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Personality Characteristics of Substance Abusers

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Abstract

Although the misuse of alcohol and drugs wax and wane in popularity over the years, broader population trends demonstrate that at least some level of involvement with alcohol or drugs is widespread in all societies around the globe. Altering the state of consciousness, through the abuse of drugs and alcohol, could be fundamental to human nature. It would be more helpful if substance abuse research focused on increasing our understanding of the characteristics or personality traits associated with this need to seek this kind of arousal or mind-altering state. With increased knowledge of the personality characteristics of substance abusers, perhaps more effective treatment methods can be developed to fit the lifestyle patterns of these individuals. The purpose of this study was to examine personality characteristics; namely, risk-taking, sensation-seeking, and impulsivity hypothesized to be associated with drug and alcohol abuse. Risk-taking is defined as engaging in dangerous behaviors or activities which may cause loss. An operational definition of impulsivity would be the difficulty in maintaining self-control. Measures of risk-taking behavior have demonstrated the ability to predict the tendency for individuals to abuse drugs and alcohol. Impulsivity has also been associated with drug and alcohol abuse.

Keywords*: Personality, characteristics, impulsive, risk taking, substance abuse, and research.*

1.0. Introduction

What is about human nature that compels so many individuals to seek mind-altering experiences using illicit substances? Although the misuse of alcohol and drugs wax and wane in popularity over the years, larger population trends demonstrate that at least some level of involvement with alcohol or drugs is widespread in all societies around the globe. (e.g., Glantz & Pickens, 1992). Attempts to control substance abuse through societal legislation, such as Prohibition, seem to fail. An examination of the national history of Prohibition shows that a well-intentioned set of laws had, in some groups, the paradoxical effect of increasing alcohol abuse (Glantz & Pickens, 1992).

Altering the state of consciousness, through the abuse of drugs and alcohol, could be fundamental to human nature.

It would be more helpful if substance abuse research focused on increasing our understanding of the characteristics or personality traits associated with this need, drive or reinforced the behavior of humans to seek this kind of arousal or mind-altering state. With increased knowledge of the personality characteristics of substance abusers, perhaps particular treatment methods can be developed to fit the lifestyle patterns of these individuals. For example, in order to fulfill a sensation-seeking desire in an individual, it may be helpful to substitute a healthier activity (such as an energizing sport) for drugs. To make moral judgments or continue the campaign of "just say no" to drugs is too simplistic.

The identification of factors leading to drug and alcohol abusers is a primary step in substance abuse treatment and research. The purpose of this study was to examine personality characteristics; namely, risk-taking, sensation-seeking, and impulsivity hypothesized to be associated with drug and alcohol abuse. Risk-taking is defined by Jiang, Sun, and Marsiglia (2016) as engaging in those behaviors or activities which may cause loss or are dangerous. Sensation seeking is defined by DeYoung and Reuter (2016) as human trait characterized by the need for alternative complex sensations and experiences including the willingness to take the physical and social risks for the sake of such experience. Additionally, an operational definition of impulsivity would be the difficulty of maintaining self-control. Research studies on risk-taking behavior have demonstrated the ability to predict the tendency for individuals to abuse drugs and alcohol (Centers for Disease Control and Prevention, 2012a; Hayaki, Anderson, & Stein, 2006; LaForge, 2005; Shead, & Hodgins, 2009; Trucco, Elisa, Craig, Colder, Julie, Bowker & William, Wieczorek, 2011). Impulsivity has been correlated with drug and alcohol abuse (Bo, Billieux, & Lando, 2016; DeYoung, & Reuter, 2016).

3.0. Literature Review

An extensive review of the current literature found that alcohol and drug abuse are among the most pervasive mental health problems in contemporary society. The Statistical Abstract of the United States (2018) reports nearly 28.6 million people of the age of 12 and above used an illicit drug in the past 30 days and an estimated 21.0 million people of the age of 12 needed substance use treatment as of 2016. More specifically, the data indicates that among young adults aged 18 to 25; however, about 1 in 7 people needed treatment. Substance abuse is a continuing and growing societal concern which demands further research. It is challenging to report statistics on all those who do not seek treatment for substance abuse; however, population estimates of those involved with drugs and alcohol are available.

The financial costs of substance abuse have included health-related expenses, with severe patterns of alcohol use worsening other chronic health conditions (Rehm et al., 2009), as well as added stress on finances, interpersonal relationships, housing and educational/career progression. Additionally, there have been numerous societal costs due to loss of productivity, increased demand on the criminal justice system, and intentional/accidental damage to persons or property associated with substance abuse (Substance Abuse and Mental Health Services Administration. 2017; Sudhinaraset, Wigglesworth, & Takeuchi., 2016). These costs have driven research aimed at understanding drug and alcohol abuse treatment, including reduction of the severity of current substance use and ultimately long-term remission.

Substance abuse is costly on a mental, physical, and financial level. The physical damage to the brain and dopamine receptors from methamphetamine use can cause increased aggression along with mental disparities (SAMHSA, 2018; Stamm, Frick, & Mackey, 2016). The dangerous chemicals combined to manufacture methamphetamine has been shown to cause frontal lobe impairment, white matter damage, and dopamine disruption which can cause exacerbated paranoia that translates into aggression (Lederer, Fouche, Wilson, Stein, & Uhlmann, 2016). Aggression can be focused on the support system and portrayed in both a mental or physical way, causing traumatic damage.

The financial strain that methamphetamine has put on the United States is severe; over $740 billion annually is spent on crime alone (National Institute on Drug Abuse, 2018). Healthcare lost work productivity, and social interventions are all costs transferred to Americans to compensate for methamphetamine abusers. Social service workers are often called to intervene when minors are involved with substance abuse cases, and Treatment Drug Courts are costly; factoring in additional resources to parenting participation, such as foster care compensation, adds to the overall cost that is felt by Americans (Graham, 1980; Hollister-Wagner, Gambrill, Foshee, & Jackson, 2001; SAMHSA, 2017).

With over 24.3 million children in the United States that have at least one parent with a substance abuse problem, researchers have endeavored to identify predicting factors and characteristics of substance abusers (DEA, 2018; Jones, et al., 2016). A typical personality characteristic associated with substance abuse is risk-taking (Jiang, et al., 2016; Steinberg, Laurence, 2007). According to Bonini, Grecucci, Nicolè, and Savadori (2017), risk-taking is the intentional activity that drives the pursuit of adventure or danger sufficient to create anxiety in most people. Subsequently, the phenomenon known as risk-taking can be manifested physically, socially, or a combination of the two.

It is noteworthy that different types of risk-taking often come with different antecedents and consequences. Risk-taking may involve physical or social action, and it may be premeditated or impulsive, prosocial, or antisocial. Risk-taking may also be governed by a lack of fear or by courage based on qualities other than fearlessness (Centers for Disease Control and Prevention, 2012a). Trucco, et al. (2011) tested the hypothesis that risk-taking attitudes are strong predictors of delinquency and substance abuse among adolescents. They found that risk-taking measures make strong and independent contributions to predicting drug and alcohol use. Steinberg (2010) states that the most severe and current concern is the risk-taking behaviors that individuals engage in associated with acquired immune deficiency syndrome (AIDS).

A related construct to risk-taking is sensation seeking. Stautz, and Cooper (2013) defines sensation-seeking as a human trait characterized by the need for varied, novel, and complex sensations and experience including the willingness to take the physical and social risks for the sake of such experience. Furthermore, Handley, Chassin, Haller, Bountress, Dandreaux, and Beltran (2011) suggested that sensation seeking is a trait that has evolved as a function of its adaptive value for survival and reproductive fitness in terms of avoidance and approach behaviors. For example, the sensation seeker among our early ancestors was more adventurous than the sensation avoider.

The advantages of sensation seeking would have been new food sources and other survival sources, whereas, the disadvantages may have been potential dangers such as encountering other preying species. The sensation avoider would have avoided these risks and, as a result, further exploration of adaptive or survival traits was at a minimum. Curcio, and George (2011) view on sensation seeking as an evolved trait may be seen as related to the survival of the fittest, theory. It would appear then, that our successful and "fittest" ancestors were able to make calculated, reasonable, or well-prepared risks in order to survive, reproduce and improve or advance in their lifestyles (Curcio & George, 2011; Stautz & Cooper, 2013; Winstanley, Olausson, Taylor, & Jentsch, 2010).

Sensation seeking appears to have both positive and negative connotations. Blaskey, Harris, and Nigg (2008) illustrate his suggestion of sensation seeking as a human trait in that novel stimuli may elicit either approach or avoidance reactions depending on species, level of maturation, and individual differences within a species. Therefore, sensation seeking and sensation avoidance, as extremes of a continuous behavioral trait dimension, may represent two different strategies for adaptation to a dangerous environment in which novel stimuli can be either source of biological reward or threat to survival. As with many traits, the extremes would be maladaptive (Blaskey, Harris & Nigg, 2008; Stautz & Cooper, 2013).

For purposes of this study, risk-taking behavior and sensation-seeking will be considered together as related personality characteristics. The relevant literature shows a significant overlap of both concepts and personality traits. For example, studies have repeatedly demonstrated that both sensations seeking, and risk-taking are developing over the course of adolescence, and the mismatch between the developmental timing of these two systems can result in increased propensity for substance abuse (Albert, Dustin & Steinberg, 2011; Stautz & Cooper, 2013; Steinberg, 2010).

Zimmerman (2010) tested the hypothesis that risk-taking attitudes are strong predictors of delinquency and substance abuse among adolescents. They found that risk-taking measures make strong and independent contributions to predicting drug and alcohol use. A most severe and current concern is the risk-taking behaviors that individuals engage in concerning acquired immune deficiency syndrome (AIDS). Ottomanelli (1990) surveyed substance abusers in hospital clinics about risk behaviors related to AIDS. Although the subjects had an adequate base of prevention knowledge about AIDS, they continued to engage in risky behaviors resulting in HIV exposure and transmission.

The literature review concerning the relationship between impulsivity, substance abuse, and related addictive disorders, found that several studies (Bryden, Roberts, Petticrew, & McKee,2013; Jackson, Denny, & Ameratunga, 2014; Karriker-Jaffe, 2011) suggested that impulsivity is a significant predictor of drug abuse and other disorders. Stautz, and Cooper (2013) conducted a meta-analytical review, and results supported Zimmerman`s theory that impulsive and risk-taking persons appear to be at high risk for multiple addictions. Another study conducted by Urcelay, and Dalley (2012) exploring the relationship between ADHD, impulsivity, and drug abuse, found that impulsivity was the strongest predictor of addictive disorders. Research on substance abusers involved in twelve-step type self-help organizations determined that impulsive individuals were likely to have more problems maintaining abstinence. A significant though the modest correlation was found between impulsivity and both length of sobriety and number of "slips" or relapses in several studies (Bo, et al., 2016; DeYoung, et al., 2016; García, Lawrence, & Clark, 2008; Jones, et al., 2016).

In the studies of Dick, Smith, Olausson, Mitchell, Leeman, O'Malley, and Sher (2010), half of the alcoholics described themselves as hyperactive during childhood and adolescence. They describe their behavior generally similar to that seen in the hyperactive child syndrome (currently referred to as ADHD). Half the alcoholics recalled that they had been aggressive, impulsive and "hot-tempered." Blaskey, et al. (2008) found that male and female alcoholics reported a similar number of attention deficit, impulsivity, aggressiveness, and school problems. For purposes of this study, impulsivity will be defined as the inability to control one's behavior and impulsivity as difficulty in controlling one's emotions such as temper and anger does not consider the consequences of one's actions as an adult.

4.0. Taxonomy of Substance Abuse

According to Hasin, O'Brien, Auriacombe, Borges, Bucholz, Budney, and Grant (2013) when studying such complex behaviors as the use and abuse of drugs and alcohol, careful attention must be given to the definition of substance abuse. The most commonly used and widely accepted taxonomic system is based on the compiled criteria of the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-V). The criteria for a diagnosis of alcohol and drug dependence covers the gamut of factors, including adverse social, physiological, psychological functioning, and medical complications. More specifically, some of the DSM-V criteria require that the substance of choice should be used in excessively over a more extended period than the person intended and attempts to control the use of the substance are unsuccessful. Additionally, the person spends a great deal of time on activities necessary to get the substance (Enoch, 2011). Dependence on a substance will interfere with job performance (e.g., does not attend work due to a hangover or goes to work "high").

Despite the knowledge that persistent use of the substance will cause social, psychological, or physical problems, (e.g., cirrhosis) the individual will continue to abuse the substance (Addiction Center, 2017). Increased tolerance for the substance is also noted as well as using the substance to relieve or avoid withdrawal symptoms (Hasin et al., 2013). Addiction and dependence are often used synonymously by clinicians. Initially, both addiction and dependence specified an individual who needed the substance to prevent adverse and possibly life-threatening consequences from withdrawal (Jewell, Rose, Bush, & Bartz, 2017). Contemporary use of the term dependence is more broadly applied to mean psychological need without necessarily a physiological need (Hasin et al., 2013). Dependence is the term used by the DSM-V for the condition in which individuals become involved in compulsive, non-prescribed self-administration of high doses of specific psychoactive agents (Hasin et al., 2013). For purposes of this study the criteria for alcohol and drug abuse will follow the DSM -V definitions of alcohol dependence and the different classes of drug dependence (i.e. cannabis dependence, cannabis abuse, cocaine dependence, cocaine abuse, etc.) (Lederer, et al., 2016; Smith, & Cyders, 2016).

5.0. Characteristics of Substance Abusers

The relevant literature suggested that several personality characteristics may be associated with substance abusers. DeYoung, and Reuter (2016) presented evidence that personality factors are antecedent to, concomitants of, and consequences of alcohol use and abuse. Furthermore, Stautz, and Cooper (2013) noted that personality factors interact with biological, psychological, and sociocultural determinants as well as environmental factors. DeYoung, and Reuter (2016) supports the need for further study of the personality factors associated with substance abuse. Further study on the impact of personality characteristics on alcohol and drug abuse is supported by Elkins, King, McGue, and Iacono (2006). After reviewing several studies concerning alcohol and different personality factors, they assert that no one predisposing individual difference factor can be considered as prepotent.

5.1. Risk-taking Behaviors

A common assertion in substance abuse research is that abusers engage in "risky" behaviors (Hayaki et al., 2006; Marsh, Park, Lin, & Bersamira, 2018). Furthermore, risk-taking propensities can be interpreted as the tolerance for risk. Ehrlich and Maestas (2010) state that risk orientation is "one's general degree of comfort with facing uncertain gains or losses" (p. 658). For example, a youth with a high propensity of risk-taking may be more likely to see a colleague cheating on a test in school and say nothing about it. On the other hand, youth with a low propensity of risk-taking may be less tolerant of such risk-taking or deviant behaviors. Risk-taking behavior can be interpreted as the propensity to condone or participate in activities that may cause harm. Adolescents with high risk-taking tendencies may be more likely to shoplift, engage in alcohol binges, have unprotected sex, smoke marijuana, or use other drugs (Marsh, et al., 2018). Therefore, it is safe to speculate that low risk-taking youth may abstain from alcohol, drugs, and unprotected sex and do well academically (Ehrlich & Maestas, 2010; Hayaki et al., 2006).

The Centers for Disease Control and Prevention (2012) defines "risk" as "the possibility of loss or danger." and, in verb form, "risk" is "to expose to loss or damage." Therefore, risk-taking behavior would be those behaviors or activities which tempt the possibility of loss or danger. For example, behaviors associated with substance abusers which have been studied include AIDS-related risk behaviors such as continued HTV exposure despite education and awareness sharing needles and engaging in unprotected sexual encounters, driving under the influence, and other criminal involvement (Hayaki, et al., 2006). Other "risky" behaviors studied and associated with addiction proneness, and substance abuse is smoking and eating disorders (Chassin, Presson, Sherman, Seo, & Macy, 2010; De Wit, 2009).

Behaviors or activities which can be considered both risky and impulsive is gambling. The association of gambling to substance abuse has been investigated and when utilizing subscale scores of the MAC, alcoholics and compulsive gamblers scored similarly suggesting that men addicted to alcohol or gambling may have similar personality profiles (Allami, Vitaro, Brendgen, Carbonneau, Lacourse, & Tremblay, 2017; Bonini, et al., 2017). Risk-taking, sensation seeking, and impulsivity all seem to be characteristic of certain behaviors which are seen in substance abusers. For example, in order to obtain an illicit drug, one must take the risk of possibly getting arrested when buying the drug.

Due to the addictive nature of alcohol and the drugs and the lack of impulse control in specific individuals, better judgment is overthrown, and the risky behavior occurs. Does the individual gain a sense of exhilaration or aroused sensation going through these risky maneuvers? Once the drug is obtained and consumed, it may be assumed that part of the search for sensation or arousal is satisfied (Loree, Lundahl, & Ledgerwood, 2015; Marsh, et al., 2018). Furthermore, while under the influence of drug and alcohol, the probability is high that the individual will persist on the path of risk-taking behaviors such as driving under the influence, engaging in promiscuous, unprotected sex and swapping needles. It seems, then, that the complete drug experience allows for risk-taking behavior, satisfies sensation seeking and "requires" impulsive, poorly thought out actions (Allami, et al., 2017; Hayaki, et al., 2006).

5.2. Compulsive / Impulsive Behavior

Impulsivity is a complex construct, and it is often a common feature in many psychiatric disorders. Researchers have shown a consistent relationship between impulsive traits and alcoholism (Jones, S., & Lynam, D.R. (2009).). Specific impulsive traits associated with alcoholism include conduct disorder, antisocial behavior, sensation-seeking, disinhibited behaviors, and novelty-seeking (Barker, Trentacosta, & Salekin, 2011).). Impulsive behavior is often considered to be compulsive and vice versa. Compulsion is defined as an irresistible impulse, and impulse is defined as a force that starts the body in motion and an arousing of the mind and spirit to action (Lovallo, 2013). It is not uncommon that the terms impulsive and compulsive are interchanged in the research literature.
Most people would not argue that alcohol consumption and drug abuse are compulsive or impulsive behaviors for some individuals. Other compulsive behaviors such as smoking, overeating, and gambling may also have the targeted personality characteristics of risk-taking, sensation seeking, and impulsivity associated with them (Barker, et al., 2011). The behavioral characteristics frequently manifested by people with bulimia, which seem comparable to those found among those addicted to alcohol and drugs often report loss of control over the substance, infatuation with the substance, use of the substance to cope with stress or negative feelings, and a tendency to remain secretive regarding the behavior (Allami, et al., 2017; Jones, & Lynam, 2009).

They go on to discuss other similar behavioral characteristics such as the maintenance of the addictive behavior despite negative social consequences and possible legal consequences. Watt, Guidera, Hobkirk, Skinner, and Meade (2017)) investigated these similarities between women in partner violence and women with alcohol and drug abuse problems. They found that drug and alcohol abusers had a higher incidence of partner violence. Of particular interest and relation to the current study, they found that women in partner violence that were substance abusers had higher rates of impulsivity, anger, and rebelliousness. Bo, et al. (2016) studied characteristics associated with binge drinking and addictive behaviors, and they found a higher degree of impulsivity in the male segment of the alcoholic population.

5.3. *Lower Levels of Academic Success*

Another common characteristic of a substance abuser, which can also be used as a predictor of drug and alcohol abuse, is a poor academic achievement. Jayne, and Valentine (2016) and Anderson, Leventhal, and Dupéré (2014) explored the sociodemographic correlates of adolescent alcohol and drug use and found that greater substance abuse in adolescents was correlated with poorer academic performance, a greater number of school disciplinary actions and less participation in extracurricular activities. Furthermore, Edelman, and Fiellin (2016) correlated the severity of alcohol abuse for both males and females. They found that, for males, the severity of alcohol abuse was significantly correlated with cognitive impairment and school maladjustment.

Moreover, Winters, and Arria (2011) examined how childhood and adolescent traits affect the adolescent's increased involvement in drug use over time. Poor academic achievement was one variable which was highly correlated with drug involvement. Children with low academic achievement were more likely to increase drug involvement during adolescence. Studying emerging adults, Sahker, Acion, and Arndt (2015) found that male and female alcoholics reported a similar number of school problems. Martin, Conger, Sitnick, Masarik, Forbes, and Shaw (2015 found that economically disadvantaged young men who perform at a high level academically while in high school are less likely to become near-daily marijuana users than those with poor academic performance. Commitment to school appears to protect against escalation to massive marijuana uses by adolescents. Scott, Woods, Matt, Meyer, Heaton, Atkinson, and Grant (2007) reviewed several studies on the neurocognitive effects of methamphetamine and other drug use. Their discussion supports the past and current research indicating that poor academic performance and a weak commitment to school are risk factors in the transition to substance abuse and that poor school achievement by adolescents can predict drug use or abuse.

5.4. *Antisocial Behavior and Aggressive Tendencies*

Antisocial behavior and aggressive tendencies have been studied in connection with substance abusers. One would be remiss not to address antisocial behavior and aggressive tendencies when discussing the related behaviors of substance abusers (Chen, & Jacobson, 2013). An obvious connection of antisocial and aggressive behaviors to drug abuse is made by the acknowledgement or fact that drugs are simply against the law. In terms of alcohol abuse, as mentioned earlier, Prohibition did not decrease the incidence of drinking alcohol, and during that period there was an increase in antisocial behavior (Molero, Larsson, Larm, Edlund, & Tengstrom, 2011).

The study of Cleveland, Collins, Lanza, Greenberg, and Feinberg (2010) of the protective benefits of families and drug abuse found that over 21% of the variance was accounted for by two factors which both describe aggressive and oppositional tendencies of the subjects. Another study conducted by Trentacosta, Hyde, Shaw, and Cheong (2009) investigated the relationships between antisocial personality disorder, a childhood history of aggressive behavior and aggression. Results indicated that adolescents reported more anger and aggression when drinking than when sober. Results also indicated that this effect was highest among individuals with a history of childhood aggression. Molero, et al. (2011) examined gender differences in drug-related crimes among males and females treated for substance misuse as youths and found that more men than women were diagnosed as manifesting antisocial personality disorder.

Alegria, Hasin, Nunes, Liu, Davies, Grant, and Blanco (2010) used data from the National Epidemiological Survey on Alcohol and Related Conditions to examine the co-occurrence of alcoholism with other psychiatric disorders in the general population. They found that, in men, an antisocial personality disorder is almost four times as common among alcoholics than in the general population and over 12 times more common in alcoholic women. Patock-Peckham, Dager, Thimm, and Gates (2014) studied why some adolescents progress to higher states of alcohol abuse and multiple drug use, whereas others do not. They found that childhood aggression increased the likelihood of adolescent alcohol abuse threefold.

The authors state that aggression is essential to study because it taps both emotional and behavioral under control. This statement points out the similarity of aggression to impulsivity, as impulsivity is defined as a lack of control. Impulsivity and aggression differ in that aggression most always involves negative connotations such as anger and acting out behavior, while impulsive behavior is not necessarily negative.

Tolerance of deviance, which can be considered a part of antisocial tendencies, was the most important correlate distinguishing light from moderate alcohol abuse in adolescents. Personality factors associated with moderate involvement with marijuana use were similar to those that also increased the risk for moderate alcohol abuse such as tolerance for deviance (Bonn-Miller, & Moos, 2009).In the case of more severe alcohol use or abuse, childhood aggression emerges as a compelling factor for alcohol abuse but not for heavy marijuana use (Stephenson, & Helme, 2006). Research to date on the drug of choice phenomenon and related personality characteristics suggests that aggression may be more related to alcohol than drugs. It would be interesting to test if aggression was associated with other drug choices (Sofuoglu, Sugarman, & Carroll, 2010; National Institutes of Health, 2016).

García, et al. (2008) investigated genetic and environmental factors in the initiation of drug use and the transition to abuse. They found that antisocial personality is an essential element in the change from drug use to drug abuse. Aggression, correlated with antisocial personality, is highly predictive of the transition from drug use to abuse. Antisocial personality and aggressive tendencies will not be directly addressed in this investigation. However, because of their importance in how they relate to the variables being studied (risk-taking, sensation-seeking, and impulsivity), they must not be overlooked. For instance, if an individual is to become involved with the drug experience, antisocial tendencies, risk-taking behavior, and a sensation-seeking orientation most likely come into play in the whole plethora of addictive behaviors (King, Keyes, Winters, McGue, & Iacono, 2017; LaForge, 2005). Other characteristics of substance abusers (i.e., poor self-esteem, marital and occupational difficulties) were not unintentionally overlooked.

6.0 Implications for Practice

The study identified several implications for practice. The findings emphasized the need for alcohol treatment centers and substance use counselors to consider client level of impulsivity when treating long-term substance abuse. Professionals within the field of addiction should assess for high impulsivity in clients to predict their attitude towards recovery. Understanding a person's level of impulsivity may allow for a better working understanding of the client's recovery attitudes. This understanding may help improve treatment plan goals and objectives. In a review of the literature, researchers found that addressing high impulsivity had a positive effect on long term recovery as well as treatment completion (Moshier et al., 2013; Richardson et al., 2014).

The second implication of the study was the importance of considering impulsivity and recovery attitudes when designing and implementing opioid use prevention programs. Impulsivity was associated with substance use in several studies. The current study showed that impulsivity is also associated with recovery from opioid use, and recent literature showed impulsivity effects previous use as well. In a review of the literature, impulsivity was a contributor to heroin use age of onset (Li, Du, Yu, Jiang, Fu, Wang, Zhao, 2012; Lovallo, 2013).

The results of the present study provide information that may be useful for developing new drug prevention and treatment programs. Assessing impulsivity, risk-taking, and other personality characteristics may prove useful for determining who is vulnerable to develop a substance use disorder. Screening for impulsivity, risk-taking and other personality characteristics before or during treatment may be useful in assigning individuals to specialized treatment modalities, or it may be useful to identify individuals at risk for quitting treatment (Becker, 2013; Manning, Garfield, Best, Berends, Room, Mugavin, & Lubman, 2017). Finally, it is possible that factors that can alter personality characteristics, such as medications or behavioral treatments can ultimately alter the potential for initiating drug abuse and the effectiveness of treatments for drug abuse (McGovern, Lambert-Harris, Gotham, Claus, & Xie, 2014; Sahker, et al., 2015).

References

Addiction Center (2017). *College Drug Abuse*. Addiction Center. Retrieved from: https://www.addictioncenter.com/college/

Albert, Dustin and Laurence Steinberg. 2011. *Peer Influences on Adolescent Risk Behavior*. In M. Bardo, D. Fishbein, & R. Milch (Eds.), Inhibitory Control and Drug Abuse Prevention: From Research to Translation. (Part 3, pp. 211-226). New York: Springer.

Alegria, Hasin, Nunes, Liu, Davies, Grant, and Blanco (2010) Comorbidity of Generalized Anxiety Disorder and Substance Use Disorder: Results from the National Epidemiological Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry, 71*, 1187-1195.

Allami, Y., Vitaro, F., Brendgen, M., Carbonneau, R., Lacourse, É., & Tremblay, R. E. (2017). A longitudinal empirical investigation of the pathways model of problem gambling. *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-017-9682-6

Anderson, S., Leventhal, T., & Dupéré, V. (2014). Exposure to neighborhood affluence and poverty in childhood and adolescence and academic achievement and behavior. *Applied Developmental Science, 18*(3), 123-138.

Barker, E.D., Trentacosta, C.J., & Salekin, R.T. (2011). Are impulsive adolescents differentially influenced by the good and bad of neighborhood and family? *Journal of Abnormal Psychology,120*(4),981-986. doi: 10.1037/a0022878

Becker, S. J. (2013). Adolescent substance-abuse: National trends, consequences, and promising treatments. *Brown University Child & Adolescent Behavior Letter, 29*(5), 1-7

Blaskey, L.G., Harris, L.J., & Nigg, J.T. (2008). Are sensation seeking and emotion processing related to or distinct from cognitive control in children with ADHD? *Child Neuropsychology, 14*(4), 353-371. doi: 10.1080/09297040701660291

Bo, R., Billieux, J., & Lando. N. I. (2016). Which facets of impulsivity predict binge drinking? *Addiction Behavior Reports, 3*, 43-47. doi:10.1016/j.abrep.2016.03.001

Bryden, A., Roberts, B., Petticrew, M., & McKee, M. (2013). A systematic review of the influence of community level social factors on alcohol use. *Health and Place, 21*, 70-85.

Bonn-Miller, M. O., & Moos, R. H. (2009). Marijuana discontinuation, anxiety symptoms, and relapse to marijuana [Electronic version]. *Addictive Behaviors, 34*, 782-785.

Bonini, N., Grecucci, A., Nicolè, M., & Savadori, L. (2017). Reduced risk-taking after prior losses in pathological gamblers under treatment and healthy control group but not in problem gamblers. *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-017- 9709-z

Centers for Disease Control and Prevention (2012a). *Youth Risk Behavior Surveillance—United States,* 2011 [Online]. Morbidity and Mortality Weekly Report (MMWR); Vol. 61.

Centers for Disease Control and Prevention (2012b). *Web-based Injury Statistics Query and Reporting System* (WISQARS) [Online].

Centers for Disease Control and Prevention. (2012). *Youth risk behavior surveillance— United States,* 2011 Morbidity and Mortality Weekly Report (Vol. 61(4)). 80

Chassin, L., Presson, C., Sherman, S., Seo, D., & Macy, J. (2010). Implicit and explicit attitudes predict smoking cessation: moderating effects of experienced failure to control smoking and plans to quit. *Journal of Psychological Addiction Behaviors, 24*, 670-679. doi:10.1037/a0021722

Chen, P., & Jacobson, K. (2013). Impulsivity moderates' promotive environmental influences on adolescent delinquency: A comparison across family, school, and neighborhood contexts. *Journal of Abnormal Child Psychology, 41*(7), 1133- 1143. doi: 10.1007/s10802-013-9754-8

Cleveland, M.J., Collins, L.M., Lanza, S.T., Greenberg, M.T., & Feinberg, M.E. (2010). Does individual risk moderate the effect of contextual-level protective factors? A latent class analysis of substance use. *Journal of Prevention & Intervention in the Community, 38*(3), 213-228. doi: 10.1080/10852352.2010.486299

Curcio, A.L., & George, A.M. (2011). Selected impulsivity facets with alcohol use/problems: The mediating role of drinking motives. *Addictive Behaviors, 36*(10), 959-964. doi: 10.1016/j.addbeh.2011.05.007

DEA. (2018). *Drug Enforcement Administration: Statistics and Facts*. Retrieved from https://www.dea.gov/resource-center/statistics.shtml.

DeYoung, C., & Reuter, A. R. (2016). *Impulsivity as a personality trait*. In K. D. Vohs & R. F. Baumeister (Eds.), Handbook of self-regulation: Research, theory, and applications (3rd ed. pp.345-363). New York, NY: Guilford Press.

Dick, D. M., Smith, G., Olausson, P., Mitchell, S. H., Leeman, R. F., O'Malley, S. S., & Sher, K. (2010). Understanding the construct of impulsivity and its relationship to alcohol use disorders. *Addiction Biology, 15*, 217-226. doi:10.1111/j.1369-1600.2009.00190.x

Edelman, E. J., & Fiellin, D. A. (2016). Alcohol use. *Annals of Internal Medicine, 164*(1), ITC1-16.

Ehrlich, S. & Maestas, C. (2010). Risk Orientation, Risk Exposure, and Policy Opinions: The Case of Free Trade. *Political Psychology, Vol. 31*: 657-684.

Elkins, I.J., King, S.M., McGue, M., & Iacono, W.G. (2006). Personality traits and the development of nicotine, alcohol, and illicit drug disorders: Prospective links from adolescence to young adulthood. *Journal of Abnormal Psychology, 115*(1), 26-39. doi: 10.1037/0021-843X.115.1.26 Ennett, S.T.,

Enoch, M.A. (2011). The role of early life stress as a predictor for alcohol and drug dependence. *Psychopharmacology, 214*(1), 17-31. doi: 10.1007/s00213-010-1916-6. 54

García, A., Lawrence, A.J., & Clark, L. (2008). Impulsivity as a vulnerability marker for substance-use disorders: Review of findings from high-risk research, problem gamblers and genetic association studies. *Neuroscience and Biobehavioral Reviews, 32*(4), 777-810. doi: http://dx.doi.org/10.1016/j.neubiorev.2007.11.003

Graham K. (1980). Theories of intoxicated aggression. *Canadian Journal of the Behavioral Sciences*. 12. 141-158.

Handley, E.D., Chassin, L., Haller, M.M., Bountress, K.E., Dandreaux, D., & Beltran, I. (2011). Do executive and reactive disinhibition mediate the effects of familial substance use disorders on adolescent externalizing outcomes? *Journal of Abnormal Psychology, 120*(3), 528-542. doi: 10.1037/a0024162

Hasin, D. S., O'Brien, C., Auriacombe, M., Borges, G., Bucholz, K., Budney, A., & Grant, B. F. (2013). DSM-5 Criteria for substance use disorders: Recommendations and rationale. The American *Journal of Psychiatry, 170*, 834-851. doi:10.1176/appi.ajp.2013.12060782

Hayaki, J., Anderson, B., & Stein, M. (2006). Sexual risk behaviors among substance users: Relationship to impulsivity. *Psychology of Addictive Behaviors, 20*, 328-332. doi:10.1037/0893- 164X.20.3.328

Hollister-Wagner, Gambrill, Vangie Foshee, and Christine Jackson. 2001. "Adolescent Aggression: Models of Resiliency." *Journal of Applied Social Psychology, Vol*. 31: 445- 466.

Jackson, N., Denny, S., & Ameratunga, S. (2014). Social and socio-demographic neighborhood effects on adolescent alcohol use: A systematic review of multilevel studies. *Social Science and Medicine, 115*, 10-20. doi: http://dx.doi.org/10.1016/j.socscimed.2014.06.004

Jayne, M., & Valentine, G. (2016). Alcohol-related violence and disorder. *Progress in Human Geography, 40*(1), 67-87. doi: 10.1177/0309132514558445.

Jewell, J., Rose, P., Bush, R., & Bartz, K., (2017). The Long-Term Effectiveness of Drug Treatment Court on Reducing Recidivism and Predictors of Voluntary Withdrawal. *Int J Ment Health Addiction.* Retrieved from https://eds-a-ebscohost com.libauth.purdueglobal.edu/eds/pdfviewer/pdfviewer?vid=1&sid=1fd3e16d-d0c3 446e-97d2-01f6327132b0%40sessionmgr4006.

Jiang, G., Sun, F., & Marsiglia, F. (2016). Rural-Urban Disparities in Adolescent Risk Behaviors: A family social capital perspective. *Journal of Community Psychology.*

Jones, H., Dean, A., Price, K., London, E., (2016). Increased self-reported impulsivity in methamphetamine users maintaining drug abstinence. *The American Journal of Drug and Alcohol Abuse. Vol. 42*, NO. 5. Retrieved from https://eds-b-ebscohost com.libauth.purdueglobal.edu/eds/pdfviewer/pdfviewer?vid=1&sid=1a6ec8c5-d777 45f9-9a02-b26ae1944c92%40sessionmgr101.

Jones, S., & Lynam, D.R. (2009). In the eye of the impulsive beholder the interaction between impulsivity and perceived informal social control on offending. *Criminal Justice and Behavior, 36*(3), 307-321. doi: http://dx.doi.org/10.1177/0093854808328653

Karriker-Jaffe, K.J. (2011). Areas of disadvantage: A systematic review of effects of area-level socioeconomic status on substance use outcomes. *Drug and Alcohol Review, 30*(1), 84-95. doi: http://dx.doi.org/10.1111/j.1465-3362.2010.00191.x

Kaynak, Ö., Meyers, K., Caldeira, K.M., Vincent, K.B., Winters, K.C., & Arria, A.M. (2013). Relationships among parental monitoring and sensation seeking on the development of substance use disorder among college students. *Addictive Behaviors, 38*(1), 1457-1463. doi: 10.1016/j.addbeh.2012.08.003

King, S. M., Keyes, M., Winters, K. C., McGue, M., & Iacono, W. G. (2017). Genetic and environmental origins of gambling behaviors from ages 18 to 25: A longitudinal twin family study. Psychology of Addictive Behaviors : *Journal of the Society of Psychologists in Addictive Behaviors, 31*(3), 367–374. https://doi.org/10.1037/adb0000266 Kessler, R. C., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N. A.,

LaForge, K. S. (2005). Genetic influences on impulsivity, risk taking, stress responsivity and vulnerability to drug abuse and addiction. *Nature Neuroscience, 8*(11), 1450–1457. https://doi.org/10.1038/nn1583

Lederer, K., Fouche, J., Wilson, D., Stein, D., & Uhlmann, A. (2016). *Frontal white matter changes and aggression in methamphetamine dependence.* Retrieved from https://eds-aebscohost

Li, T., Du, J., Yu, S., Jiang, H., Fu, Y., Wang, D., Zhao, M. (2012). Pathways to age of onset of heroin use: a structural model approach exploring the relationship of the COMT gene, impulsivity and childhood trauma. *PLoS ONE, 7*(11), e48735. doi:10.1371/journal.pone.0048735

Loree, A. M., Lundahl, L. H., & Ledgerwood, D. M. (2015). Impulsivity as a predictor of treatment outcome in substance use disorders: Review and synthesis. *Drug and Alcohol Review, 34*, 119-134. doi:10.1111/dar.12132

Lovallo, W.R. (2013). Early life adversity reduces stress reactivity and enhances impulsive behavior: implications for health behaviors. *Int J Psychophysiol, 90*(1), 8-16. doi: 10.1016/j.ijpsycho.2012.10.006.

McGovern, M. P., Lambert-Harris, C., Gotham, H. J., Claus, R. E., & Xie, H. (2014). Dual diagnosis capability in mental health and addiction treatment services: An assessment of programs across multiple state systems. *Administration and Policy in Mental Health and Mental Health Services Research, 41*, 205-214. doi:10.1007/s10488-012-0449-1

Manning, V., Garfield, J. B., Best, D., Berends, L., Room, R., Mugavin, J., . . . & Lubman, D. I (2017). Substance use outcomes following treatment: Findings from the Australian patient pathways study. *Australian & New Zealand Journal of Psychiatry, 51*, 177-189. doi:10.1177/0004867415625815

Marsh, J. C., Park, K., Lin, Y. A., & Bersamira, C. (2018). Gender differences in trends for heroin use and nonmedical prescription opioid use, 2007-214. *Journal of Substance Abuse Treatment, 87, 79*-85. doi:10.1016/j.jsat.2018.01.001

Martin, M. J., Conger, R. D., Sitnick, S. L., Masarik, A. S., Forbes, E. E., & Shaw, D. S. (2015). Reducing risk for substance use by economically disadvantaged young men: Positive family environments and pathways to educational attainment. *Child Development, 86*(6), 1719-1737. doi: 10.1111/cdev.12413

Molero, Y., Larsson, A., Larm, P., Edlund, J., & Tengstrom, A. (2011). Violent, nonviolent, and substance-related offending over the life course in a cohort of males and females treated for substance misuse as youths. *Aggressive Behavior, 37*(4), 338-348. doi:10.1002/ab.20392

Moshier, S. J., Ewen, M., & Otto, M. W. (2013). Impulsivity as a moderator of the intentionbehavior relationship for illicit drug use in patients undergoing treatment. *Addictive Behaviors, 38*, 1651-1655. doi:10.1016/j.addbeh.2012.09.008

National Institutes of Health (2016). *Drug facts-marijuana*. National Institute on Drug Abuse. Retrieved from: https:www.drugabuse.govpublicationsdrugfactsmarijua na#references.

Patock-Peckham, J.A., Dager, A.D., Thimm, K., & Gates, J.R. (2014). On the mismeasurement of impulsivity: Trait, behavioral, and neural models in alcohol research among adolescents and young adults. *Current Addiction Reports, 1*(1), 19-32. doi: http://dx.doi.org/10.1007/s40429-013-0005-4

Richardson, G. B., Freedlander, J. M., Katz, E. C., Dai, C., & Chen, C. (2014). Impulsivity links reward and threat sensitivities to substance use: a functional model. *Frontiers in Psychology [online], 5*, 1194. doi:10.3389/fpsyg.2014.01194

Sahker, E., Acion, L., & Arndt, S. (2015). National analysis of differences among substance-abuse treatment outcomes: College student and nonstudent emerging adults. *Journal of American College Health, 63*(2), 118-124. doi: 10.1080/07448481.2014.990970

Scott, J. C., Woods, S. P., Matt, G. E., Meyer, R. A., Heaton, R. K., Atkinson, J. H., & Grant, I. (2007). Neurocognitive effects of methamphetamine: A critical review and meta-analysis [Electronic version]. *Neuropsychological Review, 17*, 275-297.

Shead, N. W., & Hodgins, D. C. (2009). Probability discounting of gains and losses: implications for risk attitudes and impulsivity. *Journal of the Experimental Analysis of Behavior, 92*(1), 1–16. https://doi.org/10.1901/jeab.2009.92-1

Smith, G. T., & Cyders, M. A. (2016). Integrating affect and impulsivity: The role of positive and negative urgency in substance use risk. *Drug and Alcohol Dependence, 163*. S3S12. doi:10.1016/j.drugalcdep.2015.08.028

Sofuoglu, M., Sugarman, D. E., & Carroll, K. M. (2010). Cognitive functioning as an emerging treatment target for marijuana addiction [Electronic version]. *Experimental and Clinical Psychopharmacology, 18*, 109-119.

Stamm, M. E., Frick, W. C., & Mackey, H. J. (2016). An analysis of U.S. student drug and alcohol policies through the lens of a professional ethic for school leadership. *International Journal of Education Policy & Leadership, 11*(1), 1-22.

Stautz, K., & Cooper, A. (2013). Impulsivity-related personality traits and adolescent alcohol use: A meta-analytic review. *Clinical Psychology Review, 33*(4), 574-592. doi: http://dx.doi.org/10.1016/j.cpr.2013.03.003

Steinberg, L. (2010). A dual systems model of adolescent risk-taking. *Developmental Psychobiology, 52*(3), 216-224. doi: 10.1002/dev.20445

Steinberg, L. (2007). *Risk Taking in Adolescence: New Perspectives from Brain and Behavioral Science.* Pp. 55-59 in Current Directions in Psychological Science, L. Steinberg (Ed.). Blackwell Publishing.

Stephenson, M.T., & Helme, D.W. (2006). Authoritative parenting and sensation seeking as predictors of adolescent cigarette and marijuana use. *Journal of Drug Education, 36*(3), 247-270. doi: http://dx.doi.org/10.2190/y223-2623-7716-2235

Substance Abuse and Mental Health Services Administration. (2017). *Mental health and substance abuse disorders*. Retrieved from http://www.samhsa.gov/find-help/disorders

Sudhinaraset, M., Wigglesworth, C., & Takeuchi, D. T. (2016). Social and cultural contexts of alcohol use. *Alcohol Research, 38*(1), 35-45. Retrieved from https://www.niaaa.nih.gov/publications/journals-and-reports/alcohol-research

Substance Abuse and Mental Health Services Administration (SAMHSA). (2018). *Recovery and recovery support.* Retrieved from http://www.samhsa.gov/recovery

Substance Abuse and Mental Health Services Administration (SAMHSA) (2017). *Recovery and recovery support*. Retrieved from http://www.samhsa.gov/recovery

Trentacosta, C.J., Hyde, L.W., Shaw, D.S., & Cheong, J. (2009). Adolescent dispositions for antisocial behavior in context: The roles of neighborhood dangerousness and parental knowledge. *Journal of Abnormal Psychology, 118*(3), 564-575. doi: 10.1037/a0016394

Trucco, Elisa M., Craig R. Colder, Julie C. Bowker, and William F. Wieczorek. 2011. "Interpersonal Goals and Susceptibility to Peer Influence: Risk Factors for Intentions to Initiate Substance Use During Early Adolescence. *Journal of Early Adolescence, Vol. 31*: 526-547. 147

Urcelay, G., & Dalley, J. (2012). Linking adhd, impulsivity, and drug abuse: A neuropsychological perspective. *Current Topics in Behavioral Neurosciences, 9*, 173. doi: http://dx.doi.org/10.1007/7854_2011_119

Watt, M., Guidera, K., Hobkirk, A., Skinner, D., & Meade, C. (2017). Intimate partner Violence among men and women who use methamphetamine: A mixed-methods study in South African. *Drug and Alcohol Review*. Retrieved from https://eds-a-ebscoho com.libauth.purdueglobal.edu/eds/pdfviewer/pdfviewer?vid=1&sid=e015ca6e-9788 4fb3-9fc2-6ef8f5394ab0%40sessionmgr4010.

Winters, K. C., & Arria, A. (2011). Adolescent brain development and drugs. *Prevention Researcher, 18*(2), 21-24.

Winstanley, C.A., Olausson, P., Taylor, J.R., & Jentsch, J.D. (2010). Insight into the relationship between impulsivity and substance abuse from studies using animal models. *Alcoholism, Clinical and Experimental Research, 34*(8), 1306-1318. doi: 10.1111/j.1530-0277.2010.01215.x