher & Akins, 2007; Merline et al., 2004; Makimoto, 1998; Nielsen, 2000; Kauffman, Silver, & Poulin, 1997; Fryers, Melzer, & Jenkins, 2003; Fryers et al., 2005; Park, 2006; Epstein et al., 2004). Furthermore, in accordance with previous research (Schieman, 2008), religiosity generally provided necessary social support to neutralize the negative effects of lower levels of income and education on the dependent variable. The present findings signify a
need for future research and policy focusing on stress-reducing strategies for economically disadvantaged individuals.

Several limitations exist with the present study, which used national data to examine substance abuse and psychological distress as co-occurring behaviors. First, the study does not include respondents in jails, prisons, or institutional facilities. As the study is examining substance use and abuse, as well as psychological distress, it is probable that a percentage of the individuals who would be responding to this survey are in jail due to criminal charges related to their drug use, or in a psychiatric facility due to mental health problems. Secondly, the cross-sectional design of this study makes it difficult to track changes in social support over an individual’s lifespan, and how these changes in social support affect self-reported physical and mental health problems at a given time in an individual’s life. Depending on the frequency and intensity of religiosity and social support, levels of strain, and resulting distress and drug use, fluctuate. A third limitation is that there was no operationalization of stress in the current study, which is a weakness of using secondary data. However, we utilized an indirect measure of stress based on the literature and assumed that those with disadvantaged statuses are exposed to higher levels of stress. There was also only one measure of social support for the current study: religiosity. Though two or more measures of social support may have produced different results, the overall mediating impact of religiosity upon social locations and control variables supported the present study’s theoretical model. Other sources of social support can also be utilized when considering possible mediators of the relationship between social locations and co-occurring behaviors. These sources of social support may include family and friends (Dalgard et al., 2006; Fusilier, Ganster, & Mayes, 1986; Zaleski, Levey-Thors, & Schiaffino, 1998), coworkers (Dalgard et al., 2006; Fusilier, Ganster, & Mayes, 1986), and organizational memberships (Yip
et al., 2007). Furthermore, marital status can be considered an indicator of social support and a protective factor in regards to health and well-being in that marriage often increases an individual’s involvement in conventional behaviors (Hirschi, 1969; Manzoli, Villari, Pirone, & Boccia, 2007).

The current economic downturn affecting the American and global economies has undeniably increased the number of economically disadvantaged individuals, and consequently the amount of stress these individuals experience. Future research may be directed towards exploring the differences in reported levels of co-occurring behaviors before and after this economic downturn. This exploration might serve to further elucidate the effects of social locations and stress upon the co-occurrence of drug abuse and psychological distress. This future research might also establish government programs aimed at successfully addressing the issues these disadvantaged individuals face during economic crises through the provision of social support.

As the current study found that overall, religiosity did mediate the relationship between social locations and co-occurring drug abuse and psychological distress, programs directed toward increasing bonding with and support from the community in which these disadvantaged individuals reside, including religious institutions, may serve to further alleviate the stress that these individuals encounter. Encouraging involvement in or affiliation with a social institution such as a religious organization through programs aimed at acculturating and overall supporting individuals who struggle with their social and/or economic positions may not only lessen the overall number of hardships they encounter, but also decrease the burden placed upon American society in general in regards to increased taxes and fees due to incarceration, insurance, and other effects of the American social stratification system. Thus, if future policy targets individuals in
lower socioeconomic statuses, the country may actually reduce mental health disparities resulting from social locations.

The importance of the study of social locations in relation to mental health problems has been established in previous literature yet cannot be overstated due to the serious, negative consequences resulting from this relationship. The role of religiosity as a mechanism of social support and mediator of the relationship between social location, stress, and health problems should be examined further, as some level of religiosity is reported by many American citizens (Edlund et al., 2009) and can possibly be used as a general societal buffer for stress, health problems, and deviant behavior. As social support in general, and religiosity in particular, have been found to decrease rates of co-occurring drug abuse and psychological distress, future research and focus on this area could greatly benefit socially disadvantaged individuals and American society as a whole.
REFERENCES


#P165_4772


Van Etten, M.L., & Anthony, J.C. (2001). Male-female differences in transitions from first drug opportunity to first use: Searching for subgroup variation by age, race, region, and urban status. *Journal of Women’s Health & Gender-Based Medicine, 10*(8), 797-804.


APPENDIX A

Variable | Measurement
---|---
Co-occurring Drug Abuse and Serious Psychological Distress | 1- Presence of co-occurring drug abuse and psychological distress
 | 2- Presence of either drug abuse or psychological distress
 | 3- Presence of neither drug abuse nor psychological distress

Social Location Variables

Male | Revised gender is recoded to
 | 1- Male
 | 2- Female

100-199% above poor | Revised income is recoded to
 | 1- 100-199% above
 | 2- Not 100-199% above poor

200%> above poor | Revised income is recoded to
 | 1- 200%> above poor
 | 2- Not 200% above poor

Education | Revised education is recoded to
 | 1- Less than high school
 | 2- High school graduate
 | 3- Some college
 | 4- College graduate

Black | Revised race/ethnicity is recoded to
 | 1- Black
 | 2- Not Black
Hispanic Revised race/ethnicity is recoded to

1- Hispanic
2- Not Hispanic

Religiosity 4-Item Index (alpha=.82) Index is created by summing all four standardized items.

Attachment It is important that my friends share my religious beliefs, on a scale from (1) Strongly disagree to (4) Strongly agree,

1- Strongly disagree
2- Disagree
3- Agree
4- Strongly agree

Commitment My religious beliefs influence my decisions, on a scale from (1) Strongly disagree to (4) Strongly agree,

1- Strongly disagree
2- Disagree
3- Agree
4- Strongly agree

Involvement In the past 12 months, how many religious services did you attend, on a scale from (1) 0 times to (6) More than 52 times,

1- 0 times
2- 1 to 2 times
3- 3 to 5 times
4- 6 to 24 times
5- 25 to 52 times
6- More than 52 times

Belief My religious beliefs are important to me, on a scale from (1) Strongly disagree to (4) Strongly agree,
1- Strongly disagree
2- Disagree
3- Agree
4- Strongly agree

*Control Variables*

**Age**

- Age category
  1- 18-25 years old
  2- 26-34 years old
  3- 35 or older

**Married**

- Marital status is recoded to
  1-Married
  2-Not married