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Understanding addiction stigma: Examining desired social distance toward addicted individuals

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UNDERSTANDING ADDICTION STIGMA: EXAMINING DESIRED
SOCIAL DISTANCE TOWARD ADDICTED INDIVIDUALS

A Thesis

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Master of Science

BY

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CHAPTER I

INTRODUCTION

Mental health stigma is recognized as a major barrier to seeking psychological treatment and psychiatric recovery (Corrigan, 2004; Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001). While growing evidence documents the damaging effects of mental health stigma on psychological wellbeing (Corrigan, 2004, 2005; Link & Phelan, 2006; Link, Yang, Phelan, & Collins, 2004; Ronald, et al., 2001), few studies offer detailed accounts examining how mental health stigma manifests for specific psychological disorders. Furthermore, stigma towards substance abuse disorders is rarely studied, likely due to the assumed preventative benefits yielded from this stigma (Rasinski, Woll, & Cooke, 2005). However, substance abuse stigma has numerous negative consequences such as disempowering addicted individuals (Madden & Cavalieri, 2007), limiting access to much needed health services (Ahern, Stuber, & Galea, 2007; Drumm, et al.; Skinner, Feather, Freeman, & Roche, 2007), and increasing the cost for addicted individuals to engage in optimally healthy behavior (Rhodes, Singer, Bourgois, Friedman, & Strathdee, 2005). In effort to guide stigma research and interventions towards effective and lasting change, the process of stigmatization must be thoroughly understood (Corrigan, 2000).

The following study attempts to: (1) evaluate a theoretical stigma models of *desired social distance* (Corrigan, 2000) for dependence to alcohol, marijuana, or heroin; and, (2) provide a detailed account of substance abuse stigma among undergraduate college students.

Defining Stigma

Stigma is defined as a mark signifying deviancy (Jones, et al., 1984) and by the presence of a deeply discrediting attribute (Goffman, 1986). Stigma is a moral statement about the relationship between an individual's characteristic(s) and the social world (Yang, et al., 2007) and can act as a threat to an individual's humanity (Dovidio, Major, & Crocker, 2000). Stigma is dependent on the relationship between the specific discrediting attribute and the specific social context; in other words, a stigmatized characteristic may not be stigmatized in all situations (e.g. when with other members of a stigmatized group), it is therefore a product of the social situation rather than any specific individual (Major & O'Brien, 2004). Accordingly, the following study considers stigma and *social stigma* as synonymous.

However, there are two manifestations of social stigma: public versus self-stigma. *Public stigma* includes the negative beliefs individuals in society have about individuals from stigmatized groups. *Self-stigma* is internalized devaluation that individuals from stigmatized groups turn against themselves (Corrigan & Watson, 2002). Public stigma does not restrict itself to non-experts; in fact, several studies have found that professionals (mental health, medical doctors, etc.) hold negative views of stigmatized groups (Corrigan & Watson, 2002).

Stereotypes based on stigmatized attributes are commonly known among members of specific cultures (Steele, 1997) and each culture holds different attributes to be stigmatizing (Crocker & Quinn, 2000). This knowledge is generally applied to discredit individuals with these attributes (Link & Phelan,

2001). Key elements of being stigmatized include exclusion, stereotypes, prejudice, and discrimination (Major & O'Brien, 2004).

All groups with some minority characteristic may be stigmatized for their minority status (Major & O'Brien, 2004); for example, sexual minorities (Herek, 2009; Herek, Gillis, & Cogan, 2009), racial or ethnic minorities (Lenhardt, 2004), and individuals with physical (Simbayi, et al., 2007) or mental (Link, et al., 2004) illnesses are all stigmatized in differing ways for having characteristics that are inconsistent with majority groups and associated with discrediting attributes (Major & O'Brien, 2004). Additionally, individuals with double minority status, such as racial minorities facing a mental illness, may face even greater stigmatization (Gary, 2005).

Most modern research on stigma may be traced to the influence of Erving Goffman's (1963) seminal work, *Stigma: Notes on the Management of a Spoiled Identity*. In his work, Goffman (1963) offered various definitions for stigma but focused on the "discrediting" or "tainted" nature of social stigma. Furthermore, emphasis was placed on the importance of "visibility" of stigmatized characteristics and "secrecy" as a form of coping with stigma.

Building on Goffman's (1963) work, Jones et al. (1984) proposed the process of stigmatization requires that the "marked" characteristic (i.e. the stigmatized characteristic) be associated with a discrediting behavior or stereotype (Major & O'Brien, 2004). Additionally, Jones et al. (1984) proposed six dimensions to stigma: *concealability*, *course*, *disruptiveness*, *aesthetics*, *origin*, and *peril*. Every stigmatized characteristic varies on many of these

dimensions and this variation causes a unique response to each stigmatized characteristic.

Concealability describes how detectable or visible the characteristic is to observers. Concealability can widely vary from one stigmatized characteristic to another; for example, while skin color is hard to conceal, psychological (e.g. minor mental illnesses) and less prominent physical marks (e.g. scars concealable with makeup) may be much easier. Individuals with highly concealable marks face huge incentive to hide these characteristics and thereby avoiding discrimination and prejudice (Jones, et al., 1984). This is not to say that concealing a stigmatized characteristic is always beneficial; studies have documented the interpersonal and cognitive burden of concealing a stigmatized attribute, especially when concealing this attribute for an extended period of time (Smart & Wegner, 2000).

Course describes the changes of a stigmatized mark over time. Course includes the permanence and length of a stigmatized characteristic; for example, some marks are chronic but curable, some are chronic but incurable, and some are short-term and temporary (Jones, et al., 1984). These characteristics strongly influence the severity of stigma for a given characteristic; for example, chronic incurable characteristics (e.g. HIV/AIDS) are generally more stigmatized than short term and curable characteristics (Lichtenstein, 2008).

Disruptiveness describes the degree to which the mark interrupts social interactions. This dimension has also been termed *interaction strain* (Jones, et al., 1984). Disruptiveness is closely related to several other dimensions; for example,

individuals with stigmatized characteristics that are hard to conceal and permanent will be more disruptive compared to those that are concealable and curable. However, because disruptiveness is a product of many dimensions, Jones et al. (1984) described it as distinct dimension of stigma.

Aesthetics describes the affective reaction to the stigmatized characteristic; specifically, aesthetics refers to how pleasant or unpleasant a marked characteristic is to the senses (Jones, et al., 1984). For example, stigmatized characteristics such as homelessness and mental illness are associated with unpleasant lack of cleanliness (Phelan, Link, Moore, & Stueve, 1997) and are therefore found unpleasant.

Origin describes the etiology of the mark, particularly describing controllability or uncontrollability of the stigmatized characteristic. Assignment of responsibility for a stigmatized characteristics is related to how others think and act towards stigmatized individuals as well as how stigmatized think about themselves (Jones, et al., 1984).

Utilizing Jones et al.'s (1984) dimensions, one study found that physical based stigmas were perceived as uncontrollable and therefore elicited sympathy and willingness to help while mental illnesses were perceived as controllable and therefore elicited anger and lack of willingness to help (Weiner, Perry, & Magnusson, 1988). Additionally, a similar study found that controllability was the best predictor of participant's affective reaction (negative or positive) towards individuals described with a stigmatized condition (Weiner, et al., 1988). For several stigmatized characteristics (drug use, homelessness, AIDS, cancer, and

obesity), those individuals described with high controllability elicited more negative affective reaction than those with low controllability (Weiner, et al., 1988). Additionally, this study showed that each stigmatized characteristic had a unique attribute on two of Jones et al.'s (1986) dimensions, thereby suggesting each stigmatized group or attribute will induce a unique emotional response from individuals toward this stigma.

Emotional reactions are also a primary predictor of moral judgment (Haidt, 2001) and moral social judgments often guides behavior and decision making (Greene & Haidt, 2002). Therefore, perceived controllability may directly affect the treatment of stigmatized individuals via its influence on moral judgment.

Early conceptualizations of stigma largely focused on the cognitive aspects and experience of those who are stigmatized (Link, et al., 2004). Critics argue that such conceptualizations place inappropriate attention on individual characteristics of stigmatized individuals, focus on micro- level interpersonal interactions, and fail to capture the meta-causes of stigmatization such as power imbalances and exclusion from social life (Sayce, 1998). In response to such criticisms, Link and Phelan (2001) proposed a new conceptual definition for stigma linking the broad processes of exclusion and discrimination under the title of stigma. This included four stages: identifying human differences, labeling individuals with non-dominant differences and associating them to negative characteristics, placing social-psychological distance between labeled individuals and dominant groups, and finally denying status or discriminating against labeled

individuals (Link & Phelan, 2001). This study will utilize Link and Phelan's (2001) conceptualization of stigma and will therefore consider stigma as the overarching processes of identifying and discrediting individuals or groups perceived as deviant; accordingly, stereotyping, prejudice, and discrimination will be considered tools utilized in this process.

Enforcing Stigma

A key requirement for effective stigmatization is that the dominant group have available power and access allowing them to identify and discriminate against the non-dominant group or individual (Link & Phelan, 2001). While power has largely been ignored in psychological investigations of stigma, all stigmatization is contingent on the necessary social, political, or economic power to enforce the lower status of stigmatized individuals. There are numerous processes that dominant groups utilize to exert this power and enforce stigma on non-dominant groups and individuals.

As discussed, discrimination offers one means of enforcing stigma. Stigmatized individuals can be discriminated against through direct and structural discrimination (Link & Phelan, 2006). *Direct discrimination* includes overt discrimination in which a person explicitly treats a stigmatized person unequally due to their stigmatized attribute (e.g. not giving a homeless individual a job because you know they are homeless). *Structural discrimination* includes any process that indirectly excludes individuals for their stigmatized status (e.g. locating a job application site far from public transportation so only individuals with a car can apply for that job).

Indirect and structural discrimination causes immeasurable harm to stigmatized individual's health and wellbeing (Link & Phelan, 2006). Stigmatized individuals face discrimination finding employment, securing housing, utilizing their insurance, socializing, and within nearly every domain in life (Link, 1987; Major & O'Brien, 2004); these challenges often compound with other stressors to create serious disadvantage among stigmatized groups and individuals (Link & Phelan, 2006).

Discrimination and negative attitudes towards stigmatized individuals does not require that dominant groups adopt explicit prejudice attitudes towards stigmatized individuals. In fact, social evaluations, judgments, and actions can occur without active conscious intervention (Bargh & Ferguson, 2000). Additionally, research has shown that individuals normally adopt primed stereotypes without being consciously aware that they are primed for that stereotype (Wheeler & Petty, 2001). In one classic study, individuals primed with words associated with elderly stereotypes (e.g. Florida, old, wise, retired, etc.) consequently walked more slowly to the elevator when leaving the experiment than those individuals primed with neutral words (Bargh, Chen, & Burrows, 1996). Because stereotypes are commonly known among most individuals (Steele, 1997), large numbers of individuals may be implicitly applying stereotypes towards stigmatized individuals without their conscious awareness or effort to do so.

Responding to Stigma

Early theorists proposed that all individuals of stigmatized groups internalized their devaluation, subsequently leading to low-self esteem (Crocker, 1999). However, studies show that women and racial minorities show equal or greater levels of self-esteem than dominant groups (Hoelter, 1982). Crocker and Major (1989) proposed three processes that may help protect stigmatized groups from internalizing negative evaluation: attributing negative feedback as prejudice, comparing their outcomes relative to in-group members rather than out-group members, and devaluing behaviors for which their group is outperformed. Two recent reviews of the relationship between stigma and self-esteem both conclude that the relationship is far more complex than originally proposed, highly dependent on the context of experiencing stigma, and on the response each individual has to stigmatization (Camp, Finlay, & Lyons, 2002; Crocker, 1999).

Individuals experiencing stigma have numerous ways to respond. Such responses include: denial, acceptance, problem solving, impulsive actions, and involuntary avoidance (Miller & Kaiser, 2001). For example, responses can be categorized on two dimensions as either voluntary or involuntary and either engagement or disengagement (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). *Voluntary responses* are responses in which the individual applies effort to regulate their emotion while *involuntary responses* are those responses experienced out of the individual's control (Miller & Kaiser, 2001). *Engagement* responses are directed toward the stressor or an individual's experience of that stressor. *Disengagement* responses are directed away from the stressor or an individual's experience of that stressor (Compas, et al., 2001).

Studies show that engagement responses are associated with better psychological adjustment, especially for engagement responses such as problem solving, cognitive restructuring, and positive appraisals of stressors (Compas, et al., 2001).

The effects of stigma are also mediated by stigma consciousness of the individuals. *Stigma consciousness* is the degree to which individuals expect to be stereotyped (Pinel, 1999). Individuals with high stigma consciousness are more likely to perceive discrimination towards themselves and their group and avoid situations that might test these stereotypes (Pinel, 2002). Individuals with high stigma consciousness are also more likely to negatively evaluate individuals they perceive as prejudice and this evaluation elicits a negative response towards the stigmatized individual (Pinel, 2002). In a separate study, when facing conditions of stereotype threat, women high on stigma consciousness performed significantly poorer on a math test than those low on stigma consciousness (Brown & Pinel, 2003).

Despite the diverse responses among and within stigmatized groups, stigma is associated with numerous negative physical and psychological consequences. Negative psychological consequences include increased levels of depression (Simbayi, et al., 2007), increased symptoms of anxiety (Markowitz, 1998), and decreased life-satisfaction (Markowitz, 1998). Many negative consequences of stigma are highly contingent on the individual's response to stigmatization, specifically the degree to which individuals internalize public beliefs about stigma, known as self-stigma.

Self-Stigma

As stated above, self-stigma is the degree to which individuals internalize perceived public stigma (Corrigan & Watson, 2002). Link (1987) proposed that self-stigma originates from personal perceptions of public stigma that begin to form at a very early age. Corrigan, Watson and Barr (2006) described Link's (1987) conceptualization through three processes: stereotype awareness, stereotype agreement, and self-concurrence. *Stereotype awareness* describes an individual's perception of cultural stereotypes towards stigmatized individuals; *Stereotype agreement* describes the degree to which an individual endorses the legitimacy of public stereotypes. *Self-concurrence* describes the degree to which individuals believe these stereotypes apply to themselves (Corrigan, Watson, & Barr, 2006).

For several reasons, self-stigma has played a central role when studying mental health stigma. Mental disorders are somewhat easier to conceal than other stigmatized characteristics (e.g. race or sex) and therefore self-stigma can lead to disengagement coping such as denial of mental health concerns; Corrigan and Mathews (2003) use the term *label avoidance* to describe this phenomenon. Also, self-stigma influences the psychological harm inflicted by public stigma (Rüsch, Angermeyer, & Corrigan, 2005). For example, due to the importance of seeking psychological help for mental disorders, self-stigma plays a vital role in prevention and early intervention of psychological problems (Vogel, Wade, & Hackler, 2007).

Stigma and Mental Illness

Individuals facing mental illness are forced to confront the psychological harm caused by their illness as well as the public stigma associated with having a mental disorder (Corrigan & Watson, 2002). As discussed above, this stigma has numerous negative consequences, including failing to seek help (Vogel, et al., 2007) and decreased psychological well-being (Markowitz, 1998). These negative consequences can be even more severe for groups that are already at higher risk for untreated mental illness such as individuals residing in rural areas (Hoyt, Conger, Valde, & Weihs, 1997) and ethnic minorities (Gary, 2005).

While some individuals with mental illness fail to internalize social stigma and chose to respond with righteous anger and empowerment (Corrigan & Watson, 2002; Crocker & Major, 1989), many individuals still experience the deleterious effects of mental health stigma. One study (Roeloffs, et al., 2003) found that 67% of individuals being treated for depression expect to experience discrimination when finding employment and 59% expected to experience discrimination when utilizing their health insurance, solely due to their affiliation as a mental health service consumer. These expectations alone could have serious consequences negatively affecting how individuals cope with their mental illness (Roeloffs, et al., 2003).

Public perceptions and attitudes toward mental illness clearly stigmatizes individuals with mental illness (Corrigan & Watson, 2002). For example, most people consider mental illness as dangerous and distance themselves from mentally ill individuals (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). Additionally, despite numerous modern efforts to dispel mental illness stigma, the

public in 1996 was more likely to see mental illness as dangerous when compared to data from 1950 (Phelan, Link, Stueve, & Pescosolido, 2000).

If individuals with mental illness actually were more violent than the general public this fear of mental illness would not be considered stigma. However, while individuals with mental illness are six times more likely to commit violent acts than the general population, both age and gender are better predictors of violence (Corrigan, 2005). Furthermore, studies show that the relationship between mental illness and violence disappears when controlling for a specific psychiatric symptom called threat control-override (Link, Monahan, Stueve, & Cullen, 1999; Link & Stueve, 1995).

Several studies documented the role of media in mental health stigma (Diefenbach, 1997; Rose, 1998; Signorielli, 1989; Wahl, 1992). These studies concur that mental illness depicted quite often in the media and is usually inaccurate (Wahl, 1992). Individuals facing mental illness are depicted as excessively dangerous (Diefenbach, 1997; Signorielli, 1989), confused (Wahl & Roth, 1982), unsafe for community treatment (Rose, 1998), and with bizarre symptoms of psychosis emphasized (Wahl, 1992).

While some individuals internalize public stigma towards mental health and consequently experience distress, others fail to self-stigmatize and feel empowered to overcome and eliminate this stigma (Corrigan & Watson, 2002). Many individuals react to mental health stigma with righteous anger, an increased sense of self-worth, and active confrontation towards their stigmatization (Corrigan & Calabrese, 2005). Approaches that attempt to empower individuals

with mental illness provide a promising path to social change (Corrigan, 2002) and have documented effectiveness with other groups with disabilities (Fawcett, et al., 1994). Initial investigations of the process and outcomes of empowerment suggest numerous benefits including increased quality of mental health care (Salzer, 1997), greater self-efficacy, hopefulness (Zimmerman, 1990), and lower levels of perceived discrimination (Rusch, Lieb, Bohus, & Corrigan, 2006). However, social scientists must be wary of defining stigma as an individual pathology and absolving public responsibility for prejudice and discrimination (Corrigan & Calabrese, 2005).

One major success of the disability advocacy and empowerment movement is the passage of the American with Disabilities Act (Fawcett, et al., 1994; Feldblum, Barry, & Benfer, 2008). Recently, mental illness was added to the conditions protected under the Americans with Disability Act 's (ADA) anti-discrimination protection (Scheid, 2005), lending federal recognition to mental illness as a condition that is unjustifiably discriminated against. However, dependence on illegal substances are a unique category of psychiatric disorders excluded from the ADA's protection ("ADA Amendments Act of 2008," 2008). This exception reflects the unique characteristics of substance abuse disorders. Substance abuse disorders are a combination of crime and disease; consequently, stigma towards substance abuse is seen as both a form of deterrent social control and a damaging force towards individuals already dependent on drugs (Room, 2005).

As discussed, social stigma is created in the relationship between an individual's characteristic and the social environment (Major & O'Brien, 2004). Within a community psychological perspective, mental health stigma interacts dynamically with multiple forms of stigma and oppression (Collins, von Unger, & Armbrister, 2008). Substance abuse is one of the most stigmatized form of mental health stigma (Link, Phelan, et al., 1999). Consequently, individuals facing addiction encounter numerous oppressive barriers to recovery and maximizing their health (Rhodes, 2009; Rhodes, et al., 2005). Interventions designed to overcome this oppressive social stigma must include measures that confront the psychological as well as the political aspects behind this stigmatization (Prilleltensky, 2008). The ADA is one example of a political intervention designed to counteract stigmatization and discrimination for the mentally ill at the societal level (Masterson & Owen, 2006). However, because addiction to illicit drugs is excluded from the ADA's protection this form of mental health stigma continues to seriously diminish the life opportunity of addicted individuals.

Stigma and Substance Abuse

Substance use disorders are divided in two primary categories: substance abuse and substance dependence. Substance abuse is the less severe disorder defined by a maladaptive pattern of use that creates significant negative consequences in an individual's life. Substance dependence is defined by similar compulsive drug use as well as tolerance, withdrawal, increasing doses, unsuccessful efforts to control use, significant negative consequences, and/or persistence psychical or psychological problems caused by substance use

(American Psychiatric Association, 1994). Addiction is the lay term commonly used to describe substance dependence; however, substance dependence was chosen in DSM-III-R as a more neutral term that is easily applicable to all substances (O'Brien, Volkow, & Li, 2006). Consequently, this study utilizes the lay term (addiction) and examines stigma for dependence (addiction) to three substances: alcohol, marijuana, and heroin. The corresponding disorders for each of these drugs are classified as alcohol dependence, cannabis dependence, and opioid dependence, respectively (American Psychiatric Association, 1994).

All mental health stigmas are not the same (Link, Phelan, et al., 1999). Alcohol and drug disorders, for instance, are viewed as some of the most dangerous psychological disorders (Pescosolido, Monahan, Link, Stueve, & Kikuzawa, 1999). For example, in the 1996 General Social Survey, 87.3% of respondents viewed individuals with drug dependence as *Very Likely* or *Somewhat Likely of Doing something violent to others* (Pescosolido, et al., 1999). These numbers are even more striking when compared to the percentages for alcoholics (70.9%) and schizophrenics (60.9%) viewed as *Very Likely* or *Somewhat Likely of Doing something violent to others* (Pescosolido, et al., 1999). Out of the three substances in this study's examination of stigma (alcohol, marijuana, and heroin), alcohol is the only drug consistently linked to violence (Boles & Miotto, 2003). For example, alcohol can act as a triggering mechanism for individuals who show higher propensities for violence (Zhang, Wieczorek, & Welte, 2006) and can reduce cognitive functions to plan actions thereby increasing the likelihood of violence in response to perceived threats (Boles & Miotto, 2003).

However, substance use is closely associated with immorality (Husak, 2004; Rasinksi, et al., 2005). Accordingly, drug use is associated with other immoral behaviors and a general inability to make 'good' choices (Baumohl, Speiglmann, Swartz, & Stahl, 2003; Room, 2005). For example, individuals are more likely to see individuals addicted to alcohol (51.3%) and cocaine (66.1%) as *Very Likely* or *Somewhat Likely* as having *Bad character* compared to individuals with major depressive disorder (38.2%) or schizophrenia (32.8%) (Link, Phelan, et al., 1999). Among stigmatizing conditions, cocaine addiction is seen as the most controllable condition when compared to AIDS, psychosis, depression, cancer, and mental retardation (Corrigan, et al., 2000).

The primary costs associated with substance abuse stigma is through the decreased mental and physical health service utilization by substance users (Rasinksi, et al., 2005). Substantial numbers of individuals report lack of insurance for treatment as a major barrier to seeking help (Rasinksi, et al., 2005), service providers often hold stigmatizing and degrading attitudes towards addicts (Ahern et al., 2007; Baumohl et al., 2003; Luoma et al., 2007; Skinner et al., 2007), and, once in treatment, stigma attached to treatment can interfere with individuals receiving optimal care (Woods, 2001). Furthermore, individuals in treatment for substance abuse often report the highest levels of perceived stigma and stigma related rejection (Luoma, et al., 2007; Semple, Grant, & Patterson, 2005). These failures place huge cost on the individual and society in the form of continued dependence and poor health of individuals dependent on drugs (Andlin-Sobocki & Rehm, 2005).

Each addictive substance has different stigma attached to it. Accordingly, addicted individuals experience prejudice and discrimination unique to those substances that they use. For example, the public is much more likely to see alcoholism as a genetic problem (60.2%) when compared to cocaine dependence (27.3%) (Link, Phelan, et al., 1999). However, the increase in perceptions of alcoholism as a genetic disease has not diminished the belief that alcoholism is based in personal bad decisions and moral sickness (Baumohl et al., 2003; Orcutt, 1976; Room, 2005).

Interventions to reduce substance abuse and mental health stigma must be based on a thorough understanding of these unique attitudes, belief, prejudices, and discrimination (Corrigan, 2005). Accordingly, a thorough understanding of stigma towards each substance is necessary to inform future interventions to reduce this stigma.

Diminishing Mental Health Stigma: The Need for Second Order Change

There are two proposed methods of reducing the impact of mental health stigma: reducing the internalization of stigma for individuals with marked characteristics (i.e. diminishing self-stigma) and reducing prejudice and discrimination by the public towards stigmatized individuals (i.e. diminishing public stigma: Corrigan, 2005). The act of stigmatizing is a social-cultural phenomenon; therefore, true *second-order change*, change of the underlying conditions between a person and environment (Jason, Schober, & Olson, 2008) may require attendance to the social-cultural production of stigma – public stigma. Several strategies are commonly proposed to prevent and counteract

public stigma, namely: protest, education, and contact (Watson & Corrigan, 2005).

Protest involves confronting and disconfirming inaccurate or exaggerated portrayals of mental illness, usually by making strong moral statements against such portrayals (Rüsch, et al., 2005). The goal of such intervention is to eliminate negative portrayals of mental illness and reduce the frequency these portrayals are witnessed by the general public (Corrigan & Penn, 1999). These interventions are most commonly applied against media programs and advertisements. The effectiveness of protest on social stigma is still unclear (Corrigan & Penn, 1999; Corrigan, River, et al., 2001; Heijnders & Van Der Meij, 2006). Specifically, protest interventions are unlikely to change individual attitudes of mental illness or promote new positive views of mental illness (Rüsch, et al., 2005). However, reducing the frequency of negative portrayals of mental illness could reduce the availability of such stereotypes. As predicted by the availability heuristic, reducing the ease of recalling a stereotyped trait decreases the perceived frequency of that trait (Rothbart, Fulero, Jensen, Howard, & Birrell, 1978). Accordingly, by reducing the number of negative portrayals of mental illness protest will reduce the ease of recalling stereotypes about mental illness and subsequently decrease the perceived frequency of these stereotyped characteristics (e.g. mental illness and violence).

Education may be the most commonly utilized stigma intervention and involve multiple methods such as lectures, discussions, and films (Heijnders & Van Der Meij, 2006). The goal of such interventions is to change inaccurate

beliefs, eliminate negative attitudes, and create positive attitudes towards individuals with stigmatized characteristics. Studies on the effectiveness of educational interventions have found mixed results (Heijnders & Van Der Meij, 2006). Studies of HIV/AIDS stigma show that while support for discrimination towards individuals with HIV/AIDS declined in the 1990s, individuals still held incorrect views about the transmission of HIV/AIDS and held prejudice views of the individuals who contracted it (Herek, Capitanio, & Widaman, 2002). For mental health, interventions specifically targeting attributions have successfully altered some beliefs (Corrigan, River, et al., 2001; Corrigan, et al., 2002). For example, education can improve understanding of the effectiveness of treatment and individual's potential for recovery (Corrigan, River, et al., 2001). However, attitudes are difficult to change (Corrigan & Penn, 1999). Accordingly, effective educational interventions must be tailored to the target population and utilize multiple methods to achieve more thorough change in discrimination and prejudice (Heijnders & Van Der Meij, 2006).

Contact, a third strategy, involves interacting with individuals with a stigmatized characteristic either in-person or via some media (Heijnders & Van Der Meij, 2006). Contact interventions are based on the *contact hypothesis*: cooperative interactions with stigmatized individuals will increase liking and decrease stigma towards that group (Desforges, et al., 1991). The contact hypothesis has yielded relatively consistent support in diverse research methodology including survey, archival, field, and experimental studies (Pettigrew, 1998). Specifically for mental illness, contact has found support in

experimental studies (Corrigan, River, et al., 2001; Corrigan, et al., 2002). This includes both attitudinal changes in attribution judgments about mental illness (Corrigan, River, et al., 2001) as well as helping behavior, measured as donations to an anti-stigma organization (Corrigan, et al., 2002). Review of mental illness contact interventions found that these interventions do improve acceptance of these groups, however, these changes tended to decrease negative attitudes rather than increase positive ones (Couture & Penn, 2003; Kolodziej & Johnson, 1996).

Further interventions would benefit from comprehensive combinations of education and contact, the targeting of specific and influential populations (e.g. medical professionals or public officials), and greater consideration given to the particular setting and population of the intended intervention (Herek, et al., 2002; Kolodziej & Johnson, 1996). In order to shape interventions towards specific target populations and specific stigmas (e.g. substance abuse), the foundation of such stigmas must be thoroughly understood. Attribution analysis offers one means to enhance our understanding of substance abuse stigma and increase the effectiveness of interventions designed to prevent or decrease this stigma.

Familiarity with Mental Illness

Familiarity with mental illness is defined by the amount of knowledge and frequency of direct experience with mental illness or individuals with mental illness that a person experiences (Angermeyer, Matschinger, & Corrigan, 2004; Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). Research generally supported the hypothesis that increased familiarity with mental illness decreases stigma towards individuals with mental illness (Angermeyer, et al., 2004;

Corrigan, Edwards, Green, Diwan, & Penn, 2001; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Corrigan, et al., 2005; Link & Cullen, 1986).

As suggested by the contact hypothesis, contact with individuals facing mental illness has shown to decrease the perceived dangerousness of these individuals (Link & Cullen, 1986). Individuals familiar with mental illness tend to display less fearful reactions to mental illness (Angermeyer & Matschinger, 1996a) and are less likely to support stereotypes of personal responsibility (Corrigan, Green, et al., 2001).

However, familiarity with mental illness or mentally ill individuals does not always predict prosocial beliefs about these individuals. For example, adolescents familiar with mental illness showed increased stigma and discrimination towards these individuals (Corrigan, et al., 2005). However, overall research supports a negative correlation between familiarity and dangerousness, fear, and desired social distance (Angermeyer, et al., 2004; Corrigan, Edwards, et al., 2001; Corrigan, Green, et al., 2001)

Perceptions of Dangerousness, Fear, and Social Distance

Perceptions of dangerousness predict social distance towards individuals with mental illness (Angermeyer & Dietrich, 2006). The general public has demonstrated numerous domains (e.g. employment and housing) in which they create social distance (i.e. willingness to engage in and level of intimacy of relationships) from individuals labeled as mentally ill (Corrigan, et al., 2000). Early examinations of stigma toward mental illness revealed that individuals who showed fearful reactions towards two highly publicized political assassinations

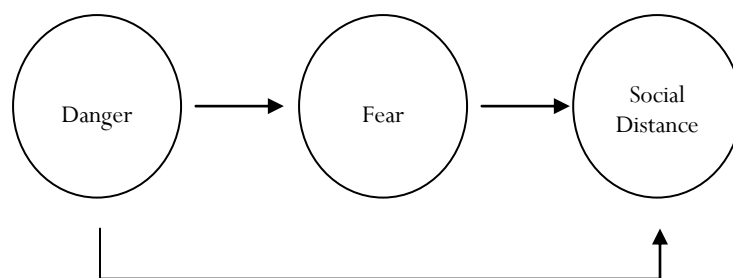
attributed to individuals with mental illness showed increased social distance towards individuals with mental illness (Angermeyer & Matschinger, 1996b). Fearful reaction to inaccurate perceptions of dangerousness about mental illness negatively impacts the lives of individuals labeled as mentally ill and significantly decreases numerous opportunities for recovery and societal integration (Link & Phelan, 2006).

Being labeled as formally mentally ill is associated with a stronger correlation between perceived dangerousness and social distance (Link, Cullen, Frank, & Wozniak, 1987); that is, participants are more likely to distance themselves from individuals labeled as mentally ill even when controlling for their level of aggressive behavior. Link et al. (1987) presented vignettes of individuals who were labeled (formerly in a mental hospital or formally hospitalized for back pain) and described with certain behavior (mild or severe aggression). While no significant relationship was documented between the level of aggressive behavior and social distance for individuals hospitalized for back pain, a strong correlation ($r = .657$) was documented for individuals labeled as formally mentally ill even though the behavior described was exactly the same as that of the back pain patients (Link, et al., 1987).

Adding to previous research demonstrating this link between dangerousness and social distance towards individuals identified as mentally ill (Link, et al., 1987; Link, Phelan, et al., 1999; Pescosolido, et al., 1999), Corrigan (2000) explicitly outlined the dangerousness-social distance link mediated by fear (see Figure 1; a subsequent study by Corrigan et al., (2002) supported this

mediated model). This model was also examined for alcohol addiction but was not supported (Corrigan, et al., 2005). However, Corrigan et al. (2005) examined this model for adolescents. Accordingly, the model has never been examined for alcohol addiction among adults.

Figure 1



Angermeyer, Matschinger, and Corrigan (2004) replicated the dangerousness model using a saturated linear regression model but added familiarity as another predictor (see Figure 2). They also used specific mental disorders (schizophrenia and major depressive disorder) and again found support for the dangerousness model; this included significant coefficients in the expected direction for all variables for both diseases (Angermeyer, et al., 2004). Additionally, this model explained 20.6% of the variance in social distance for schizophrenia and 15.8% of the variance for major depressive disorder (Angermeyer, et al., 2004).

Rationale

Alcohol and drug related disorders are among the most common psychiatric disorders and create huge costs to society (French, Dunlap, Zarkin, McGeary, & Thomas McLellan, 1997; Rice, 1993). Lifetime prevalence rates for alcohol abuse and dependence in the United States are estimated at 13.2 and 5.4% respectively; lifetime prevalence rates for drug abuse and dependence are 7.9 and

3.0% respectively (Kessler, et al., 2005). Combined, these disorders affect 14.6% of individuals in their lifetime, similar to the number of individuals affected by major depressive disorder and nearly three times as many individuals as generalized anxiety disorder (Kessler, et al., 2005).

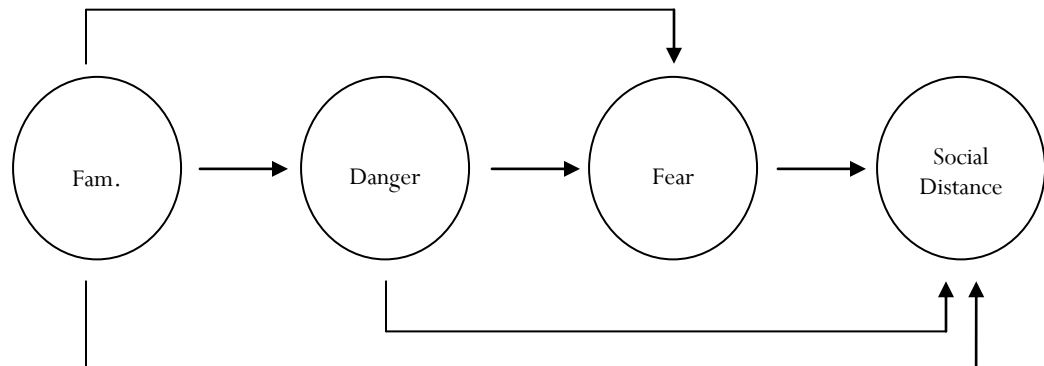
As discussed, many individuals facing substance disorders must confront the distressful consequences of their psychiatric disorder as well as the damaging burden of stigma. Because individuals seeking treatment become associated with stigmatized labels (Link, 1987), stigma increases the psychological distress experienced by these individuals and attaches huge costs to seeking help. Less than 40% of individuals receive stable treatment for their mental disorder, despite decades of evidence documenting the effective treatments for psychiatric disorders (Ronald, et al., 2001). Counteracting psychiatric stigma is therefore a public and community health necessity (Link & Phelan, 2006).

In order to counteract stigma, the processes of stigma must be thoroughly understood. Corrigan et al. (2002) explored the attribution process of mental health stigma. However, the attribution model in Corrigan et al.'s (2002) study relied on attitudes towards "individuals with mental illness".

This study examines a theoretical model of social distance stigma attribution for three different substance abuse disorders: alcohol addiction, marijuana addiction, and heroin addiction. The model proposes that the influence of familiarity provides additional understanding of desired social distance by familiarity's direct influence on social distance and its indirect influence through perceived dangerousness and fear (Figure 2).

Figure 2

Full Dangerousness Model



Alcohol, marijuana, and heroin are all depressants; however, each substance has differing attached stigmas. Therefore, it is possible this model will have differing validity for each substance. Accordingly, the model will be assessed separately for each substance. It is also expected that the familiarity-social distance model will adequately document stigma for all three substances.

Statement of Hypotheses

Hypothesis I: Perceived dangerousness will directly and indirectly, through fear, significantly positively predict desired social distance towards individuals addicted to alcohol, heroin, and marijuana.

Hypothesis II: Familiarity will directly and indirectly, through perceived dangerousness, negatively predict fear towards individuals addicted to alcohol, heroin, and marijuana.

Hypothesis III: Familiarity will directly and indirectly, through perceived dangerousness and fear, significantly negatively predict desired social distance towards individuals addicted to alcohol, heroin, and marijuana.

Research Questions

Research Question I: Will familiarity, perceived dangerousness, fear, and desired social distance for each substance significantly differ between genders?

Research Question II: Will perceived dangerousness, fear, and desired social distance for each substance significantly differ between individuals who have lived with someone addicted to the substance and those who have not?

CHAPTER II

METHOD

This study examined a partially mediating model for addiction stigma. This model proposes that familiarity influences desired social distance directly and through two mediating variables, perceived dangerousness and fear. This study examines this model separately for stigma towards individuals addicted to alcohol, marijuana, and heroin. The model was tested utilizing a modified version of a previously developed questionnaire designed to assess a similar theoretical model for stigma towards mental illness.

Procedure

All participants were recruited from the psychology subject pool at a medium sized mid-western university. For completing this survey, participants received credit towards their class required research participation points for Introductory Psychology I and II. All data was collected online; participants chose this study using an online list of several psychology subject pool studies. A total of 212 participants completed the survey (Female = 166, Male = 46, *M* age = 19.9). Most participants were freshman (48.3%) followed by sophomores (23.9%), sophomores (17.2%), and seniors (10.5%). Most lived on campus (43.9%) followed by commuters (30.8%) and off campus apartments (24.5%). Participants first completed a brief demographic questionnaire including age, gender, and year in college and then completed the following psychometric scales.

Psychometric Scales

Participants completed three iterations of a single questionnaire, each designed to fit the specific addiction. The order of these three iterations was randomized. All three questionnaires are designed to assess the model for alcohol, marijuana, and heroin addiction. Each questionnaire had scales to measure the four variables in model: familiarity, perceived dangerousness, fear, and desired social distance.

Familiarity. Corrigan et al. (2003) developed a measure to capture an individual's knowledge and personal experience with mental illness. This measure is itself a modified version of a previous 9-item measure called the *Level of Contact Report* (Holmes, Corrigan, Williams, Canar, & Kubiak, 1999). Corrigan et al.'s (2003) version includes 7-items measuring varying degrees of personal awareness of mental health services and contact with mentally ill individuals ($M = 2.17$, $SD = 1.63$). These items range on wide level of intimacy. For example, low levels of familiarity include knowing one's school provides mental health services while a higher level of intimacy includes working or living with someone facing mental illness. Each item is coded dichotomously as 1 (Yes) or 0 (No) and scores are summed to create a single measure ranging from 0 (lowest familiarity) to 7 (highest familiarity).

The proposed study will modify Corrigan et al.'s (2003) 7-item measure replacing the phrase "with mental illness" with "addicted to..." for each substance (i.e. addicted to alcohol, addicted to heroin, addicted to marijuana) (Appendix A).

Perceived Dangerousness. Link et al. (1987) developed a 7-item measure examining perceived dangerousness of mentally ill individuals. These items

assess attitudes on a variety of situation that capture the level of threat individuals with mental illness pose to them and others (Link, et al., 1987). Link et al. (1987) found good internal consistency for this measure ($\alpha = 0.85$). These questions are scored on a 6 point scale (1 = *strongly disagree*, 6 = *strongly disagree*) likert. High scores indicate high perceived dangerousness while low scores indicate low perceived dangerousness.

Again, the proposed study utilizes a modified version of Link et al.'s (1987) replacing "mental patients" with "people addicted to..." for each substance (Appendix B). Also, two items were removed as they did not relate to substance dependence as a specific manifestation of mental illness.

Fear. Three items measure the level of fear reactions individuals display for each substance (e.g. "How scared of a person addicted to ___ would you feel?"). Each question is measured on a 10-point scale (1 = *not at all*, 10 = *very much*). This measure is extracted from Corrigan et al.'s (2002) instrument to measure dangerousness, fear, and social distance for general mental health stigma.

Social Distance. Link et al. (1987) developed a 7-item scale measuring social distance towards individuals with mental illness. Link et al.'s (1987) scale is a modified version of an earlier social distance scale (Borgadus, 1925). Each item presents a scenario that includes some level of chosen social interaction with an individual facing mental illness and participants respond on a 4-point scale (0 = *definitely willing*, 3 = *definitely unwilling*). Link et al. (1987) found excellent internal reliability for this scale ($\alpha = .92$) as did Angermeyer et al. (2004) using a

modified version of this scale ($\alpha = .90$). This study modified Link et al.'s (1987) scale replacing the vignette character's name with "a person addicted to ...".

CHAPTER III

RESULTS

Preliminary Analysis.

Preliminary analysis assessed the internal consistency of the psychometric scales and examined diagnostic tests required for optimal performance of ordinary least square regression. All scaled variables had excellent to adequate internal consistency (Cortina, 1993; Streiner, 2003) with all Cronbach's alpha values greater than 0.70 (Table 1).

Regression diagnostics were also satisfactory for each model including residuals with absolute skewness less than 3 and kurtosis values less than 10, no tolerance values lower than .20, and all Cook's distances less than 1.0 (Table 2). Means and standard deviations of each variable are also reported (Table 3).

Table 1

Internal Reliability of Scales by Substance

	Substance	Cronbach's α
Perceived Dangerousness	Alcohol	.82
	Marijuana	.89
	Heroin	.83
Fear	Alcohol	.97
	Marijuana	.98
	Heroin	.98
Desired Social Distance	Alcohol	.88
	Marijuana	.93
	Heroin	.89

$n = 212$.

Table 2

Regression Diagnostics by Substance

Alcohol	Skewness		-.207 (.175)
	Kurtosis		.588 (.349)
		Min	Max
	Tolerance	.633	.984
	Cook's Distance	.000	.248
Marijuana	Skewness		.228 (.180)
	Kurtosis		.039 (.357)
		Min	Max
	Tolerance	.451	.835
	Cook's Distance	.000	.072
Heroin	Skewness		-1.013 (.181)
	Kurtosis		2.456 (.359)
		Min	Max
	Tolerance	.543	.957
	Cook's Distance	.000	.420

Note: Values in parentheses are standard errors.

$n = 212$.

Table 3

Means of subscales by substance

Scale	Substance	M	
Perceived Dangerousness	Alcohol	3.82	(1.13)
	Marijuana	2.71	(1.29)
	Heroin	4.48	(1.11)
Fear	Alcohol	4.80	(2.29)
	Marijuana	2.59	(2.09)
	Heroin	6.44	(2.30)
Desired Social Distance	Alcohol	2.13	(.55)
	Marijuana	1.66	(.78)
	Heroin	2.62	(.48)
Familiarity	Alcohol	5.30	(2.00)
	Marijuana	4.67	(2.30)
	Heroin	1.84	(2.09)

Note. Values in parentheses are standard deviations.

$n = 212$.

Hypothesis I: Perceived dangerousness will directly and indirectly, through fear, significantly positively predict desired social distance towards individuals addicted to alcohol, heroin, and marijuana.

Hypothesis I was tested by performing three ordinary least squares regression equations necessary to assess a partially mediating relationship between *perceived dangerousness*, *fear*, and *desired social distance* (see Table 4). The first regression equation included *fear* as the *dependent* variable and *perceived dangerousness* as the single predictor. For alcohol, *perceived dangerousness* was a significant predictor of *fear*, $\beta = .617$, $t(197) = 10.999$, $p < .001$. For marijuana, *perceived dangerousness* was a significant predictor of *fear*, $\beta = .729$, $t(192) = 14.768$, $p < .001$. For heroin, *perceived dangerousness* was a significant predictor of *fear*, $\beta = .651$, $t(193) = 11.925$, $p < .001$. All regression coefficients were in the expected directions signifying a positive relationship between *perceived dangerousness* and *fear* towards addicted individuals to all three substances.

The second regression equation included *desired social distance* as the dependent variable with *perceived dangerousness* as the single predictor variable (see Table 4). For alcohol, *perceived dangerousness* was a significant predictor of *desired social distance*, $\beta = .582$, $t(193) = 9.949$, $p < .001$. For marijuana, *perceived dangerousness* was a significant predictor of *desired social distance*, $\beta = .701$, $t(189) = 13.516$, $p < .001$. For heroin, *perceived dangerousness* was a significant predictor of *desired social distance*, $\beta = .660$, $t(182) = 11.861$, $p < .001$.

.001. Again, all regression coefficients were in the expected direction signifying a positive relationship between *perceived dangerousness* and *desired social distance*.

The third regression equation included *desired social distance* as the dependent variable with *perceived dangerousness* and *fear* as predictor variables (Table 4). For alcohol, *perceived dangerousness*, $\beta = .344$, $t(189) = 4.949$, $p < .001$, and *fear*, $\beta = .382$, $t(189) = 5.504$, $p < .001$, were both significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .424$, $F(2, 189) = 69.478$, $p < .001$. For marijuana, *perceived dangerousness*, $\beta = .547$, $t(180) = 7.223$, $p < .001$, and *fear*, $\beta = .193$, $t(180) = 2.554$, $p < .001$, were both significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .487$, $F(2, 180) = 85.467$, $p < .001$. For heroin, *perceived dangerousness*, $\beta = .473$, $t(178) = 6.488$, $p < .001$, and *fear*, $\beta = .279$, $t(178) = 3.826$, $p < .001$, were both significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .478$, $F(2, 178) = 81.513$, $p < .001$. All regression coefficients remained statistical significant when introducing the mediating variable suggesting a partially mediating relationship between *perceived dangerousness*, *fear*, and *desired social distance*.

Table 4

Dangerousness, Fear, Desired Social Distance

	Substance	Standardized Regression Coefficient (β)		R^2
		Dangerousness	Fear	
Equation 1	Alcohol	.617***		.380***
	Marijuana	.729***		.651***
	Heroin	.651***		.424***
Equation 2	Alcohol	.582***		.339***
	Marijuana	.701***		.492***
	Heroin	.473***		.436***
Equation 3	Alcohol	.344***	.382***	.424***
	Marijuana	.424***	.547***	.487***
	Heroin	.473***	.279***	.478***

Note. Equation 1 includes dangerousness predicting fear, equation 2 includes dangerousness predicting desired social distance and equation 3 includes dangerousness and fear both predicting desired social distance.

$n = 212$.

*** $p < .001$.

Finally, biased corrected and accelerated bootstrap estimates and confidence intervals were calculated (see Table 5) using Preacher and Hayes's (2008) SPSS script to directly assess the indirect effect. This method was chosen because biased corrected and accelerated bootstrap estimates provide the greatest statistical power and more accurate Type I error rates when testing for indirect effects with a single or multiple mediating variables (Briggs, 2006; Preacher & Hayes, 2008; Williams & MacKinnon, 2008). For alcohol, the bootstrap estimate of the indirect effect of *perceived dangerousness* on *desired social distance*

through *fear* was .1162 ($CI_{.95} = .0686, .1735$). For marijuana, the bootstrap estimate of the indirect effect was .0828 ($CI_{.95} = .0290, .1431$). For heroin, the bootstrap estimate of the indirect effect was .0802 ($CI_{.95} = .0430, .1287$). All bootstrapped confidence intervals had a lower and upper limit greater than zero; therefore, *perceived dangerousness* had a statistically significant indirect effect on desired *social distance* through *fear*.

Table 5

Estimates of Indirect Effect of Dangerousness on Desired Social Distance

Substance	Estimate	Confidence Interval	
		Lower	Upper
Alcohol	.1162	.0686	.1735
Marijuana	.0828	.0290	.1431
Heroin	.0802	.0430	.1287

Note. All estimates and confidence intervals are bootstraps bias corrected and accelerated.

$n = 212$.

Hypothesis II: Familiarity will directly and indirectly, through perceived dangerousness, negatively predict fear towards individuals addicted to alcohol, heroin, and marijuana.

Hypothesis II was statistically tested by performing three regression equations. The first regression equation included fear as the dependent variable and familiarity as the single predictor variable (see Table 6). For alcohol, *familiarity* was not a significant predictor of *fear*, $\beta = -.069$, $t(205) = -.988$, $p = .324$. For marijuana, *familiarity* was a significant predictor of *fear*, $\beta = -.261$, $t(200) = -3.819$, $p < .001$. For heroin, *familiarity* was a significant predictor of

fear, $\beta = -.164$, $t(207) = -2.398$, $p = .017$. For marijuana and *heroin*, each regression coefficient was in the expected direction suggesting a negative relationship between *familiarity* and *fear*; however, contrary to the predicted relationship, *familiarity* with individuals addicted to alcohol was not a significant predictor of *fear*.

The second regression equation included perceived dangerousness as the dependent variable and *familiarity* as the single predictor variable (see Table 5). For alcohol, *familiarity* was not a significant predictor of *dangerousness*, $\beta = -.128$, $t(200) = -.988$, $p = .068$. For marijuana, *familiarity* was a significant predictor of *dangerousness*, $\beta = -.374$, $t(202) = -5.740$, $p < .001$. For heroin, *familiarity* was a significant predictor of *dangerousness*, $\beta = -.184$, $t(196) = -2.622$, $p = .009$. Again, regression coefficients were significant and in the expected direction for marijuana and heroin. However, *familiarity* with alcohol addiction was not a significant predictor of *fear*.

The third equation included *fear* as the dependent variable with *familiarity* and *perceived dangerousness* as predictor variables (Table 5). For alcohol, *familiarity* was not, $\beta = .006$, $t(196) = .108$, $p = .914$, but *dangerousness* was, $\beta = .618$, $t(196) = 10.897$, $p < .001$, a significant predictor of *fear*. The model also explained a significant percentage of the variance in *fear*, $R^2 = .380$, $F(2, 196) = 60.192$, $p < .001$. For marijuana, *familiarity* was not $\beta = .024$, $t(191) = .452$, $p = .652$, but *dangerousness* was, $\beta = .739$, $t(191) = 13.780$, $p < .001$, a significant predictor of *fear*. The model also explained a significant percentage of the variance in *fear*, $R^2 = .532$, $F(2, 191) = 108.702$, $p < .001$. For heroin, *familiarity*

was not, $\beta = -.057$, $t(192) = -1.031$, $p = .304$, but *dangerousness* was, $\beta = .641$, $t(192) = 11.529$, $p < .001$, a significant predictor of *fear*. The model also explained a significant percentage of the variance in *fear*, $R^2 = .427$, $F(2, 192) = 71.663$, $p < .001$. For marijuana and heroin, the regression coefficient for *familiarity* was no longer significant when controlling for *perceived dangerousness* suggesting a fully mediated model.

Again, biased corrected and accelerated bootstrap estimates and confidence intervals were calculated for the indirect effect (see Table 7) using Preacher and Hayes's (2008) SPSS script. For alcohol, the bootstrapped estimate of the indirect effect of *familiarity* on *fear* through *perceived dangerousness* was .0905 ($CI_{.95} = -.1889, .0144$). For marijuana, the bootstrap estimate of the indirect effect was -.2544 ($CI_{.95} = -.3635, -.1495$). For heroin, the bootstrap estimate of the indirect effect was -.1296 ($CI_{.95} = -.2141, -.0248$). For marijuana and heroin, the lower and upper limits of the bootstrapped confidence intervals were both less than zero; therefore, *familiarity* had a statistically significant indirect effect on desired *social distance*. For alcohol, the bootstrapped confidence interval for the indirect effect of *familiarity* on *fear* confirmed the previous regression equations and suggested that *familiarity* did not have a statistically significant indirect effect on *fear*.

Table 6

Familiarity, Dangerousness, and Fear

	Substance	Standardized Regression Coefficient (β)		R^2
		Familiarity	Dangerousness	
Equation 1	Alcohol	-.069		.005
	Marijuana	-.261***		.068***
	Heroin	-.164*		.027*
Equation 2	Alcohol	-.128		.017
	Marijuana	-.374***		.140***
	Heroin	-.184**		.034**
Equation 3	Alcohol	.006	.618***	.380***
	Marijuana	.024	.739***	.532***
	Heroin	-.057	.641***	.427***

Note. Equation 1 includes familiarity predicting dangerousness, equation 2

includes familiarity predicting fear and equation 3 includes familiarity and

dangerousness both predicting desired social distance.

$n = 212$.

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

Table 7

Estimates of Indirect Effect of Familiarity on Fear

Substance	Estimate	Confidence Interval	
		Lower	Upper
Alcohol	.0905	-.1889	.0144
Marijuana	-.2544	-.3635	-.1495
Heroin	-.1296	-.2141	-.0248

Note. All estimates and confidence intervals are bootstraps bias corrected and

accelerated.

$n = 212$.

Hypothesis III: Familiarity will directly and indirectly, through perceived dangerousness and fear, significantly negatively predict desired social distance towards individuals addicted to alcohol, heroin, and marijuana.

Hypothesis III was tested by performing two regression equations. The first equation included *desired social distance* as the dependent variable and *familiarity* as the single predictor variable (see Table 8). For alcohol, *familiarity* was a significant predictor of *desired social distance*, $\beta = -.152$, $t(200) = -2.178$, $p = .031$. For marijuana, *familiarity* was a significant predictor of *desired social distance*, $\beta = -.342$, $t(198) = -5.11$, $p < .001$. For heroin, *familiarity* was a significant predictor of *desired social distance*, $\beta = -.195$, $t(194) = -2.767$, $p = .006$. All regression coefficients were significant in the predicted direction suggesting *familiarity* had a negative relationship with *desired social distance* for all substances.

The second equation included *desired social distance* as the dependent variable and *familiarity*, *perceived dangerousness*, and *fear* as predictor variables (see Table 8). For alcohol, *familiarity* was not, $\beta = -.082$, $t(188) = -1.469$, $p = .143$, but *dangerousness*, $\beta = .333$, $t(188) = 4.774$, $p < .001$, and *fear*, $\beta = .384$, $t(188) = 5.552$, $p < .001$, were significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .430$, $F(3, 188) = 47.322$, $p < .001$. For marijuana, *familiarity* was not, $\beta = -.091$, $t(179) = -1.562$, $p = .120$, but *dangerousness*, $\beta = .510$, $t(179) =$

6.433, $p < .001$, and *fear*, $\beta = .195$, $t(179) = 2.579$, $p = .011$, were significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .494$, $F(3, 179) = 58.247$, $p < .001$. For heroin, *familiarity* was not, $\beta = -.060$, $t(177) = -1.092$, $p = .276$, but *dangerousness*, $\beta = .470$, $t(177) = 6.443$, $p < .001$, and *fear*, $\beta = .269$, $t(177) = 3.658$, $p < .001$, were significant predictor of *desired social distance*. The model also explained a significant percentage of the variance in *desired social distance*, $R^2 = .482$, $F(3, 177) = 54.798$, $p < .001$. All regression coefficients for *familiarity* were statistically non-significant when controlling for *dangerousness* and *fear* suggesting a mediating relationship between *familiarity* on *desired social distance* through *dangerousness* and *fear*. However, bias corrected and accelerated estimates were examined to assess this relationship more precisely.

Table 8

Familiarity, Dangerousness, Fear and Desired Social Distance

	Substance	Standardized Regression Coefficient (β)			R^2
		Familiarity	Dangerousness	Fear	
Equation 1	Alcohol	-.152*			.005*
	Marijuana	-.342***			.068***
	Heroin	-.195**			.027**
Equation 2	Alcohol	-.082	.333***	.384***	.430***
	Marijuana	-.091	.510***	.195*	.494***
	Heroin	-.060	.470***	.269***	.482***

Note. Equation 1 includes familiarity predicting desired social distance; equation 2 includes familiarity, dangerousness and fear predicting desired social distance.

$n = 212$.

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

Biased corrected and accelerated bootstrap estimates and confidence intervals were calculated for the indirect effect (see Table 9) using Preacher and Hayes's (2008) SPSS script. For alcohol, the bootstrap estimate of the indirect effect of *familiarity* on *desired social distance* through *perceived dangerousness* was -.0113 ($CI_{.95} = -.0289, -.0005$) and through *fear* was -.0066 ($CI_{.95} = -.0221, .0092$); the total estimated indirect effect of *familiarity* was -.0179 ($CI_{.95} = -.0428, .0091$). For marijuana, the bootstrap estimate of the indirect effect through *perceived dangerousness* was -.0670 ($CI_{.95} = -.1001, -.0377$) and through *fear* was -.0180 ($CI_{.95} = -.0357, -.0054$); the total estimated indirect effect of *familiarity* was -.0849 ($CI_{.95} = -.1182, -.0481$). For heroin, the bootstrap estimate of the indirect effect through *perceived dangerousness* was -.0178 ($CI_{.95} = -.0349, -.0035$) and through *fear* was -.0131 ($CI_{.95} = -.0282, -.0027$); the total estimated indirect effect of *familiarity* was -.0308 ($CI_{.95} = -.0533, -.0077$). For marijuana and heroin, these estimates suggested the negative indirect effect of *familiarity* on *desired social distance* was statistically significant through both *dangerousness* and *fear*. However, bootstrap estimates for alcohol addiction suggested an indirect effect of *familiarity* on *desired social distance* was statistically significant only through *perceived dangerousness*.

Research Question I: Will familiarity, perceived dangerousness, fear, and desired social distance for each substance significantly differ between genders?

Research Question I was evaluated using an independent-sample t-test. For alcohol, there was a significant effect for gender on fear, $t(205) = 2.065, p = .040$,

and desired social distance, $t(200) = 2.118$, $p = .035$, with males reporting lower mean scores than females.

Table 9

Estimates of Indirect Effect of Familiarity on Desired Social Distance

Substance	Mediator	Estimate	Confidence Interval	
			Lower	Upper
Alcohol	Dangerousness	-.0113	-.0289	-.0005
	Fear	-.0066	-.0221	.0092
	Total	-.0179	-.0428	.0091
Marijuana	Dangerousness	-.0670	-.1001	-.0377
	Fear	-.0180	-.0357	-.0054
	Total	-.0849	-.1182	-.0481
Heroin	Dangerousness	-.0178	-.0349	-.0035
	Fear	-.0131	-.0282	-.0027
	Total	-.0308	-.0533	-.0077

Note. All estimates and confidence intervals are bootstraps bias corrected and accelerated.

$n = 212$.

Research Question II: Will perceived dangerousness, fear, and desired social distance for each substance significantly differ between individuals who have lived with someone addicted to the substance and those who have not?

Research Question II was evaluated by performing an independent-sample t-test. For alcohol, there was no significant effect for living with an individual dependent to alcohol. For marijuana, there was a significant effect for living with an individual dependent to marijuana on perceived dangerousness, $t(200) = 5.045$, $p < .001$, fear, $t(199) = 2.300$, $p = .022$, and desired social distance, $t(196) =$

4.849, $p < .001$. Individuals having lived with someone dependent to marijuana showed lower mean levels for all three variables. For heroin, there was a significant effect for living with an individual dependent to heroin for fear, $t(205) = 2.037, p = .043$. Individuals having lived with someone dependent to heroin showed lower mean levels of fear.

CHAPTER IV

DISCUSSION

This study examined addiction stigma towards individuals with substance dependence to alcohol, marijuana, or heroin. Results overall confirmed the mediating model of familiarity, fear, and desired social distance; however, the influence of familiarity may be fully mediated by dangerousness and fear, rather than partially mediated. Furthermore, results suggested that the relationship between familiarity with alcohol addiction and fear towards individuals addicted to alcohol was different compared to the other two substance disorders.

Specifically, Hypothesis III found that familiarity with *marijuana* and *heroin dependence* had a statistically significant indirect effect on desired social distance through dangerousness and fear. The model was considered a fully mediating model because the significant negative relationship between familiarity and desired social distance became non-significant when controlling for dangerousness and fear. Furthermore, Hypothesis I and II found familiarity had an inverse relationship with both dangerousness and fear suggesting greater familiarity was associated with lower levels of fear and dangerousness. Results suggested that greater familiarity with these marijuana and heroin addiction predicts lower levels of perceived dangerousness, fear, and desired social distance towards individuals addicted to these two substances.

For *alcohol dependence*, the relationship was more complex. While Hypothesis III found that familiarity with alcohol addiction was significantly negatively related to social distance, Hypothesis I and II found familiarity was not

significantly related to fear or perceived dangerousness. However, when controlling for dangerousness and fear, familiarity was no longer a significant predictor of desired social distance. Hypothesis III directly assessed the indirect effect of familiarity on social distance and found only a significant indirect effect through perceived dangerousness. This suggests that the influence of familiarity with alcoholism is fully mediated through the indirect effect of dangerousness.

There are several possible reasons for this result. Alcohol dependence is more prevalent than drug dependence (Kessler, et al., 2005) and is the only legal substance in this study; accordingly, participants had a higher familiarity with alcohol dependence compared to marijuana and heroin (Appendix E). This higher level of familiarity with alcohol addiction may relate to a qualitative difference in familiarity to alcohol when compared to familiarity with the other two substances. This qualitative difference may not have been captured by the familiarity measure in this study. Another possibility is that a weaker relationship between familiarity with fear and dangerousness is witnessed because some participants recognize that alcohol is a drug that is consistently linked to violence (Boles & Miotto, 2003). Accordingly, individuals familiar with alcohol addiction are less likely to experience an inverse relationship between familiarity and dangerousness or fear.

In general, these results extend a mental health stigma model to substance disorders which was previously only examined with individuals labeled as “mentally ill” (Corrigan, et al., 2002) and vignettes of individuals described with behavior consistent with depression and schizophrenia (Angermeyer, et al., 2004). However, unlike some previous models of mental health stigma (Angermeyer, et

al., 2004) this study did not find a significant direct relationship between familiarity and desired social distance. Rather, the influence of familiarity on desired social distance was fully mediated through the indirect effects of dangerousness and fear.

Theoretical Implications of the Present Study

This study found relatively strong support for one model of mental health stigma applied to substance disorders. To the best of this author's knowledge, this is the first successful replication of a mental health stigma model to substance use disorders. The only previous study (Corrigan, et al., 2005) examining a similar model (Dangerousness, Fear, and Social Distance) for alcohol abuse found poor model fit but significant path coefficients in the expected direction. However, important differences may explain these conflicting results. Corrigan et al. (2005) surveyed adolescents, utilized different methodology, and witnessed a floor effect in some of their measured variables that may explain the poor fit.

Substance disorder stigma has received relatively little attention in the psychological literature when compared to mental health stigma. However, drawing on the rich theoretical and empirical literature on mental health stigma could allow for rapid advances in understanding substance disorder stigma.

Also, this study found that the relationship between familiarity, dangerousness, fear, and desired social distance was not the same for all substance. Specifically, familiarity with alcohol addiction related differently to fear and desired social distance compared to familiarity with the other two substances. This relationship suggests that stigma towards substance disorders

differs according to the specific drug of dependence. This fact has important implications for stigma research on mental health and substance disorders. Previous research on mental illness stigma has combined specific conditions together under a general categorization (e.g. asking opinions about individuals who are labeled as “mental ill”). This study’s findings suggest that such broad categorization and labels might mask the unique relationships between variables when examining specific psychiatric disorders.

Finally, the full model in this study (i.e. familiarity, dangerousness, and fear predicted desired social distance) explained a very large percentage of variance in desired social distance, ranging from 43% for alcohol to 49% for heroin. This percentage of variance is much higher than those previously reported in an identical model for schizophrenia (20.6%) and depression (14.8%) (Angermeyer, et al., 2004). Perhaps the results of the present study suggest that familiarity, dangerousness, and fear towards individuals with substance problems may be especially influential on desired social distance.

Implications for Community Research and Interventions

Mental illness stigma offers a unique challenge to community psychologists and social change advocates. Stigma towards mental illness discourages help seeking (Corrigan, 2004), interferes with recovery (Link, et al., 2001), and further marginalizes individuals facing mental illness. The first step in reducing stigma towards mental illness is understanding it (Corrigan, et al., 2005); similarly, the first step in reducing substance disorder stigma is understanding it.

This study suggests that familiarity with addiction, perceived dangerousness of addicted individuals, and fear towards addicted individuals play a significant role predicting desired social distance. While causal assumptions cannot be made through this study, the observed relationships between these variables do suggest that increasing familiarity and decreasing fear and dangerousness are one promising path for future studies. However, further steps must be taken to apply these findings and pilot intervention projects to confirm this hypothesis and reduce addiction stigma.

This study found that familiarity with marijuana and heroin addiction negatively predicted dangerousness, fear, and desired social distance. Previous research found similar results for general mental illness stigma (Corrigan, Edwards, et al., 2001; Corrigan, Green, et al., 2001). Based on this research, interventions were developed and have been successful at increasing familiarity and decreasing stigma towards mental illness (Corrigan, et al., 2002). Accordingly, interventions designed to increase familiarity with addiction might be similarly successful. This study suggests that interventions designed to address familiarity as well as dangerousness and fear might be especially effective at reducing desired social distance.

Limitations with the Present Study

As with all studies, the present study had several limitations. First, by explicitly eliciting participant's reaction to individuals labeled as "addicted", participant responses may have been exaggerated (Cunningham, Sobell, & Chow, 1993). This methodology may help explain the very large variance explained in

desired social distance. By describing behavior rather than labeling the target individuals (i.e. labeling them as “addicted”), vignette studies may more accurately gauge participant’s reaction to addicted individuals in real life situations. Second, the present study did not utilize experimental manipulation and randomized experimental manipulation is required to test theoretical causal model. Such a social psychological experiment would be necessary to confirm the causal paths of this model for stigma towards substance disorders. Third, the present study utilized a sample of undergraduate students that was predominantly female (78.3%) and entry-level college students (48.3% freshman). Clearly persons with this demographic profile do not present most adult community settings. Finally, data was not collected on participant’s drug use, therefore, this study could not control for the possibly confounding influence of personal drug use on addiction stigma.

Future Directions in Substance Disorder Stigma Research

The present study suggests several avenues for future research on substance disorder stigma. First, as stated, this study did not examine the causal influence of this mediating model; rather, it examined cross-sectional data and assessed if it conformed to the statistical model. While this model is based in literature utilizing various methodology, including experimental manipulation of variables (Corrigan, 2000; Corrigan, et al., 2002; Reizenzein, 1986), recent studies have questioned the causal assumptions of a traditional attribution model for stigma (Hegarty & Golden, 2008). To make an inference of the causal relationship between familiarity, dangerousness, fear, and social distance, the independent and

intervening variables would need to be directly manipulated in a randomized experimental (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). While such experimental manipulation may be challenging, it would offer much more powerful insight into the nature of stigma toward substance disorders. Future research should explicitly examine this and other causal paths that may influence substance disorder stigma.

Second, the present study supported the application of a mental illness stigma to understand substance disorder stigma. However, substance dependence is viewed as both crime and mental illness (Room, 2005). While this study shows how familiarity, perceptions of dangerousness, fear, and social distance may relate similarly with mental illness and substance disorders, other aspects such as responsibility (Corrigan, et al., 2002) and morality (Yang, et al., 2007) are likely to operate differently. Future research should examine these differences in effort to inform interventions that are specifically targeting addiction stigma.

Third, the present study found that familiarity with alcohol addiction had a different relationship with the other three variables than did familiarity with the other two substances. This suggests that the nature of familiarity with addiction has important implications on addiction stigma. Future research should explore the qualitative and quantitative differences in familiarity with individuals addicted to substances and how this familiarity may vary by substance. Furthermore, future research should examine how these different levels and types of familiarity with substance use and abuse influences other dimensions of stigma.

Fourth, research is clearly needed to validate this model with broader community samples and representative samples at the population level. College students are likely to have different experiences and familiarity with the use and abuse of substances when compared to the general public. Accordingly, a community sample would provide more generalizable results than a college student sample. Previous research has found support for the familiarity, dangerousness, fear and social distance model applied to mental health stigma in a population study (Angermeyer, et al., 2004). A similar study for substance dependent stigma would be informative. Additionally, studies rarely examine mental health stigma among children and adolescents (Corrigan, et al., 2005). However, this population is extremely important to understand the development and solidification of stigmatizing attitudes and behavior. Future studies should explicitly examine the formation of addiction stigma among children and adolescents.

Fifth, pilot interventions are required to translate our increased understanding of addiction stigma into effective community change efforts. Some preliminary interventions have utilized social-marketing attempting to de-stigmatize addiction; however, these interventions have not been rigorously evaluated and would benefit from a stronger foundation in theoretical and experimental studies of addiction stigma (Lavack, 2007). Future intervention studies should employ experimental designs to pinpoint the most efficacious and cost-effective interventions in reducing public stigma towards addiction. Also, the possible iatrogenic influence of these stigma interventions must be explored

before interventions are widely disseminated. Specifically, addiction stigma is assumed to have a preventative effect (Rasinski, et al., 2005). This assumption views substance disorder stigma as a form of social control (Room, 2005); that is, by stigmatized substance use we reduce the number of individuals that use and abuse substances. However, evidence suggests stigma surrounding substance use extends beyond stigma attached to drug use. For example, stigma towards substance disorders is closely related to co-occurring stigmatized characteristics such as poverty (Room, 2005). None the less, iatrogenic effects of addiction stigma reduction should be at the forefront of community research examining substance disorder stigma in order to explore all positive and negative effects of stigma reduction interventions.

Sixth, this study only examined one demographic variable (gender). Data collected did not explore how other demographic variables may influence the broader model of addiction stigma. Future research should explicitly examine how demographics such as age, race, ethnicity, and religious preference may influence stigma toward drug dependence. Studies examining demographic variables may be particularly important when understanding culturally diverse reactions to addiction and when designing interventions that are most effective for specific subpopulations.

Finally, previous research suggests contact with mentally ill individuals tends to decrease mental illness stigma (Corrigan & Gelb, 2006). This study's findings suggest a similar relationship may exist between contact (i.e. familiarity) with addiction and addiction stigma. However, as recent critics of the contact

hypothesis have noted, underlying inequalities between groups are unlikely to change without an underlying structural change and removal of structural barriers to successful collaborative intergroup contact (Alderfer, 2009; Dixon, Durrheim, & Tredoux, 2005). Similarly, future community research and interventions should examine how individuals with substance dependence are systematically and structurally alienated from collaborative relationships with the general public.

CHAPTER V

SUMMARY

Growing evidence documents pervasive and powerful stigmatization, discrimination, and prejudice directed towards individuals facing mental illness. Inaccurate perceptions deprive individuals with mental illness numerous life opportunities. Accordingly, public stigma towards individuals with mental illness has created a pressing community health problem. In attempt to inform future interventions at counteracting this stigma, the dynamics of public stigma must be thoroughly understood.

Different psychiatric diagnoses evoke various levels and types of stigmatization. While some progress has been made identifying stigma towards various diagnoses, few studies have investigated how mental health stigma manifests for substance use disorders. This study examined the relationship between familiarity, perceived dangerousness, fear, and desired social distance towards individuals with substance dependence to alcohol, marijuana, and heroin.

This study found that for marijuana and heroin, familiarity had an indirect effect, through perceived dangerousness and fear, on desired social distance. Furthermore, perceived dangerousness had a direct and indirect effect, through fear, on desired social distance. Finally fear had a direct effect on desired social distance. Greater familiarity predicted lower levels of perceived dangerousness, fear, and desired social distance for these two drugs.

Similar results were found for alcohol; however, familiarity had an indirect effect on desired social distance only through fear. Furthermore, familiarity did not predict fear or perceived dangerousness. Future empirical work

should examine the nature of this unique relationship between familiarity with alcohol addiction, perceived dangerousness, and fear.

Overall, this study showed that mental health stigma models could be adapted to understand substance dependence stigma. However, the precise nature of the model varied among substances. This suggests that addiction to each substance is stigmatized in differing ways. Still, this study showed that familiarity tended to negatively predict desired social distance toward addicted individuals. Future research should explore this relationship and examine the effect of increasing familiarity on addiction stigma.

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Appendix A
Familiarity Scales

Familiarity (Alcohol)

- | | |
|---|-----------|
| 1. My school provides services/treatments for individuals addicted to alcohol. | YES
NO |
| 2. I have observed, in passing, a person I believe may have been addicted to alcohol. | YES
NO |
| 3. I have observed a person addicted to alcohol on a frequent basis | YES
NO |
| 4. I have worked with a person who was addicted to alcohol. | YES
NO |
| 5. A friend of the family is addicted to alcohol. | YES
NO |
| 6. I have a relative who is/was addicted to alcohol. | YES
NO |
| 7. I have lived with a person addicted to alcohol. | YES
NO |

Familiarity (Marijuana)

- | | |
|---|-----------|
| 1. My school provides services/treatments for individuals addicted to marijuana. | YES
NO |
| 2. I have observed, in passing, a person I believe may have been addicted to marijuana. | YES
NO |
| 3. I have observed a person addicted to marijuana on a frequent basis | YES
NO |
| 4. I have worked with a person who was addicted to marijuana. | YES
NO |
| 5. A friend of the family is addicted to marijuana. | YES
NO |
| 6. I have a relative who is/was addicted to marijuana. | YES
NO |
| 7. I have lived with a person addicted to marijuana. | YES
NO |

Familiarity (Heroin)

- | | |
|--|-----------|
| 1. My school provides services/treatments for individuals addicted to heroin. | YES
NO |
| 2. I have observed, in passing, a person I believe may have been addicted to heroin. | YES
NO |
| 3. I have observed a person addicted to heroin on a frequent basis. | YES
NO |
| 4. I have worked with a person who was addicted to heroin. | YES
NO |
| 5. A friend of the family is addicted to heroin. | YES
NO |
| 6. I have a relative who is/was addicted to heroin. | YES
NO |
| 7. I have lived with a person addicted to heroin. | YES
NO |

Appendix D

Social Distance Scale

Social Distance (Alcohol)

1. How would you feel about renting a room to a person addicted to alcohol?

0	1	2	3
definitely willing to			definitely unwilling to

2. How would you feel working on the same class project as a person addicted to alcohol?

0	1	2	3
definitely willing to			definitely unwilling to

3. How would you feel having a person addicted to alcohol as your neighbor?

0	1	2	3
definitely willing to			definitely unwilling to

4. How would you feel having a person addicted to alcohol care for your children for a couple of hours?

0	1	2	3
definitely willing to			definitely unwilling to

5. How would you feel if a family member married a person addicted to alcohol?

0	1	2	3
definitely willing to			definitely unwilling to

6. How would you feel introducing a person addicted to alcohol to a friend of yours?

0	1	2	3
definitely willing to			definitely unwilling to

7. How would you feel recommending a person addicted to alcohol for a job working for a friend?

0	1	2	3
definitely willing to			definitely unwilling to

Social Distance (Marijuana)

1. How would you feel about renting a room to a person addicted to marijuana?

0	1	2	3
definitely willing to			definitely unwilling to

2. How would you feel working on the same class project as a person addicted to marijuana?

0	1	2	3
definitely willing to			definitely unwilling to

3. How would you feel having a person addicted to marijuana as your neighbor?

0	1	2	3
definitely willing to			definitely unwilling to

4. How would you feel having a person addicted to marijuana care for your children for a couple of hours?

0 1 2 3
definitely willing to definitely unwilling to

5. How would you feel if a family member married a person addicted to marijuana?

0 1 2 3
definitely willing to definitely unwilling to

6. How would you feel introducing a person addicted to marijuana to a friend of yours?

0 1 2 3
definitely willing to definitely unwilling to

7. How would you feel recommending a person addicted to marijuana for a job working for a friend?

0 1 2 3
definitely willing to definitely unwilling to

Social Distance (Heroin)

1. How would you feel about renting a room to a person addicted to heroin?

0 1 2 3
definitely willing to definitely unwilling to

2. How would you feel working on the same class project as a person addicted to heroin?

0 1 2 3
definitely willing to definitely unwilling to

3. How would you feel having a person addicted to heroin as your neighbor?

0 1 2 3
definitely willing to definitely unwilling to

4. How would you feel having a person addicted to heroin care for your children for a couple of hours?

0 1 2 3
definitely willing to definitely unwilling to

5. How would you feel if a family member married a person addicted to heroin?

0 1 2 3
definitely willing to definitely unwilling to

6. How would you feel introducing a person addicted to heroin to a friend of yours?

0 1 2 3
definitely willing to definitely unwilling to

7. How would you feel recommending a person addicted to heroin for a job working for a friend?

0 1 2 3
definitely willing to definitely unwilling to

Appendix E

Repeated Measure ANOVA

Familiarity	Homogeneous Subset ($\alpha = .05$)		
Alcohol	5.297		
Marijuana		4.675	
Heroin			1.840

Note. $n = 212$