Whitney H. Wright, FAKING AN IMPLICIT MEASURE OF ADDICTION PRONENESS. (Under the direction of Dr. Jennifer Bowler) Department of Psychology, July 2017.

Self-report measures are known to be susceptible to faking, and response distortion is a particularly critical issue in the context of assessing job applicants (Holden & Kroner, 1992; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). However, the advent of conditional reasoning methodology makes it possible to assess personality more objectively by focusing on implicit rather than explicit cognitions. Previous research has suggested that the conditional reasoning methodology is resistant to faking. This study evaluates the fakability of a new measure of addiction, the Conditional Reasoning Test of Addiction Proneness, which was developed specifically to assess the implicit cognitions that justify engaging in addictive behavior (Bowler, Bowler, & James, 2011). This study examined whether respondents could successfully distort their responses on the Conditional Reasoning Test for Addiction Proneness as well as a self-report measure of addiction, the Self-Assessment of Behavior. Results indicate that the self-report measure is susceptible to faking but the conditional reasoning measure is resistant to response distortion, thus providing further support that Conditional Reasoning Test of Addiction Proneness does in fact assess implicit cognitions.

FAKING AN IMPLICIT MEASURE OF ADDICTION PRONENESS

A Thesis

Presented to

the Faculty of the Department of Psychology

East Carolina University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Psychology

By Whitney H. Wright

July, 2017

FAKING AN IMPLICIT MEASURE OF ADDICTION PRONENESS

By

Whitney H. Wright

APPROVED BY:

DIRECTOR OF THESIS

_____
Jennifer L. Bowler, PhD

COMMITTEE MEMBER

_____
Mark C. Bowler, PhD

COMMITTEE MEMBER

_____
John G. Cope, PhD

CHAIR OF THE DEPARTMENT OF PSYCHOLOGY

_____
Susan L. McCammon, PhD, CIP

DEAN OF THE GRADUATE SCHOOL

_____
Paul J. Gemperline, PhD

Table of Contents

CHAPTER 1: INTRODUCTION

Despite widespread knowledge about its detriments, addictive behavior continues to escalate and to engender major health and social problems (Altman et al., 1996; Center for Substance Abuse Prevention, 1995; Lipari & Van Horn, 2017; Lubman, Yucel, & Pantelis, 2004). It is estimated that substance abuse currently incurs more than 700 billion dollars each year in U.S. healthcare, crime, and accident costs, as well as loss of productivity at work (Baysinger & Gianessi 2015; National Institute on Drug Abuse, 2017). Moreover, it afflicts every community regardless of age, race, gender, or socioeconomic class (National Institute on Drug Abuse, 2014). Behaviorally, substance abuse and addiction have been directly linked with increased rates of domestic violence, sexual assault, sexual promiscuity, disease, and unintentional and intentional injuries (Frone, 2004; Meade, Kershaw, Hansen, & Sikkema, 2009; Meade & Weiss, 2007; Najavits, Weiss, & Shaw, 1997; National Institute on Drug Abuse, 2014; Resko & Brown, 2016; Taylor et al., 2010). Despite public acknowledgement of the repercussions of substance abuse and addiction, the high rate of prevalence has remained stable over the last several decades (Frone, 2006). Addictive behavior also afflicts the workforce and is a prominent cause of workplace injuries, accidents, absenteeism, illness, turnover, and poor productivity (Arbour, Gavrysh, Hambley, Tse, Ho, & Bell, 2014; Cherpitel, 2007; Coambs & McAndrews, 1994; Cohen, 1984; Frone, 2004, 2009; Gust, Walsh, Thomas, & Crouch, 1990; Martin, Kraft, & Roman, 1994; Rehm, Taylor, & Room, 2006; Spicer, Miller, & Smith, 2003). For example, employees who use drugs are more likely than their non-drug-abusing counterparts to miss two or more days of work per month (United States Drug Enforcement Administration, 2016; Ruetsch, 2010; Substance Abuse and Mental Health Services Administration, 2007).

In light of 179 billion dollars in workplace productivity losses as a result of excessive

drinking and 120 billion lost due to drug abuse (Centers for Disease Control and Prevention, 2016; National Drug Intelligence Center, 2011), organizations are seeking to adopt preventative techniques to curtail addictive behaviors. Research suggests that distinct personality traits can indicate a propensity to addiction or substance abuse (Bowler, Bowler, & James, 2011; Conway, Kane, Ball, Poling, & Rounsaville, 2003; Sleisenger, 1985; Sutker & Allain, 1988). Thus, the identification of addiction-prone personality traits prior to substance dependence can provide many organizational benefits such as improvements in employee productivity, social relationships, health status, and absenteeism (Sledge & Lazar, 2014).

Previous studies on addiction have traditionally utilized self-report measures that focus primarily on explicit cognitions (e.g., Do you feel you are a normal drinker or drug user?), and latent personality traits that facilitate addiction have received limited empirical attention (Bing, Stewart, Davison, Green, McIntyre, & James, 2007; Bowler & Bowler, 2014; Bowler, Bowler, & Cope, 2013; Sutker & Allain, 1988). However, research suggests that individuals who harbor addictive proclivities utilize a unique set of cognitive biases that allow them to rationalize these behaviors (Bowler et al, 2011). A new measurement system, the Conditional Reasoning Test of Addiction Proneness (CRT-AP), is designed to objectively assess the underlying implicit cognitions that justify addictive behavior (Bowler et al., 2011, Bowler et al., 2013). The CRT-AP assists in identifying individuals who are susceptible to behavioral cycles that facilitate addiction. Thus, the CRT-AP offers numerous potential benefits with regard to the implementation of preventive measures, early detection of addiction proneness, and provision of customized treatment for affected individuals.

Personality assessment is an extremely valuable asset for organizations, and the ability to predict future behavior and job performance carries implications for many work-related areas

including employee selection, promotion, and training (Goffin & Boyd, 2009). However, human nature leads most individuals to (either deliberately or inadvertently) present themselves in a favorable light, providing responses that they expect to lead to positive outcomes, such as being hired or promoted (Barrick & Mount, 1996; Bing, Stewart et al., 2007; Goffin & Boyd, 2009; Goffin & Christiansen, 2003). Such response distortion compromises test validity and can subsequently engender flawed personnel decisions. However, the CRT-AP is designed to target implicit cognitions, which are more resilient to faking than self-report measures that focus on explicit cognitions.

The current study investigates respondents' abilities to positively augment their scores (i.e., fake good) on the CRT-AP. A general concept of addiction will be presented along with previous methods of assessment and their implications and limitations. Conditional reasoning methodology and the justifications related to addiction proneness will be further explained as well as speculation regarding the motivations in faking personality measures. Finally, the technique used to circumvent response distortion will be further discussed and clarified.

Traditional Approaches to Defining and Measuring Addiction

Addiction. The definition of addiction is a point of contention for many researchers and clinicians. The term "drug dependence" was proposed as a replacement for addiction because it includes psychological dependence as well as physiological dependence (Lubman et al., 2004; World Health Organization, 1992). Physiological dependence consists of an individual's physical tolerance to the substance, including the withdrawal symptoms that occur once use of the substance ceases (Lubman et al., 2004). In contrast, psychological dependence is comprised of a strong desire and need for the substance, feelings of being out of control, and constant and consistent search and consumption of the substance (World Health Organization, 1992). For the

purpose of this study, the term addiction will be used to describe

> a process whereby a behavior, that can function both to produce pleasure and to provide relief from internal discomfort, is employed in a pattern characterized by (1) recurrent failure to control the behavior (powerlessness), and (2) continuation of the behavior despite significant negative consequences (unmanageability). (Goodman, 1990, p. 1404)

Thus, addictive behavior is characterized by the inability to discontinue an activity despite one's awareness of the negative consequences it entails (Hirschman, 1992). These negative consequences, such as an increase in disease, violence, and crime rates (National Institute on Drug Abuse, 2014), create dysfunction in addicted individuals and engender chaos and turmoil in their lives and those of their families and friends. Despite the realization that addictive behavior is wreaking such havoc on their health, work, career, and relationships, addiction-prone individuals find themselves unable to resist pursuit of the activity.

Models of Addiction. The study of addiction and its causes have been debated by researchers over the last several decades. Three main models of addiction (the moral model, the disease model and the choice model) have emerged over the years to explain why individuals engage in additive behavior (Russell, Davies, & Hunter, 2011; Wilbanks, 1989). These models differ with regard to their explanations of the underlying causes of addiction and the role free will plays in decision making.

The moral model views addiction as a choice freely made by individuals with low morals and integrity. Addiction is regarded as a moral failure that stems from the individual's character defects (Pickard, Ahmed, & Foddy, 2015). According to this model, addiction is a conscious decision based on morals and values and the individual should be held accountable and judged harshly for their poor choices (Wilbanks, 1989).

4

The disease or medical model views addiction as a physiological change in the body as a result of continued substance abuse (Wilbanks, 1989). Drug or alcohol use causes a change in the body that creates an uncontrollable urge and desire to continue using the substance (Russell et al., 2011). The disease model differs from the moral model in that addiction is regarded as a physiological change in the body that cannot be avoided regardless of an individual's will power or strong moral fiber. Addiction under this model is a result of genetics or a physiological predisposition to substance abuse and is considered an unavoidable, incurable condition.

The choice model views addiction as a personal choice that the individual voluntarily selects each time they engage in addictive activities. The individual's choice to abuse drugs or alcohol tends to be a reaction to negative life events and therefore, the substance abuse is used as a coping mechanism (Schaler, 2000). This model of addiction was conceived as a result of studies that indicated most addicts are able to successfully stop using drugs or alcohol without professional assistance (Hall & Weier, 2017; Robins, 1993). Addiction-prone individuals are able to make the rational choice to end their substance abuse, thus suggesting that addiction is not an uncontrollable disease but rather a conscious choice. The choice model does not dismiss the concept that genetics and the physiological effects of substance abuse may impact addictive proclivities (Heyman, 2013). However, addiction is considered to be more heavily influenced by environmental factors than physiological ones (Russell et al., 2011). The CRT-AP follows the choice model methodology and is based on the assumption that engaging in addictive activities is volitional. This measure was designed around the premise that addiction-prone individuals rely on specific justifications that serve to rationalize their activities (Bowler et al., 2011).

Factors Related to Addiction. Addiction is a multifaceted issue and its causes are the source of considerable debate. Genetic factors have been implicated in addictive patterns

(National Institute on Drug Abuse, 2014); in fact, the likelihood that an individual will develop a substance abuse problem increases in accordance with the number of family members with a history of addiction and how closely they are related (Cotton, 1979; Dawson, Harford, & Grant, 1992; Guze, Cloninger, Martin, & Clayton, 1986; Okoli, Richardson, Ratner, & Johnson, 2009). Similarly, the environment, which includes family, school, and peer relationships, socioeconomic status, and overall stress, has also been linked to propensity of addiction (Elliott, Huizinga, & Ageton 1985; Garnefski & Okma, 1996; Loeber & Stouthamer-Loeber, 1986; National Institute on Drug Abuse, 2014; Peele, 1985). It has been noted that an individual's peer group is one of the most influential environmental factors that perpetuates addictive tendencies (Elliott et al., 1985; Garnefski & Okma, 1996). Despite these contributing factors, the majority of individuals who actively engage in addictive tendencies will not become addicted. Most people are able to refrain from certain substances or behaviors once they consciously commit to that decision (Peele, 1987). Although some researchers believe that an individual's predisposition for addiction is directly and solely associated with biological and environmental issues, others have focused on personality characteristics (Sutker & Allain, 1988). In a study by Khantzian (1985), heroin and cocaine dependencies were explained by the addicts' inability to cope with their feelings, emotions, and relationships. He further explained that these individuals engaged in addictive tendencies as a means of self-preservation, a vehicle for satisfying unfulfilled needs, and a tool for coping with psychological weaknesses. A question remains namely, what specific characteristics typify addiction-prone individuals that render them incapable of managing these issues?

Studies on addiction have historically focused on identifying unique personality characteristics of the addict. Findings consistently indicate that people with addictive tendencies

6

frequently suffer from other mental illnesses such as depression (Pearson & Little, 1969). Along

with these illnesses, addiction-prone individuals typically experience feelings of low self-worth,

low self-esteem, and a general feeling of hopelessness (Brister & Brister, 1987; Donnelly, Hall,

& Christie, 2000; Dryfoos, 1990; Nielsen & Scarpitti, 1997). Individuals with addictive

tendencies tend to compensate for these feelings of inadequacy by engaging in a specific activity

of choice. Addictive behavior thus serves as a defense mechanism used to protect and essentially

numb themselves from experiencing negative emotions (Nielsen & Scarpitti, 1997). By escaping

into an altered state, they are shielded from the surrounding chaos in their lives.

However, the idea that addiction-prone individuals share a specific personality type has

been widely disputed (Graham & Strenger, 1988; Shulman, 1991). The quest to definitively

ascertain addiction-prone individuals' personality characteristics has been a formidable challenge

due to the frequent use of self-report measures. Specifically, the transparent nature of self-report

measures leads respondents to distort their answers by providing more favorable responses

(LeBreton, Barksdale, Robin, & James, 2007; Viswesvaran & Ones, 1999). Self-report measures

have also consistently suffered from low validity, resulting in weak correlations with many

behavioral criteria (James, McIntyre, Glisson, Bowler, & Mitchell, 2004). An additional

limitation with regard to the use of self-report measures is the fact that they only measure explicit

(i.e., known) cognitions. This is particularly problematic when assessing addiction-prone

individuals, in which the processes of interest are often implicit in nature.

Use of Conditional Reasoning to Measure Addiction Proneness

When presented with evocative situations, people wish to view their behaviors as logical

and reasonable, and for many behaviors, justifications are necessary in order to achieve this

perception (James & Mazerolle, 2002). Such justifications are the premise behind a relatively

new methodology called conditional reasoning (James et al., 2004). Each individual processes

information and events in a characteristic way, and these assumptions, inferences, and implicit

theories affect the way in which each person views and reacts to new circumstances.

Consequently, individuals with different dispositions rely on qualitatively different cognitive

biases when observing and interpreting other people, situations, and events (James, 1998). The

process in which individuals' cognitive biases alter their perceptions is known as differential

framing, and the rationalizations they employ are termed justification mechanisms.

The conditional reasoning (CR) format was developed in an effort to assess the implicit

cognitions that characterize distinct personality dispositions (Bing, Stewart et al., 2007; James,

1998; James & Mazerolle, 2002; James, McIntyre, Glisson, Green, Patton, & LeBreton, 2005).

To date, the CR approach has successfully identified personality traits related to aggression,

achievement motivation, fear of failure, and addiction proneness (Bing, Stewart et al., 2007;

Bowler et al., 2011; James, 1998). The CR format begins by presenting a reasoning problem and

asking respondents to select the most logical explanation. Individuals' chosen responses reflect

the use of the justification mechanisms (JMs) that rationalize their preferred choice (James,

1998). Thus, individuals with aggressive tendencies respond to conditional reasoning items

differently than their non-aggressive counterparts. Similarly, addiction-prone individuals use a

distinct set of JMs to validate their self-destructive behavioral choices (Bowler et al., 2011).

Justification Mechanisms of Addiction. Conditional reasoning methodology has been

used to assess a variety of personality traits, but it has recently been extended to addiction

proneness (Bowler et al., 2011). Currently, five justification mechanisms for addictive behavior

have been identified. The first rationalization, the *Evasion of Discomfort Bias*, suggests that

addiction-prone individuals selectively engage in certain behaviors in order to attain a sense of

calmness and to disregard stressful or unpleasant situations (Cooper, Wood, Orcutt, & Albino, 2003; Frone, 1999; Hirschman, 1992; Sayette, 1999). For example, an individual may rationalize the use of alcohol or drugs after the loss of a job or another stressful life event. These individuals may justify their addictive behavior as a means of avoiding reality and become distracted or preoccupied by their addictive activities, thus shunning what they consider to be negative or stressful events and essentially becoming passive observers of their own lives (Hirschman, 1992; Khantzian, 1985).

The second JM is the *Immediate Gratification Bias*, which allows addiction-prone individuals to focus on the instantaneous satisfaction they receive from their addictive habits while failing to come to terms with the negative long-term consequences of this behavior (Comeau, Stewart, & Loba, 2001; Cooper, Frone, Russell, & Mudar, 1995, de Wit, 2009; Garavan & Hester, 2007; Wagner, 1993). An example of this is an obese individual who continually consumes high-fat foods despite recognition of the adverse health issues engendered by an unhealthy diet. These individuals may become entranced by the instant, pleasurable feelings that they have learned to associate with their addictive behavior. Addiction-prone individuals may also seek sources of instant gratification to reward themselves for completing aversive tasks such as dealing with a difficult situation or accomplishing a complicated or complex task. Immediate Gratification Bias is similar to Evasion of Discomfort Bias in that both JMs provide a break from reality and offer ways to avoid negative or uncomfortable situations. However, Immediate Gratification Bias allows the addictive activity to be pursued solely for the pleasure it imparts even when no source of discomfort is present.

The third JM is the *Negative Self-Bias*, which implies that individuals view themselves in an often inaccurate, negative light (Brister & Brister, 1987; Nielsen & Scarpitti, 1997). These

9

individuals may pursue addictive activities in an effort to negate feelings of inadequacy and depleted self-worth (Donnelly et al., 2000; Dryfoos, 1990; Sullivan & Guglielmo, 1985). An example of this is a person with low self-worth using alcohol or drugs to alter his or her self-perceptions. According to Peele and Brodsky (1991), individuals who are susceptible to these self-perceptions frequently turn to addictive behavioral patterns in an attempt to transform a pessimistic outlook of themselves into one that is more palatable. This self-defeating proclivity sets the stage for individuals to rely on related JMs for addiction proneness.

The fourth JM is the *Self-Revision Bias*, which describes the propensity for individuals to actively seek specific activities in an effort to transform themselves into what they deem to be a more favorable version of themselves (e.g., introverts who use alcohol to become more outgoing and gregarious). As with Negative Self Bias, individuals who use this rationalization frequently suffer from low self-esteem and low self-worth. Qualities that these individuals consider to be attractive appear to be enhanced through addictive activities (Grillo, 2010) while negatively-viewed characteristics are quickly overshadowed (Hirschman, 1992; Pearson & Little, 1969). Thus, they select specific activities in an attempt to create a better version of themselves and counter their negative self-perceptions. This bias is particularly problematic because individuals may begin to favor the new version of themselves that is experienced in the context of the addictive activity.

The final JM is the *Displacement of Responsibility Bias*, which allows individuals to perceive themselves as being out of control and powerless to choose their own behaviors. As an example, individuals who are aware that they have a familial history of addiction may perceive themselves to be genetically predisposed toward addiction and thus powerless to resist its grasp. These individuals frequently adopt a victim mentality, readily shifting responsibility for their

10

behavior to others and to circumstances beyond their control (Balmford & Borland, 2008; Mendelson & Mello, 1986; Schaler, 2000). By externalizing responsibility for their actions, addiction-prone individuals may exonerate themselves from their behavior because they vehemently believe that other factors are to blame.

A consistent theme underlies these five biases of addiction, namely that each one involves some form of distortion in which an alternate reality is favored over true reality. With Evasion of Discomfort Bias, the distortion targets one's awareness of his or her circumstances, whereas with Negative Self-Bias and Self-Revision Bias one's perceptions of self are distorted. In the case of Immediate Gratification Bias, one's ordering of priorities is altered, and with Diffusion of Responsibility Bias, one's sense of self-control is misrepresented. Thus, in all cases distortion is prevalent, but the targets of distortion vary.

As conditional reasoning measures are focused on assessing specific implicit cognitions, these indirect measures are necessarily objective in design (Bing, LeBreton, Davison, Migetz, & James, 2007; James, 1998). Each CR item includes four possible response choices: an addiction-prone response, a non-addiction-prone response, and two distracter responses that are considered to be illogical answers. The distracter responses are typically ignored because they have no logical connection to the given inductive reasoning problem (James, 1998; LeBreton et al., 2007). They are included in order to improve the face validity of the test and also to ensure the indirect nature of the measurement (James et al., 2004). The inductive reasoning problems are designed to elicit justification mechanisms that reveal reasoning processes that have been linked with addiction proneness (Bowler et al., 2011). Due to the operation of the justification mechanisms, responses that appear completely rational and logical to addiction-prone individuals are not considered to be reasonable responses by non-addiction-prone individuals. Respondents

11

believe that they are selecting the most logical response based on critical intellectual skills; however, their responses in fact reflect latent personality characteristics that lead them to frame information in distinctly different ways.

A sample CRT-AP item is displayed in Appendix A. This item focuses on the addictive tendencies of smokers and the related health effects as well as the added benefits brought on by discontinuing this habit. When respondents read this item, they must first eliminate the illogical answer choices (A and D) in order to identify the most logical response. The basis of this methodology is that responses that appear logical to addiction-prone individuals are typically regarded as irrational by a non-addiction-prone individuals, and vice versa (Bowler et al., 2011). In the example, individuals at risk of developing an addiction will gravitate toward answer choice (C) and will rationalize this response by activating Displacement of Responsibility Bias. In this situation, addiction-prone individuals would view themselves as having very little power to resist the nicotine in cigarettes. However, non-addiction-prone individuals would typically select answer choice (B) as the most logical response because they believe that they ultimately have control over their behaviors.

Faking Issues in Personality Testing

Previous Research on Response Distortion. The utilization of personality measures to evaluate job applicants has become more widespread in recent years (Barrick & Mount, 1996; Hough & Oswald, 2008). Despite the increasing popularity of these tests, the correlation between personality scores and job performance remains consistently low (Morgeson, Campion, Dipboye, Hollenbeck, Murphy, & Schmitt, 2007). Socially desirable responding on personality measures has been noted as one of the primary culprits for this weak correlation (Goffin & Christiansen, 2003). Research suggests that individuals who score highly on cognitive ability

tests can readily distort their responses on personality measures when instructed to do so (Bing, Whanger, Davison, & Vanhook, 2004). Some organizations may discount faking because they believe that if a job applicant is able to fake test performance then they are typically capable of completing their work successfully (McFarland & Ryan, 2000). This may be true for some low-to mid-level jobs, but ultimately, faking engenders utility losses in employment decisions (Christiansen, Goffin, Johnston, & Rothstein, 1994). For the purposes of this study, faking will be defined as

> a tendency for test takers to deliberately provide inaccurate responses to personality items in a manner that they believe will increase their chances of obtaining valued outcomes, such as a favorable hiring decision. (Goffin & Boyd, 2009, p.151)

Faking research has primarily focused on favorably distorting responses ("faking good") on a test (Barrick & Mount, 1996; Goffin & Boyd, 2009). Very little organizational research has investigated "faking bad" on personality measures because it is uncommon for an individual to purposely attempt to diminish their scores when job promotions or hiring decisions are at stake. It has been suggested that individuals with higher intellectual abilities are better able to engage in faking behavior on personality tests due to their understanding of the items and also because they are more attuned to relevant situational requirements and can therefore recognize optimal opportunities to fake (Austin, Hofer, Deary, & Eber, 2000; Grubb & McDaniel, 2007). Thus, with regard to organizational settings, "faking good" is of far greater importance as it may have numerous negative consequences.

With regard to the current study, faking on a measure of addiction proneness can have disastrous consequences to individuals as well as to the organizations administering the measure. Although addiction-prone individuals may recognize that they have problematic tendencies, if

13

they are able to positively distort their responses on a measure of addiction proneness they may

neglect or delay seeking treatment. Thus, potentially allowing the negative consequences of

addiction such as disease, violence, and crime (National Institute on Drug Abuse, 2017) to

continue or worsen. In addition, organizations can also suffer catastrophic outcomes as a result

of faking on measures of addiction proneness. For example, if organizational decisions are based

on positively distorted responses, addiction-prone individuals could erroneously be placed into

positions of authority. Employees are not capable of making sound decisions while under the

influence of substances thus, potentially costing the organization money and time. Moreover,

addicted individuals are at increased risk of serious health issues such as cardiovascular disease,

strokes, and cancer, as a result of their substance abuse (Meade & Weiss, 2007; National Institute

on Drug Abuse, 2014). These medical problems can be quite costly to organizations. By

reducing the potential for faking on a measure of addiction proneness, organizations may make

more informed employment decisions and take proactive, preventive steps to promote a healthy

workforce and thus reduce health care costs. Furthermore, intentional distortion jeopardizes test

validity and invalidates conclusions and recommendations drawn from these results (Bowler et

al., 2013).

Reasons for Faking. Faking occurs when individuals possess the willingness, the

capacity, and the opportunity to fake (Levashina, Morgeson, & Campion, 2009). Faking

behavior is unlikely to occur unless all three of these factors are present. Willingness to fake

refers to a person's motivation to alter their responses, which may be affected by a person's

values and morals and the extent to which they desire a job or promotion (Barrick & Mount,

1996; McFarland & Ryan, 2000). Capacity to fake refers to the person's ability to change or

distort their answers, which can be affected by an individual's knowledge of the measure and the

trait being assessed, the inclusion of transparent items, or experiential factors (McFarland &

Ryan, 2000; Snell, Sydell, & Lueke, 1999). Finally, the opportunity to fake refers to

environmental factors that the respondent is unable to change. For example, people are typically

unable to favorably distort their responses on cognitive ability test items because there is no

opportunity to do so, regardless of the willingness and capacity to fake.

Over the years, research has shown that faking socially desirable responses can be

attributed to either impression management or self-deception (Farrow, Burgess, Wilkinson, &

Hunter, 2015; Paulhus, 1984; Sackeim & Gur, 1978). Impression management is a conscious

process in which people manipulate their image in order to be viewed more favorably by others

(Farrow et al., 2015). They influence the impressions of others by controlling the information

that is conveyed during a social interaction. Impression management can vary depending on the

context because impressions are subjective and may change as a function of the situation (Farrow

et al., 2015). Conversely, self-deception is an unconscious tendency to portray oneself in a

positive light (Paulhus, 1984). In this case individuals honestly believe the self-descriptions they

are portraying to others (Farrow et al., 2015). As one example of self-deception, alcoholics may

convince themselves that the amount and frequency they drink is normal and is not problematic.

Individuals who choose to favorably distort their responses on personality measures seek

to positively manage the impressions of others by answering questions in a socially desirable

way. Respondents who distort their responses due to self-deception may not realize they have an

addiction problem or may be trying to convince themselves otherwise. As the CRT-AP is a

reasoning test that assesses subliminal justification mechanisms, it is inherently designed to be

resistant to the forces of impression management or self-deception (Bowler et al, 2011).

Research indicates that individuals are able to fake their responses on self-report

15

personality measures when the desire to do so is present (LeBreton, Robin, Barksdale, & James, 2007; Viswesvaran & Ones, 1999); however, the idea that faking on self-report measures may generalize to CR measures has not been fully researched and tested. In theory, the implicit nature of CR measures should make them very difficult to fake because they are specifically designed to assess subliminal cognitions (Bing, LeBreton et al, 2007; LeBreton et al., 2007). Thus, if individuals are able to fake good on CR measures, this would suggest that the CR methodology does not properly assess latent cognitions but rather it taps into something more transparent and explicit.

In a similar study regarding the fakability of a CR measure of aggression, LeBreton and colleagues (2007) suggested that respondents would be unable to fake or distort their responses on the Conditional Reasoning Test of Aggression (CRT-A). The CRT-A consists of 22 conditional reasoning questions and three inductive reasoning questions to increase the face validity of the measure (LeBreton et al., 2007). Like the CRT-AP, the CRT-A is designed to assess the use of six justification mechanisms (JMs) that individuals use to justify and rationalize their aggressive behavior (James et al., 2004). The first JM, *hostile attribution bias*, assumes that others are motivated to harm others, therefore justifying an individual's aggressive response as an act of self-defense. The second JM, *potency bias,* assumes that social interactions are a way of determining dominance and weakness; thus, aggressive behavior is rationalized as a sign of bravery and fortitude. The third JM, *retribution bias*, describes the propensity to consider retribution or revenge for a perceived wrongdoing as a justification for aggressive behavior so as not to be perceived as weak. Reliance upon the fourth JM, *victimization by powerful others bias,* allows individuals to view themselves as victims being taken advantage of by powerful entities; therefore, justifying aggressive behavior as an act against injustice. The fifth JM, *derogation of*

16

target bias, frames the target as deserving of aggressive behavior by embellishing their negative traits and ignoring positive ones. The final JM, *social discounting bias,* allows individuals to rationalize aggressive behavior as a freedom of expression against the social norms of society (James et al., 2004).

The study by LeBreton and colleagues (2007) examined respondents ability to positively distort their responses on the CRT-A using a within-subject design in which participants completed a series of personality surveys at two different times (a week apart) with different sets of instructions each time. One set of instructions asked the respondents to complete the measures by simply identifying the most logical response. The second set of instructions asked the respondents to respond as if they were applying for a job that they really desired. Results revealed that the mean scores of the two groups were not significantly different, indicating that even when participants were instructed to fake good, they were unable to do so on this particular CR measure. These findings further support the assertion that when well-designed conditional reasoning measures that assess implicit cognitions are employed under traditional testing conditions, faking behavior and resulting response distortion will be minimized. Additionally, this study also examined the fakability of the CRT-A when respondents were informed about the nature of the measure. In this study, respondents were asked to fake bad on the CRT-A however, the control group completed the CRT-A under normal testing conditions but the experimental group was informed that the CRT-A was a reasoning test for aggression (LeBreton et al., 2007). Results indicated that when individuals were informed about the purpose of the assessment they were able to successfully fake bad on the CRT-A, thus identifying the responses that justify aggressive behavior. Individuals in the control group were not informed of the nature of the study and were unable to successfully distort their responses.

17

This study supports the notion that conditional reasoning tests are able to successfully measure implicit cognitions when the purpose of the assessment is not revealed to the respondents (LeBreton et al., 2007).

The Present Study

Addiction is an all-encompassing affliction that can lead to serious disruptions in one's personal life and at work. Once an addictive cycle has been established it is very difficult to reverse; thus, prevention is the key to lowering the incidence and devastating effects of addiction. The CRT-AP may allow individuals who are at risk of developing problematic behavior to be identified, which could additionally facilitate future prevention efforts.

The primary purpose of this study is to investigate whether the CRT-AP is resistant to faking by respondents. Before determining this, it is important to examine the susceptibility of existing measures of addiction proneness to response distortion. The majority of assessments of addiction and substance abuse feature a self-report format. However, due to respondents' natural social desirability biases these measures frequently allow respondents to present themselves in the most favorable light by distorting their responses. To better understand this trend, the present study examines respondents' abilities to fake a self-report measure of addiction, the Self-Assessment of Behavior, which was created specifically for this study. It is expected that the transparent nature of the self-report measure will render it susceptible to faking when individuals are encouraged to provide socially desirable responses.

Hypothesis 1: There will be a significant difference between the scores of the control group and the experimental group on the Self-Assessment of Behavior.

Moreover, it is expected that the implicit nature of the CRT-AP will make it highly resistant to response distortion, which will be reflected in comparable scores between the control

18

group (i.e., those taking the test under traditional conditions) and the experimental group (i.e.,

those who are encouraged to provide socially desirable responses).

Hypothesis 2: There will be no significant difference between the CRT-AP scores of the

control group and the experimental group.

CHAPTER II: METHODOLOGY

Participants

Data were collected from 829 undergraduate psychology students from a large southeastern university. In exchange for completion of the study, participants received credit toward their final course grade. All participants were treated in accordance with the APA Ethical Guidelines (American Psychological Association, 2002). According to conditional reasoning testing protocol, the selection of five or more illogical responses is considered to invalidate the results of the measure (James & McIntyre, 2000), as scores may reflect reading difficulties, comprehension issues, or a lack of motivation to complete the test according to the instructions. Thus, individuals who selected five or more illogical responses were removed from the study, resulting in an elimination of 37 individuals from subsequent analyses. Thus, the final sample consisted of 792 participants, with 457 individuals in the control group and 335 individuals in the experimental group. The mean age of participants in the control group was 18.5 years and 75% were women, and individuals in this group identified themselves as Caucasian (73%), African American (18%), Asian (5%), and Hispanic (1%). The mean age for participants in the experimental group was 18.9 years and 70% were women, and individuals in this group identified themselves as Caucasian (72%), African American (21%), Asian (2%), and Hispanic (3%).

Measures

Conditional Reasoning Test of Addiction Proneness (CRT-AP). The CRT-AP is comprised of 23 inductive reasoning items that measure latent orientation towards addictive behavior (Bowler et al., 2011). The instructions on this measure indicate that it is an assessment of reasoning and participants are asked to select the most logical response for each item. Following CR methodology (James & McIntyre, 2000), responses are scored +1 for each

addiction-prone response and 0 for each non-addiction-prone response. Thus, this scale may potentially range from 0 to +23, with highly positive scores indicating a strong latent orientation toward addiction proneness.

Self-Assessment of Behavior (SAB). The SAB consists of 35 self-report items designed to assess an individual's propensity towards addiction by focusing on specific addictive behaviors such as shopping, gambling, internet use, compulsive eating, use of nicotine, alcohol, or other substances. Review of the literature uncovered a myriad of self-report measures assessing specific forms of addiction (e.g., opiates, gambling, internet, etc.); however, no single measure could be located that encompassed the wide variety of addictive behaviors that was needed for this study. Thus, items on the SAB were specifically constructed to be representative of existing measures of addiction for each type of addictive behavior. The instructions on this measure ask the respondents to read each item and select the most appropriate answer, either yes or no. The responses are scored +1 for each positive (addiction-prone) response and 0 for each negative (non-addiction-prone) response. Therefore, scores on this measure could potentially range from 0 to +35, with higher scores reflecting greater inclination towards addiction. A sample item from the SAB is presented in Appendix B.

Procedure

Control Group. Each participant in the control group was given a survey packet that included the CRT-AP and the SAB. Participants in this group completed the measures under standard testing conditions. When completing the CRT-AP, they were informed that they were completing an inductive reasoning test; however, the construct of interest was not disclosed. Participants were asked to read each question carefully and to select the most logical response for each item on the CRT-AP. When completing the SAB, participants were simply asked to

select the most appropriate response based on their typical behavioral habits. The construct of interest was not disclosed.

Experimental Group. Each participant in the experimental ("fake good") group was given a survey packet that included the CRT-AP and the SAB. Again, the purpose of the study was not disclosed; however, participants in this group were provided with an alternate set of instructions. When completing the CRT-AP, participants were asked to read each question carefully and to select the most logical response for each item. When completing the SAB, they were asked to select the most appropriate response based on their typical behavioral habits. In addition to these instructions, participants were asked to assume the role of a job applicant for a customer service representative position for which they wish to be selected. They were asked to respond to the items on both measures with this scenario in mind. This scenario was intended to encourage respondents to positively distort their responses on both measures to increase the likelihood that they would be selected for the position.

CHAPTER III: RESULTS

Item Reliability

The internal consistency of the CRT-AP was measured using a derivation of the Kuder-Richardson Formula (Formula 21), which estimates reliability by measuring inter-item consistency and assumes that all items on a measure are of comparable difficulty. Using this derivative, the reliability of the CRT-AP was estimated to be .71 for the baseline group and .69 for the experimental group. This is in line with previous research using this measure (Bowler et al., 2011) and suggests acceptable internal consistency. Similarly, the reliability of the SAB was estimated to be .73 for the baseline group and .83 for the experimental group, again implying an acceptable level of internal consistency.

Fakability of the Measures of Interest

The first research question in this study concerned the fakability of the SAB. The mean for the control group was 3.20 with a standard deviation of 2.50 and the mean for the experimental group was 1.32 with a standard deviation of 1.81. An ANOVA was conducted in order to compare the scores of the control group (which took this measure under standard testing conditions) and the experimental group (which was encouraged to provide socially desirable responses). Results revealed a significant difference between the mean scores of the control group and the experimental group, $F (1, 764.50) = 148.015$, $p = .000$. In addition to the significance of this difference, its effect size was also large, $d = .87$. Thus, Hypothesis 1 was supported. Respondents were indeed able to favorably distort their responses on the self-report measure of addiction proneness when encouraged to do so.

The primary objective of this study was to evaluate the susceptibility of the CRT-AP to faking issues. In order to assess this, scores on this measure were compared for the control

group, which was administered the CRT-AP and asked to select the most logical response, and the experimental group, which was also given the CRT-AP but instead asked to respond to the items as if they were applying for a job they would like to receive. The mean for the control group was 2.91 with a standard deviation of 1.58 and the mean for the experimental group was 2.98 with a standard deviation of 1.61. Consequently, an ANOVA was conducted to compare the scores of these two groups, and results indicated that there were no significant differences in mean scores between the baseline group (i.e., those participants who took the CRT-AP under standard testing instructions) and the experimental group (i.e., those participants who took the CRT-AP under the experimental condition), $F(1, 769) = 0.382$, *ns*. Thus, Hypothesis 2 was also supported. Results suggest that as with other conditional reasoning measures, the CRT-AP appears to be resistant to response distortion.

CHAPTER IV: DISCUSSION

The purpose of this study was to assess the fakability of a conditional reasoning measure of addiction proneness relative to existing self-report measures of this construct. Specifically, this study sought to determine the extent to which respondents were able to select socially desirable responses on the CRT-AP test when to do so. The CRT-AP was designed to assess implicit cognitions that reflect an individual's propensity towards addiction proneness. Based on the implicit nature of this measure, the CRT-AP should be inherently resistant to faking. The results of this study demonstrated that respondents were not able to distort their responses on this measure even when encouraged to do so, which indicates that the CRT-AP is less susceptible to the social desirability biases, such as impression management and self-deception, that frequently plague traditional personality measures. In other words, this study revealed that respondents were unable to select socially desirable responses when encouraged to do so. As long as the CRT-AP is administered under traditional testing conditions, it appears that respondents will not be able to positively distort their responses. From an organizational standpoint these findings are encouraging as they suggest that the CRT-AP may provide an objective assessment.

The results of this study further confirm that conditional reasoning methodology successfully targets implicit or unconscious cognitions that are inaccessible to self-report measures. Although self-report measures may offer insights with regard to personality by assessing explicit or conscious cognitions, many individuals may be disinclined to disclose perceived negative attributes (Bing, Stewart et al., 2007). Such reluctance to disclose undesirable personality traits could potentially lead to inaccurate, positively biased responses. Self-report measures are unable to deter socially desirable responses due to impression management and self-deception (Farrow et al., 2015). Therefore, self-report measures that assess

addiction proneness have the propensity of being plagued with inaccurate data due to faking. In contrast, when responding to the CRT-AP, respondents are not informed about the construct of interest but rather are under the impression that they are completing a reasoning test. Consequently, their responses to items on the CRT-AP reveal implicit justifications on which they could not otherwise report. As with other conditional reasoning tests, the CRT-AP appears to be resistant to socially desirable responding so long as the construct of interest is not revealed. This notion was further confirmed in a study by Bowler and colleagues (2014) that examined the fakability of the CRT-AP when the construct of interest was disclosed to participants. The study confirmed that respondents were in fact able to correctly identify responses that would indicate a propensity towards addiction when the purpose of the assessment was revealed (Bowler et al., 2014). Interestingly, respondents were unable to identify the responses that would indicate a healthier lifestyle even when the construct was revealed (Bowler et al., 2014). This study further confirms that the purpose of a CR test should be withheld from participants when assessing constructs of a sensitive nature.

The ability of the CRT-AP to identify respondents who are at risk of developing or are currently entrenched in addictive cycles offers numerous benefits and makes it conducive to a wide variety of applications and testing situations. Organizations that choose to employ the CRT-AP would be able to distinguish job candidates or current employees who may be at risk, thus allowing the opportunity for preventive intervention. Organizations would also be able to implement or provide information to at risk employees on existing Employee Assistance Plans (EAP). EAPs offer many benefits and would give employees suffering from addiction tools to deal their substance abuse as well as resources to deal with the negative consequences of addiction such as disease and financial hardship. Many EAPs offer counseling services for

employees and their families, individual health coaching and disease management, as well as professional financial guidance, free of charge. By providing these services to employees, organizations are encouraging employees to assume a more proactive and positive role in their recovery. Furthermore, encouraging employees to take a more active role in managing their health will reduce future healthcare costs for the employer because they will be able to take preventive measures as well as address health concerns immediately rather than allowing issues to persist and worsen over time. Healthy employees can also positively affect productivity by being able to more clearly focus on the job at hand instead of ongoing health issues. The promotion of a healthy workforce will also reduce the rate of absenteeism due to illness and medical appointments. If companies are given the opportunity to preemptively curtail potentially problematic behavior, they will subsequently reduce substantial costs associated with medical benefits, productivity losses, workplace injuries, and absenteeism.

Of secondary interest in this study was the finding that respondents were able to positively distort their responses on the SAB. Self-report measures are commonly used to assess various personality dimensions, and research indicates that respondents can readily provide socially desirable responses on self-report measures (LeBreton et al., 2007; Viswesvaran & Ones, 1999). The results of this study further demonstrated that respondents were, in fact, able to positively distort their responses when they were encouraged to do so on the self-report measure. This study strengthens the notion that self-report measures are easily falsified and may not be the best instrument for evaluating characteristics, particularly those that are sensitive in nature. These results align with those of Bowler and colleagues (2014) in which the fakability of the CRT-AP and the Michigan Alcohol Screening Test (MAST), a self-report measure, were examined. Results indicated that respondents were able to successfully distort their responses on

the MAST both positively and negatively. More specifically, individuals were able to successfully identify the responses that were indicative of addiction proneness as well as those that would suggest a healthier lifestyle (Bowler et al., 2011). Self-report instruments are nevertheless beneficial in providing a deeper understanding of overt personality traits that could predict job relevant traits and future job performance (Bing, Stewart et al., 2007). However, as these measures are designed to reveal explicit cognitions, self-report measures should be used in conjunction with a measure that assesses implicit cognitions to ensure a more comprehensive assessment.

Limitations

A potential limitation in the current study is participants' lack of experience with different substances such as, alcohol, drugs, cigarettes, and gambling. This inexperience could be due to many factors such as, legal age limits, religious influences, or geographical location. For example, the majority of participants in the study were under the legal drinking age of 21 and may have had limited experience with alcohol; thus, they may have had a limited knowledge base when asked specific questions on alcohol use. This unfamiliarity with substances mentioned in the measures could potentially engender confusion when responding to certain questions; thus, potentially leading to distorted responses or skewed results. It is even more likely that those who are under the legal drinking age may have not responded honestly due to not wanting to acknowledge having broken the law.

Another potential limitation is that the individuals who participated in the study were all college students enrolled in an undergraduate psychology course. The sample used in the current study may not be representative of the general population and undoubtedly features some degree of range restriction with regard to education. Moreover, the education the participants possess

and will gain in the future may also vary with the current and future education of those who have addictive tendencies.

Future Research

Future studies should include broader populations than college students as student samples may not accurately represent the overall population. It may be beneficial for future studies to examine the fakability of the CRT-AP on individuals with varying education, IQ, and job levels. For example, is the CRT-AP resistant to faking for all employees or only those working in exempt positions?

It would also be beneficial to conduct additional known group analyses with individuals who are currently seeking treatment for addiction issues to determine whether they are able to distort their responses on the CRT-AP. Studying known groups such as alcoholics or heroin abusers could offer further insight into the measure and offer additional support for its construct validity.

Finally, it may be helpful to conduct additional research on the CRT-AP to see if respondents can easily identify the addiction-prone responses. Although it is uncommon for individuals to negatively distort their responses on measures such as the CRT-AP, studies of this nature could further substantiate that the CRT-AP is resistant to both positive and negative faking.

Conclusion

The present study examined the fakability of two measures of addictive proclivities, the CRT-AP (an implicit measure) and the SAB (an explicit measure). The CRT-AP was inherently designed to assess implicit cognitions that have been shown to be resistant to faking than the standard self-report measures. Overall, the results of this study indicated that respondents were

unable to positively distort their responses on this measure, thus suggesting that the CRT-AP is resistant to faking. This also provides further support to the assertion that the CRT-AP does, in fact, assess implicit cognitions. In addition, results also confirmed that the SAB is susceptible to faking due to its assessment of conscious cognitions. Specifically, respondents were able to positively distort their responses on the self-report measure, therefore suggesting that explicit measures may be more vulnerable to distortions than those that assess implicit cognitions. Identification of addiction-prone individuals and prevention of addiction is paramount for organizations, as it will serve to reduce workplace injuries, accidents, absenteeism, illness, turnover, and poor productivity associated with substance abuse. Given that self-report measures of addiction proneness are susceptible to faking, it is essential that they be used in conjunction with an implicit measure such as the CRT-AP, which is resistant to response distortion.

References

Altman, J., Everitt, B. J., Glautier, S., Markou, A., Nutt, D., Oretti, R., Phillips, G., & Robbins, T. W. (1996). The biological, social and clinical bases of drug addiction: Commentary and debate. *Psychopharmacology, 125,* 285–345.

American Psychological Association (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57,* 1060-1073.

Arbour, S., Gavrysh, I., Hambley, J. M., Tse, A., Ho, A., & Bell, M. L. (2014). Addiction treatment and work-related outcomes: Examining the impact of employer involvement and substance of choice on absenteeism, tardiness, and productivity. *Journal of Workplace Behavioral Health, 29*, 73-90.

Austin, E. J., Hofer, S. M., Deary, I. J., & Eber, H. W. (2000). Interactions between intelligence and personality: Results from two large samples. *Personality and Individual Differences, 29,* 405-427.

Balmford, J., & Borland, R. (2008). What does it mean to want to quit? *Drug and Alcohol Review, 27*, 21-27.

Barrick, M. R., & Mount, M. K. (1996). Effects of impression management and self-deception on the predictive validity of personality constructs. *Journal of Applied Psychology, 81,* 261-271.

Baysinger, A., & Gianessi, C. (2015). Addiction. *The Yale Journal of Biology and Medicine*, *88*, 203–204.

Bing, M. N., LeBreton, J. M., Davison, H. K., Migetz, D. Z., & James, L. R. (2007). Integrating implicit and explicit social cognitions for enhanced personality assessment: A general framework for choosing measurement and statistical methods. *Organizational Research Methods, 10*, 136-17.

Bing, M. N., Stewart, S. M., Davison, H. K., Green, P. D., McIntyre, M. D., & James, L. R. (2007). An integrative typology of personality assessment for aggression: Implications for predicting counterproductive workplace behavior. *Journal of Applied Psychology*, *92*, 722-744.

Bing, M. N., Whanger, J. C., Davison, H. K., & VanHook, J. B. (2004). Incremental validity of the frame-of-reference effect in personality scale scores: A replication and extension. *Journal of Applied Psychology, 89,* 150-157.

Bowler, J. L., & Bowler, M. C. (2014), Evaluating the fakability of a conditional reasoning test of addiction proneness. *International Journal of Psychology*, *49*, 415–419.

Bowler, J. L., Bowler, M. C., & Cope, J. G. (2013). Measurement issues associated with conditional reasoning tests: An examination of faking. *Personality and Individual Differences, 55*, 459–464.

Bowler, J. L., Bowler, M. C., & James, L. R. (2011). The cognitive underpinnings of addiction. *Substance Use & Misuse, 46,* 1060–1071.

Brister, D., & Brister, P. (1987). *The vicious circle phenomenon.* Birmingham, AL: Diadem.

Centers for Disease Control and Prevention (2016, January). *Excessive drinking is draining the U.S. economy.* Retrieved from https://www.cdc.gov/features/costsofdrinking/index.html

Center for Substance Abuse Prevention. (1995, June 30). Action planning resources for alcohol,

    tobacco, and other drug problem prevention in managed care organizations, guidelines

    for prevention. *Implementation in health care delivery systems (managed care and*

    hospital systems) (facilitator guide). Rockville, MD: U.S. Department of Health and

    Human Services.

Cherpitel, C. J. (2007). Alcohol and injuries: A review of international emergency room studies

    since 1995. *Drug and Alcohol Review, 26,* 201-214.

Christiansen, N. D., Goffin, R. D., Johnston, N. G., & Rothstein, M. G. (1994). Correcting the

    sixteen personality factors test for faking: Effects on criterion-related validity and

    individual hiring decisions. *Personnel Psychology, 47,* 847– 860.

Coambs, R. B., & McAndrews, M. P. (1994). The effects of psychoactive substances on

    workplace performance. In S. Macdonald & P. M. Roman (Eds.), *Drug testing in the*

    workplace: Research advances in alcohol and drug problems (pp. 77-102). New York,

    NY: Plenum Press.

Cohen, J. (1984). The cost of dichotomization. *Applied Psychological Measurement, 7,* 249-253.

Comeau, M., Stewart, & S., Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity,

    and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana

    use. *Addict Behavior, 26,* 803–825.

Conway, K., Kane, R., Ball, S., Poling, J., & Rounsaville, B. (2003). Personality, substance of

    choice, and polysubstance involvement among substance dependent patients. *Drug and*

    Alcohol Dependence, *71*, 65-75.

Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). Drinking to regulate positive and

negative emotions: A motivational model of alcohol use. *Journal of Personality and

Social Psychology, 69,* 990-1005.

Cooper, M. L., Wood, P. K., Orcutt, H. K., & Albino, A. W. (2003). Personality and the

predisposition to engage in risky or problem behaviors during adolescence. *Journal of

Personality and Social Psychology, 84,* 390-410.

Cotton, N. (1979). The familial incidence of alcoholism: A review. *Journal of Studies on

Alcohol, 40,* 89–116.

Dawson, D., Harford, T., & Grant, B. (1992). Family history as a predictor of alcohol

dependence. *Alcoholism: Clinical and Experimental Research, 16,* 572–575.

de Wit, H. (2009). Impulsivity as a determinant and consequence of drug use: A review of

underlying processes. *Addiction Biology, 14*, 22-31.

Donnelly, N., Hall, W., & Christie, P. (2000). The effects of the Cannabis Expiation Notice

system on the prevalence of cannabis use in South Australia: evidence from the National

Drug Strategy Household Surveys 1985–95. *Drug and Alcohol Review, 19*, 265–269.

Dryfoos, J. G. (1990). *Adolescents at risk: Prevalence and prevention.* New York, NY: Oxford

University Press.

Elliott, D., Huizinga, D., & Ageton, S. (1985). *Explaining delinquency and drug use.* Beverly

Hills: Sage Publications.

Farrow, T., Burgess, J., Wilkinson, I., & Hunter, M. (2015). Neural correlates of self-deception

and impression management. *Neuropsychologia, 67*, 159-174.

Frone, M. (2004). Alcohol, drugs, and workplace safety outcomes: A view from a general model of employee substance use and productivity. In J. Barling & M. Frone (Eds.), *The psychology of workplace safety* (pp. 127-156). Washington, DC: American Psychological Association.

Frone, M. R. (2006). Prevalence and distribution of illicit drug use in the workforce and in the workplace: Findings and implications from a U.S. National survey. *Journal of Applied Psychology*, *91*(4), 856-869. doi:10.1037/0021-9010.91.4.856

Frone, M. R. (2009). Does a permissive workplace substance use climate affect employees who do not use alcohol and drugs at work? A U.S. national study. *Psychology of Addictive Behaviors*, *23*, 386-390.

Garavan, H., & Hester, R. (2007). The role of cognitive control in cocaine dependence. *Neuropsychology Review, 17,* 337–345.

Garnefski, N., & Okma, S. (1996). Addiction-risk and aggressive/criminal behavior in adolescence: Influence of family, school and peers. *Journal of Adolescence, 19*, 503-512.

Goffin, R., & Boyd, A. (2009). Faking and personality assessment in personnel selection: Advancing models of faking. *Canadian Psychology, 50*, 151-160.

Goffin, R., & Christiansen, N. (2003). Correcting personality tests for faking: A review of popular personality tests and an initial survey of researchers. *International Journal of Selection and Assessment, 11,* 340 –344.

Goodman, A. (1990). Addiction: Definition and implications. *British Journal of Addiction, 85,* 1403-1408.

Graham, J., & Strenger, V. (1988). MMPI characteristics of alcoholics: A review. *Journal of Consulting and Clinical Psychology, 56,* 197-205.

Grillo, K. (2010). Integral inquiry into the relationship between addiction and emotional intelligence. *Journal of Integral Theory and Practice, 5,* 54-73.

Grubb, W. L., & McDaniel, M. A. (2007). The fakability of Bar-On's Emotional Quotient Inventory Short Form: Catch me if you can. *Human Performance, 20,* 43-59.

Gust, S. W., Walsh, J. M., Thomas, L. B., & Crouch, D. J. (Eds.) (1990). *Drugs in the workplace: Research and evaluation data* (NIDA Research Monograph No. 100). Rockville, MD: U.S. Department of Health & Human Services.

Guze, S., Cloninger C., Martin R., & Clayton P. (1986). Alcoholism as a medical disorder. *Comprehensive Psychiatry, 27,* 501–10.

Hall, W., & Weier, M. (2017). Lee Robins' studies of heroin use among U.S. Vietnam veterans: Robins' heroin studies of Vietnam veterans. *Addiction, 112*, 176-180.

Heyman, G. M. (2013). Addiction and choice: Theory and new data. *Frontiers in Psychiatry, 4*, 31.

Hirschman, E. C. (1992). The consciousness of addiction: Toward a general theory of compulsive consumption. *Journal of Consumer Research, 19,* 155-179.

Holden, R. R., & Kroner, D. G. (1992). Relative efficacy of differential response latencies for detecting faking on a self-report measure of psychopathology. *Psychological Assessment*, *4*, 170-173.

Hough, M. H., Eaton, N. K., Dunnette, M. D., Kamp, J. D., & McCloy, R. A. (1990). Criterion-related validities of personality constructs and the effects of response distortion on those validities. *Journal of Applied Psychology, 75,* 581-595.

Hough, L., & Oswald, F. (2008). Personality testing and industrial- organizational psychology: Reflections, progress, and prospects. *Industrial and Organizational Psychology, 1,* 272–290.

James, L. R. (1998). Measurement of personality via conditional reasoning. *Organizational Research Methods, 1,* 131-163.

James, L. R., & Mazerolle, M. D. (2002). *Personality in work organizations: An integrative approach.* Thousand Oaks, CA: Sage Publications.

James, L. R., & McIntyre, M. D. (2000). *Conditional reasoning test of aggression: Test manual.* Knoxville, TN: Innovative Assessment Technology.

James, L. R., McIntyre, M. D., Glisson, C. A., Bowler, J. L., & Mitchell, T. R. (2004). The conditional reasoning measurement system for aggression: An overview. *Human Performance, 17*, 271-295.

James, L. R., McIntyre, M. D., Glisson, C. A., Green, P. D., Patton, T. W., LeBreton, J. M., … Williams, L. J. (2005). Use of conditional reasoning to measure aggression. *Organizational Research Methods, 8,* 69-99.

Khantzian, E. J. (1985). The self-medication hypothesis of addictive disorders: Focus on heroin and cocaine dependence. *American Journal of Psychiatry, 142,* 1259-1264.

LeBreton, J. M., Barksdale, C. D., Robin, J. D., & James, L. R. (2007). Measurement issues associated with conditional reasoning tests: Indirect measurement and test faking. *Journal of Applied Psychology, 92,* 1-16.

Levashina, J., Morgeson, F. P., & Campion, M. A. (2009). They don't do it often, but they do it well: Exploring the relationship between applicant mental abilities and faking on biodata measures. *International Journal of Selection and Assessment, 17,* 271-281.

Lipari, R. N., & Van Horn, S. L. (2017, June 29). *Trends in substance use disorders among adults aged 18 or older.* Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Rockville, MD.

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), *Crime and justice* (pp. 29-149). Chicago: University of Chicago Press.

Lubman, D., Yücel, M., & Pantelis, C. (2004). Addiction, a condition of compulsive behaviour? Neuroimaging and neuropsychological evidence of inhibitory dysregulation. *Addiction*, *99,* 1491-1502.

Martin, J. K., Kraft, J. M., & Roman, P. M. (1994). Extent and impact of alcohol and drug use problems in the workplace: A review of the empirical evidence. In S. Macdonald & P. M. Roman (Eds.), *Drug testing in the workplace: Research advances in alcohol and drug problems* (pp. 3-31). New York, NY: Plenum Press.

McFarland, L. A., & Ryan, A. M. (2000). Variance in faking across non-cognitive measures. *Journal of Applied Psychology, 85,* 812-821.

Meade, C. S., Kershaw, T. S., Hansen, N. B., & Sikkema, K. J. (2009). Long-term correlates of childhood abuse among adults with severe mental illness: Adult victimization, substance abuse, and HIV sexual risk behavior. *AIDS and Behavior, 13*, 207-216.

Meade, C. S., & Weiss, R. D. (2007). Substance abuse as a risk factor for HIV sexual risk behavior among persons with severe mental illness: Review of evidence and exploration of mechanisms. *Clinical Psychology: Science and Practice, 14*, 23-33.

Mello, N. K., & Mendelson, J. H. (1986). Cigarette smoking: Interactions with alcohol, opiates, and marijuana. In M. C. Braude & H. L. Ginzburg (Eds.), *Strategies for research on the interactions of drugs of abuse* (NIDA Research Monograph No. 68, pp. 154-180). Rockville, MD: U.S. Department of Health & Human Services.

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K., & Schmitt, N. (2007). Reconsidering the use of personality tests in personnel selection contexts. *Personnel Psychology, 60,* 683–729.

Najavits, L. M., Weiss, R. D., & Shaw, S. R. (1997). The link between substance abuse and posttraumatic stress disorder in women. *The American Journal on Addictions, 6*, 273–283.

National Drug Intelligence Center. (2011). *National threat assessment: The economic impact of illicit drug use on American society*. Washington, DC: Department of Justice.

National Institute on Drug Abuse (2017, April). *Trends & statistics.* Retrieved from https://www.drugabuse.gov/related-topics/trends-statistics

National Institute on Drug Abuse (2014, July). *Drugs, brains, and behavior: The science of addiction.* Retrieved from https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drug-abuse-addiction

Nielsen, A. L., & Scarpitti, F. R. (1997). Changing the behavior of substance abusers: Factors influencing the effectiveness of therapeutic communities. *Journal of Drug Issues, 27,* 279-298.

Okoli, C. T. C., Richardson, C. G., Ratner, P. A., & Johnson, J. L. (2009). Non-smoking youths' "perceived" addiction to tobacco is associated with their susceptibility to future smoking. *Addictive Behaviors, 34,* 1010-1016.

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*(3), 598-609.

Pearson, M., & Little, R. (1969). The addictive process in unusual addictions: A further elaboration of etiology. *American Journal of Psychiatry, 125,* 1166-1171.

Peele, S. (1985). *The meaning of addiction: Compulsive experience and its interpretation.* Lexington, MA: Lexington Books.

Peele, S. (1987). The disease theory of alcoholism from an interactionist perspective: The consequences of self-delusion. *Drugs and Society, 2,* 147-170.

Peele, S., & Brodsky, A. (1991). *The truth about addiction and recovery.* New York, NY: Simon & Schuster.

Pickard, H., Ahmed, S. H., & Foddy, B. (2015). Alternative models of addiction. *Frontiers in Psychiatry, 6*, 20.

Rehm, J., Taylor, B. & Room, R. (2006). Global burden of disease from alcohol, illicit drugs and tobacco. *Drug and Alcohol Review, 25*, 503–513.

Resko, S., & Brown, S. (2016). Introduction to the special issue: Examining the relationship between violence and addiction. *Journal of Social Work Practice in the Addictions, 16*, 1-6.

Robins, L. N. (1993). Vietnam veterans' rapid recovery from heroin addiction: A fluke or normal expectation? *Addiction, 88*, 1041-1054.

Ruetsch, C. (2010). Empirical view of opioid dependence. *Journal of Managed Care Pharmacy*, *16*(1 Suppl B), S9-13.

Russell, C., Davies, J. B., & Hunter, S. C. (2011). Predictors of addiction treatment providers' beliefs in the disease and choice models of addiction. *Journal of Substance Abuse Treatment, 40*, 150-164.

Sackeim, H. A., & Gur, R. C. (1978). Self-deception, self-confrontation and consciousness. In G. Schwartz & D. Shapiro (Eds.), *Consciousness and self-regulation, advances in research and theory* (Vol. 2). New York: Plenum Press.

Sayette, M. A. (1999). Does drinking reduce stress? *Alcohol Research & Health, 23,* 250–255.

Schaler, J. A. (2000). *Addiction is a choice.* Chicago, IL: Open Court Publishing Company.

Shulman, G. (1991). A typology of chemically dependent adolescents. *Journal of Adolescent Chemical Dependency, 1,* 29-41.

Sledge, W. H., & Lazar, S. G. (2014). Workplace effectiveness and psychotherapy for mental, substance abuse, and subsyndromal conditions. *Psychodynamic Psychiatry, 42*, 497.

Sleisenger, M. (1985). Gastrointestinal disease. In J. Wyngaarden & L. Smith, Jr. (Eds.), *Cecil textbook of medicine* (17th ed., pp. 645-650). Philadelphia, PA: Saunders.

Snell, A., Sydell, E., & Lueke, S. (1999). Towards a theory of applicant faking: Integrating studies of deception. *Human Resource Management Review, 9,* 219-242.

Spicer, R. S., Miller, T. R., & Smith, G. S. (2003). Worker substance use, workplace problems and the risk of occupational injury: A matched case-control study. *Journal of Studies on Alcohol and Drugs, 64,* 570–578.

Substance Abuse and Mental Health Services Administration (2007). *Results from the 2006 National Survey on Drug Use and Health: National Findings.* Office of Applied Studies, NSDUH Series H-32, DHHS Publication No. SMA 07-4293, Rockville, MD.

Sullivan, A. P., & Guglielmo, R. (1985). Chronic imperceptible pain as a cause of addiction. *Journal of Drug Education, 154,* 381–386.

Sutker, P. B., & Allain, A. N. Jr. (1988). Issues in personality conceptualizations of addictive behaviors. *Journal of Consulting and Clinical Psychology, 56,* 172-182.

Taylor, B., Irving, H., Kanteres, F., Room, R., Borges, G., Cherpitel, C., Greenfield, T., & Rehm, J., (2010). The more you drink, the harder you fall: A systematic review and meta-analysis of how acute alcohol consumption and injury or collision risk increase together. *Drug and Alcohol Dependence, 110*, 108-116.

United States Drug Enforcement Administration (2016, November). *National drug threat assessment summary.* Retrieved from https://www.dea.gov/resource-center/2016%20NDTA%20Summary.pdf

Viswesvaran, C., & Ones, D. S. (1999). Meta-analysis of fakability estimates: Implications for personality measurement. *Educational and Psychological Measurement, 59,* 197–210.

Wagner, E. F. (1993). Delay of gratification, coping with stress and substance use in adolescence. *Experimental and Clinical Psychopharmacology, 1*, 27-43.

Wilbanks, W. (1989). The danger in viewing addicts as victims: A critique of the disease model of addiction. *Criminal Justice Policy Review, 3*, 407-422.

World Health Organization (1992). *The ICD-10 Classification of Mental and Behavioural Disorders.* Geneva: World Health Organization.

Appendix A: An Illustrative CRT-AP Item

Cigarette smoking contributes to lung cancer, which can shorten one's life by as much as ten years. However, research suggests that these health risks can be reversed after several years of abstaining from smoking. Although this evidence has encouraged many smokers to quit, others are actually smoking more than ever before.

Which of the following is the most logical explanation for people continuing to smoke?
a) Most people are unaware of the risks of cigarette smoking.
b) Abstaining from smoking requires intense self-discipline, which many smokers lack.
c) Nicotine creates a physical dependency that cannot be reversed.
d) Workplaces are now allowing more smoking breaks.

Appendix B: An Illustrative SAB Item

Has a major area of your life (work, close relationships, health, school, self esteem) been

negatively affected by your addictive behavior?

☐ Yes   ☐ No

Appendix C: UMCIRB Approval Form

University and Medical Center Institutional Review Board
East Carolina University • Brody School of Medicine
600 Moye Boulevard • Old Health Sciences Library, Room 1L-09 • Greenville, NC 27834
Office **252-744-2914** • Fax **252-744-2284** • **www.ecu.edu/irb**
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

TO: Jennifer L. Bowler, Ph.D.
         104 Rawl Building, Mailstop 565
         Department of Psychology, Harriot College

FROM   UMCIRB

DATE: September 1, 2009

RE: Certification of Human Research Activities Determined to Meet Exempt Criteria

TITLE: "Assessing the validity of a new conditional reasoning measure"

UMCIRB #09-0641

This research study has undergone IRB review on 09.01.09. It is the determination of the IRB Chairperson (or designee) that these activities meet the criteria set forth in the federal regulations for exemption from 45 CFR 46 Subpart A. This human research activity meets the criteria for an exempt status because of Category #2, survey or interview procedures in which the participants will not be identified. The Chairperson (or designee) deemed this exempt study **no more than minimal risk.** This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any changes must be submitted to the UMCIRB for review prior to implementation to allow determination that proposed changes do not impact the activities eligibility for exempt status. Should it found that a proposed change does require more substantive review, you will be notified in writing within five business days.

The following items were reviewed in determination exempt certification:
- Internal Processing Form – Exempt Application
- Consent script for volunteers
- Debriefing form
- IAT Reasoning Test
- Self-Assessment of Behavior test
- Classification Sheet

It was furthermore determined that the reviewer does not have a potential for conflict of interest on this study.

The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies that fall under the purview of Food and Drug Administration regulations. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418
IRB00004973 East Carolina U IRB #4 (Behavioral/SS Summer) IORG0000418
Version 3-5-07

UMCIRB #
Page 1 of 1