

University of Nevada, Reno

**The Relationship Between Sense of Coherence, Readiness to Change, and Alcohol Use in
Emerging Adults**

A thesis completed in partial fulfillment of the requirements due for the degree in Master
of Science in Human Development and Family Studies

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Abstract

The highest rate of alcohol use in the United States is among individuals aged 18-25, the emerging adult population (American Psychiatric Association, 2013). Drinking patterns at this age can often extend into habitual behaviors which cause lasting impacts on adult life. Sense of Coherence (SOC) helps an individual look at life in a positive manner to overcome stressful events and buffer against negative alcohol related outcomes (Tobamidanik & Zabkiewicz, 2009). Readiness to Change (RTC) allows individuals to be aware of problem drinking, increase motivation to stay in treatment, and is linked to successful treatment outcomes (DiClemente et al., 2010). Correlational and regression analyses were used in a data sample of 180 emerging adult college students to explore the relationship between these constructs and examine predictors which may help promote positive outcomes for substance abusers. Results indicated that RTC was positively correlated with SOC ($r = .185, p = .013^*$) and alcohol use ($r = .459, p = <.001^*$). However, SOC did not have a relationship with alcohol use ($r = .064, p = .392$). Environmental risk was positively related with RTC, alcohol use, and other substance use, but not SOC. Regression analysis indicated that alcohol use, ethnicity, and SOC significantly predicted RTC (Adjusted $R^2 = .281^*$). Furthermore, sexual orientation, college level, RTC, and biological sex all significantly predicted SOC (Adjusted $R^2 = .108^*$). The implication of this study is that SOC can be integrated into RTC to help advance the understanding of motivation to change drinking behaviors in emerging adults.

Keywords: Sense of Coherence, Readiness to Change, Alcohol Use Disorder, Alcohol Abuse, Emerging Adults

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The Relationship Between Sense of Coherence, Readiness to Change, and Alcohol Abuse in Emerging Adults

● Chapter 1: Introduction

Approximately 40% of Americans experience adverse effects from alcohol drinking in their lifetime (American Psychiatric Association, 2013) and although alcohol use disorder is common in the United States, the highest rates are among 18 to 25-year old's. This age group is commonly referred to as emerging adults in the social science literature. The stress of college or adjusting to work and adulthood can make these years extremely difficult for some. There are consistently high levels of heavy episodic drinking and the issues which stem from binge-drinking among emerging adults. Research has shown that the emerging adult population is at a higher risk for substance use disorders (Qadeer et al., 2018). Between the years of 1998-2014, alcohol overdose hospitalizations rose 26% per 100,000 while alcohol/opioid combined overdoses have risen 197% (Hingson et al., 2017).

College students are more likely than non-college students to engage in dangerous drinking behaviors, though both groups report relatively high levels of alcohol abuse (Hingson et al., 2009). One of the dangerous behaviors that emerging adults engage in is driving while under the influence. Driving under the influence has been found to be most significant among individuals aged 21-24 with a 17% proportional increase from 1999 to 2005 and an increase of 3% accidental alcohol related deaths from 1998 to 2005 (Hingson et al., 2009).

It is vital that college students and other young adults avoid succumbing to the

harmful effects of alcohol drinking so that they may live healthy lives once they reach later adulthood and even though many college students usually mature out of excessive episodic drinking, it is still a very real and important threat to their well-being (Barry & Goodson, 2012). Research has indicated that the earlier an individual begins drinking the more likely they will develop alcohol dependence and unintentionally harm themselves and others while under the influence of alcohol (Hingson & Zha, 2009). These patterns carry long into their adulthood and create lifelong habitual behaviors. The first episode of alcohol intoxication usually occurs in the mid-teenage years and most individuals who develop an alcohol use disorder do so by the age of 30 (American Psychiatric Association, 2013). Alcohol-use disorder is characterized by periods of remission and relapse in which during crises, decisions are made to stop drinking. These decisions are usually followed by a period of abstinence and then controlled and unproblematic drinking until another crisis occurs (American Psychiatric Association, 2013).

Research has established that males are more likely to have increased factors which obstruct responsible drinking practices and fewer which aid responsible drinking (Barry & Goodson, 2012). Non-binge drinkers have also acknowledged more motives to drink responsibly than binge drinkers (Barry & Goodson, 2012). Among college students, impulsivity has been found to be a risk factor for binge drinking and can also interfere with change readiness (Kazemi et al., 2011). Change readiness represents Dimension IV of the ASAM Criteria's treatment and assessment for addictive and substance abuse conditions (American Society of Addiction Medicine, 2013). This axis emphasizes the need to engage individuals and attract them to making changes in their thinking,

emotions, and behavior when it comes to their substance use disorders. It is important to understand that readiness to change (RTC) and the stages of change are not person-specific, but rather problem-specific, and will most likely differ among each substance or problematic behavior (American Society of Addiction Medicine, 2013).

Stages of change and RTC or seek treatment are important factors of understanding substance-abuse recovery. Another may be Sense of Coherence (SOC; Antonovsky, 1987). Although fewer studies have focused on SOC and substance abuse, high levels of SOC have been found to have a buffering relationship against the detrimental social consequences from an alcohol use disorder (Tobamidanik & Zabkiewicz, 2009). Having a lower SOC also is linked to higher risk of death in substance-abuse cases along with a higher rate of dropping out of treatment (Andersen & Berg, 2001).

Although RTC and SOC have been found to be important predictors of maladaptive outcomes for alcohol abuse disorder on their own, little research exists on how SOC may impact RTC among alcohol abusing emerging adults. To our knowledge, no studies have examined the influence of SOC on RTC together regarding alcohol use in emerging adults. Thus, the current study aims to address this gap and seeks to understand to what extent does SOC predict RTC among emerging adults?

Research Questions and Hypotheses

1. Is there an association between RTC and SOC within emerging adults?

Hypothesis I: RTC and SOC will have a positive relationship.

2. Are higher levels of RTC associated with lower levels of alcohol use?

Hypothesis II: RTC and alcohol use will have a negative relationship.

3. Is SOC negatively associated with alcohol use scores within emerging adults?

Hypothesis III: SOC and alcohol use will have a negative relationship.

4. Do environmental risk factors have a relationship with SOC, RTC, and AUDIT scores and other substance use?

Hypothesis IV: Environmental risk factors will be related to lower SOC, higher RTC, higher AUDIT scores, and higher substance use.

5. Does alcohol use, SOC, demographics, and environmental covariates significantly contribute to RTC among emerging adults?

6. Does alcohol use and RTC significantly contribute to SOC within the emerging adult population?

Definition of Terms

Alcohol Use Disorder: Alcohol-use disorder is characterized by periods of remission and relapse where decisions are made to stop drinking during crises and then controlled and unproblematic drinking occurs until another crisis (American Psychiatric Association, 2013).

Emerging Adults: The emerging adult population is used often in the social sciences literature to describe 18-25 year old's and this population is at a higher risk for substance abuse (Qadeer et al., 2018).

Sense of Coherence: SOC is a life orientation which helps individuals overcome stress by managing, comprehending, and creating meaning to successfully adapt to life circumstances (Antonovsky, 1987).

Readiness to Change: RTC represents an individual's willingness and motivation to seek treatment or change their substance use behaviors (American Society of Addiction Medicine, 2013).

● Chapter II: Literature Review

The following literature review will begin with an overview of the positive psychology movement and resilience theory frameworks. This will provide the basis of understanding strength-based asset models and viewing stressors as events which have the potential to promote resilience in individuals--allowing them to overcome adversity including substance abuse. This leads into an overview of SOC as a theoretical framework which has the potential to be integrated into the RTC model. SOC and RTC can help substance abusers adapt to adversity and resist dependence. More information on the integration of these two models might be used to decrease alcohol and substance abuse behaviors in emerging adults and is needed within this at-risk population.

Positive Strength-Based Psychology

According to Seligman and Csikszentmihalyi (2014), positive individual traits, such as hope and optimism, allow people to maintain a higher quality of life as well as increased perception of well-being. Too much of the psychological focus in past views has been directed toward negative information, pathologies, and diagnoses which left the field of psychology out of touch with human strengths and virtues (Seligman & Csikszentmihalyi, 2014). Nurturing strengths through positivity training may foster positive individual traits of courageousness, optimism, resilience, hope, perseverance, work-ethic, and creative capabilities which all defend against and help individuals adapt to mental illness, and possibly addiction (Seligman & Csikszentmihalyi, 2014).

Positive Psychology Interventions (PPI's) are tools used to increase resilience and may decrease substance abuse disorders. PPI's have the power to create a learned sense

of hope and optimism which has been shown to increase individual confidence within the workforce (Archer & Yates, 2017). Coaching programs used to identify client strengths, envision the best possible future, raise optimism, and increase awareness of personal attributes that are resilient can be used. Archer and Yates (2017) found evidence that these positive psychology and resilience building tools were effective ways to build career confidence. These same characteristics of resilience and hope have been identified as ways that maltreated children can overcome adversity (Jaffee et al., 2007).

Krentzman and Barker (2016) implemented a study on the implementation of PPI's which increase resilience. The researchers intended to delve into substance use disorder counselor's perspectives on the usefulness of PPI's. Krentzman and Barker (2016) used a mixed-method approach to collect data on addiction treatment counselors' perspectives. Quantitative data was collected via questionnaire using a Likert scale and qualitative data was collected using an interview process with the participants.

As years of practice increased, the focus on positive themes about PPI's seemed to decrease (Krentzman & Barker, 2016). This may indicate the importance of recognizing both positive and negative themes in treatment. Counselors working in residential treatment used more positive themes than those working in outpatient (Krentzman & barker, 2016). Four major themes came to light during the qualitative interview process. These themes were that treatment should go beyond abstinence, counselors were already using variations of PPI's even if they did not call them that, positive interventions were useful for countering maladaptive negative thinking, and a reservation for using PPI's (Krentzman & Barker, 2016).

While exploring these themes the researchers discovered that many of the counselors felt achieving happy and meaningful lives was more important than having the end goal of abstinence for clients (Krentzman & Barker, 2016). Many counselors had not specifically been trained in positive psychology thought processes, but many already used PPI's in the therapeutic process and focused on positive themes with clients approximately half as much as they focused on maladaptive themes. PPI's were found to be useful in supporting positive relationships, increasing self-esteem, substituting harmful behaviors, and developing optimism and hope in clients (Krentzman & Barker, 2016). Lastly, reservations about using PPI's included the risk of blindly using these techniques for all clients or by all counselors despite unique personality differences in both. The conclusions of this study were that PPI's were useful in the addiction treatment field if it was not the only approach used during therapy (Krentzman & Barker, 2016).

Resilience theoretical frameworks are another important development that has influenced research and moved the broader therapeutic field away from pathology and toward wellness development. Resilience has been described as successful adaptation when facing challenges despite risk, or an individuals' ability to overcome challenges in the face of adversity (Masten, 1994). Resilience is the ability to cope with psychological stressors. This skill can be nurtured and increased with effective psychological treatment (Connor & Davidson, 2003).

Resilience

Both internal and external health factors are represented within resilience frameworks. Internal factors include psychological well-being and personal

characteristics, while external factors describe social strengths and resources which allow for proper adjustment within social structures (Masten, 1994). Unique hereditary factors may also play a role in resiliency by giving individuals either a leg up or by impeding competence psychologically and/or physically. It is important to remember that resilience is based on development and functioning within a society at a normative level (Masten, 2004).

Several qualities of resilient individuals have been identified. These include competence of cognitive functioning, the nature of different adversities faced (common or traumatic psychological stressors), social assets/liabilities, and personal characteristics which can be protective factors or put individuals at risk (Masten, 2004). The developmental model of resilience highlights the importance of adaptability to overcome psychological stress. Psychological stress occurs when the demands of an individual and their psychological or social resources to meet those demands are not in balance (Masten, 2004). This resembles the load balance needed within the SOC model for individuals to overcome their challenges (Slootjes et al., 2017). Resilient individuals have acquired the tool of adaptability which not only helps protect them from mental health issues, but also helps avoid and overcome substance use disorders.

Some of the most important factors of resilience may be purpose in life and self-determination. This highlights the importance of children finding meaning in their actions, hope for the future, and their ability to create the future which they hope for (Kumpfer & Bluthé, 2004). To achieve maximum resilience, there needs to be more protective structures in place than risk factors. Negative risk factors can include family

isolation, family drug abuse, stressful environments, and lack of community support to name a select few. Empathetic, caring, and engaging transactions on the other hand, are protective factors which can increase resilience in children and prevent them from engaging in substance abuse (Kumpfer & Bluthé, 2004).

Within the developmental system of resiliency, Lerner (2006) defends a bidirectional person and contextual exchange view. This relationship between both personal and setting exchanges is beneficial to the individual and their environment. The developmental system rejects dualism (nature vs nurture) in favor of a relational view of the world in which all levels of development work together in an integrated and holistic manner (Lerner, 2006).

This optimistic promotion of positive human development emphasizes human strengths and brain plasticity as tools to overcome adversity and obtain the potential for resilience (Lerner, 2006). When the strength of a person is aligned with the resources present in any given setting, the likelihood of positive outcomes is maximized. Studies of flow, an aspect of positive psychology have also found that optimal psychological functioning occurs when the challenge of a situation is in balance with an individual's ability to meet the challenge at hand, and flow can be cultivated over time (Csikszentmihalyi, 2000).

Psychological competence and resilience to adverse effects can also increase over time. In longitudinal studies of adversity, success indicators in young adulthood generally indicate successful outcomes later, during later adulthood (Masten, 2004). Internal resilience has been shown to have a negative relationship with smoking and nicotine

dependence (Goldstein et al., 2013). One of the most useful tools as an adaptive resource in early adulthood is the ability to plan and be motivated to impact the individual's future in a positive manner. This is also referred to as self-directed behavior and having agency over one's future. Agency is an important factor to adapt to stressful situations. One coping theoretical perspective that has emerged to help explain health-promotion adaptation to stress is called Sense of Coherence (SOC).

Sense of Coherence

Antonovsky (1993) proposed the Salutogenic model, different from many previous models of stress which were viewed from a pathogenic orientation. His research focuses on developing an assets and strength-based model of mental health and "illness" just as positive psychologists and resilience theorists have proposed. Antonovsky (1993) argued that biomedical and social science disease research was too focused on pathologies. Through his development of the SOC construct, researchers can explore how individuals develop adaptive coping mechanisms which fight against mental illness and help orient clients and professionals to instead focus on the wellness side of the spectrum rather than purely illness. The study of SOC also may shed light on how people suffering through the stress of an addiction can help overcome their illness.

SOC was first coined by Antonovsky as a new way to look at stressful events as a normal part of life rather than something to be avoided. Antonovsky (1987) theorized that SOC helps individuals overcome stress by managing, comprehending, and creating meaning from stressful events. Manageability refers to the individual's ability to access resources which help deal with the demands of stressors and those with high levels of

manageability are less likely to feel that they are the victims of stressful events.

Comprehensibility is the ability to view stress as an understandable part of life and predictable, that it will always be there (Antonovsky, 1987). Meaningful individuals have the power to see life stressors as a challenge worthy of investment and if tasks are believed to be meaningful, an individual will try their best to overcome the obstacle at hand.

A strong SOC is a perspective of experiencing stressful events differently to successfully adapt to life circumstances (Antonovsky, 1993). Strong correlations between SOC and resilience have been observed in previous research (Fosson et al., 2014) and holding high levels of SOC is strongly related with the perception of both physical and mental health (Eriksson & Lindstrom, 2006). Factors which usually prevent mental health issues including optimism, hardiness, locus of control, self-esteem, social skills, acceptance, and resourcefulness have a strong positive relationship with scores of SOC while factors including anxiety, depression, perceived stress, anger, hostility, and demoralization have been shown to have a negative relationship with SOC (Eriksson & Lindstrom, 2006).

Recently researchers adopted a resiliency framework of risk and protective factors in the study of SOC, with risk factors inhibiting the development of SOC while protective factors seemed to enhance SOC (Evans et al., 2008). Some of the protective factors outlined included caring parents, family understanding, school activities, school enjoyment, and emotional stability while risk factors included fighting, anger expression, substance use, peer attitudes toward drugs, being victimized by crime, and suicide

attempts (Evans et al., 2008). Increased SOC was linked to more domains of support while a low SOC was linked to more stressful ecological variables. Supporting data in both male and female adolescents has established that high levels of SOC are linked with protective factors (Evans et al., 2008).

SOC has been studied extensively in literature linked to health, stress, and trauma. For example, young people with congenital heart disease who scored higher on the SOC scale were often more able to put their situation into perspective and see things in a positive light (Apers et al., 2016). These patients indicated that they had increased social support systems to those individuals suffering from the same condition with a lower SOC. Individuals with lower SOC were more likely to be insecure, worried, and had more issues with coping with their condition than their counterparts (Apers et al., 2016). Migrant women with higher SOC also seem to have the ability to subjectively perceive consistency and load balance throughout their lifetimes, indicating that perception and the ability to put a situation into perspective has a major role within the salutogenic model (Slootjes et al., 2017). Interestingly, even women who were not able to develop a strong sense of agency and decision making were still able to create meaningful lives through religion, helping others, and having a sense of belonging within their community (Slootjes et al., 2017).

Social support and community cohesion appear to increase SOC which supports an ecological view of protective factors developing ways to overcome stress (Marsh et al., 2007). Males and females who report higher levels of anger expression and conflict within the family have decreased SOC development while those with more social support

systems in place and neighborhood cohesion are able to develop SOC on an enhanced level. Heightened SOC has even predicted lower rates of symptoms associated with historical trauma in native populations (Evans & Davis, 2018). Historical trauma and substance abuse also have been linked (Brave-Heart, 2003), possibly indicating that higher SOC levels may aid in limiting substance abuse, at least among Native Americans.

Stressful life events have both the potential to cause harm or lead to psychological resilience (Apers et al., 2016). Within long-term and short-term recovery programs research has found that an increased SOC was related to the attribution of taking responsibility for solutions to stay sober, and SOC was an important factor in finding the resources to abstain from using street drugs (Feigin & Sapir, 2005). Apers et al. (2016) suggested that this sense of independence while developing a strong SOC may be related to a parental upbringing of encouragement which helps individuals learn how to problem solve and overcome issues on their own.

Indeed, individuals with a high SOC have been found to be less likely to drop out of substance abuse treatment while lower scores of SOC increased risk of death from substance abuse (Andersen & Berg, 2001). The ability to take control of stressful situations and overcome adversity is a central theme in addiction treatment. Among 8th graders in rural South African communities, SOC at both baseline levels and development over time was attributed to the likelihood of abstaining from nicotine engagement (Ayo-Yusuf & Rantao, 2013). These adolescents were more likely to engage in smoking behaviors if they engaged in drinking or had a household family member who smoked which indicates the importance of environmental factors on substance use. However,

having a strong SOC protected against smoking behaviors in this community (Ayo-Yusuf & Rantao, 2013).

A Salutogenic framework within recovery programs may help increase the ability for an individual to act and call upon their resourcefulness and increase agency to overcome substance abuse (Parkin, 2016). Maintaining a strong SOC has been shown to have a consistent positive relationship with not incurring social consequences from alcohol use or dependence (Tobamidanik & Zabkiewicz, 2009). Yet the literature on SOC and substance use disorders is still in its infancy. There remains a gap in the literature when it comes to understanding the subjective perspective of an individual's perceived ability to overcome substance abuse and their readiness to change.

Substance Abuse Recovery and Readiness to Change

Addiction was once used only to describe behaviors of substance use and has only recently started transforming to include all potentially unhealthy behaviors and habits. Billieux et al. (2017) strongly suggested moving away from addiction as only a description of substance abuse and toward a view which embraces the cognitive processes of all problematic repetitive behaviors. This view of behavioral addiction includes unhealthy coping strategies to stressors or loss (Billieux et al., 2017).

It seems that holistic views of mental health and addiction are now being embraced as we learn more about human behaviors on the road to recovery. The American Society of Addiction Medicine (2019) has defined addiction as "A treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances

or engage in behaviors that become compulsive and often continue despite harmful consequences.” This definition considers the fact that behaviors, as well as substance use, can be addictive and harmful to individuals. All these factors need to be thought of for individuals entering treatment who seek to maintain long lasting recovery.

The Substance Abuse and Mental Health Services Association (SAMSA, 2012) has defined recovery as a process of change in which individuals can improve their wellbeing, live a self-directed life, and strive to reach their full potential. There are ten principles of recovery. These include relational, person-driven, culture, many pathways, hope, addressing trauma, holistic, strengths/responsibilities, respect, and peer support (SAMSA, 2012). These principles of recovery also seem to be important for increasing resilience in individuals with substance abuse disorders.

Much of the focus of research on individuals suffering from substance abuse disorders has begun to shift from whether an individual can get better, to how they are able to get better (DiClemente et al., 2010). Understanding this change process is invaluable to recognizing the tools individuals need to become resilient enough to overcome addictions so that they may lead a life of successful and healthy recovery. Motivation helps recognize the need for treatment, whether an individual seeks treatment, and if they can make lasting behavioral changes (DiClemente et al., 2010). Understanding motivation and increasing RTC is so important because many individuals with substance abuse disorders seem to be either pushed and coerced by motivational forces or pulled/led by them. Individuals may have high scores on RTC, yet not be ready to seek treatment, but people with higher RTC usually have the best outcomes in

treatment (DiClemente et al., 2010).

The Transtheoretical Model of Health Behavior Change posits that behavior change occurs in six stages: precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska & Velicer, 1997). Motivation to change is goal-specific meaning that it may differ for each goal and clients may also shift between the stages for each independent goal (DiClemente et al., 2010). Miller and Tonigan (1996) identified three distinct motivational processes which underlie the stages of change. These aspects of RTC include taking steps, recognition, and ambivalence. Evaluating RTC in an emerging adult population may indicate ways to increase hope, resiliency, and SOC within individuals who engage in substance abuse.

Kimball et al. (2016) examined hoping and coping in the recovery process. Addiction was described as a chronic brain disease in this study and the emerging adult population was researched specifically. Hope and coping were explored in an abstinence-based collegiate recovery program through qualitative theme identification methodology (Kimball et al., 2016). The main themes during recovery were the presence of hope via viewing hope in others who were going through similar situations and having hope in a higher power, as well as ways of achieving coping behaviors through reaching out for support and having patience. Kimball et al. (2016) suggest a dynamic and bidirectional relationship between the presence of hope and healthy coping skills. As SOC is a way of viewing stress in a positive light, and substance abuse often causes stressful consequences, examining the relationship of SOC and substance abuse may provide other valuable tools in combating addictive patterns.

Another study of hope found different results for readiness to enter treatment. Jackson et al. (2003) examined hope as a predictor of entering substance abuse treatment within an inmate population. Surprisingly, high levels of hope were associated with decreased levels of entering treatment. These results may be explained by the fact that too much hope in this population may indicate the denial of necessary professional help in favor of self-reliance (Jackson et al., 2003). To move into the action stage of recovery it takes self-determination and resolve, but it may be possible that toxic positive thinking in the early stages of recovery can prevent treatment.

Rettie et al. (2018) conducted a study which examined the relationship between attentional bias for different types of recovery-related words and treatment success outcomes for clients overcoming alcohol abuse disorder. Attentional biases were described as an automatic direction of attention toward personally important information (Rettie et al., 2018). The purpose of this study was to see which recovery-related words were most predictive of successful treatment outcomes. The words tested in this research were either positive-recovery change words, negative-recovery change words, neutral words, and alcohol-related words (Rettie et al., 2018).

Participants included two groups, the first was a control group of 36 staff members from a treatment facility, who had never had an alcohol use disorder in the past. The experimental group were 45 clients undergoing alcohol detoxification for alcohol use disorder within the same treatment facility (Rettie et al., 2018). The researchers used a validated measure of measuring attentional bias, the alcohol-Stroop test. This measure instructs participants to choose words out of a list with different colors

and then measures attentional bias by subtracting mean times for negative recovery words from alcohol related words. In the past, increased attentional bias for alcohol-related words indicated an increased prediction of relapse in those individuals (Rettie et al., 2018). This study was more interested in prediction of successful outcomes.

Statistical analyses of the results indicated that there was a difference between successful groups and relapsed groups when it came to attentional bias toward positive-recovery related words (Rettie et al., 2018). It was explained that this may be because both positive or negative recovery words can be viewed as aversive and induce anxiety in those struggling with substance use disorders, thus increasing attentional biases. The stage of change that an individual is in may be most important when examining these biases. Pombo et al., (2016) found evidence for a negative relationship between cravings and both taking steps and readiness to change. Stages of change has also been found to predict physical activity behaviors (Lee & Young, 2018). Assessing RTC along with SOC could help discover further ways to increase hope and resilience among alcohol abusers in a collegiate setting.

Theoretical Framework

The current study examines the integration of two theoretical frameworks, SOC and RTC. This thesis seeks to understand how these two models work together dynamically, and their potential to impact alcohol abusers among collegiate-status emerging adults. Research has confirmed that the emerging adult population have increased odds of substance use disorders (Qadeer et al., 2018). The integration of SOC and RTC models has the potential to provide new insight to recovery processes and may

lead to the creation of specific strategies which increase SOC and RTC to support individuals who struggle with substance abuse within the emerging adult population.

Summary/Hypotheses

Alcohol abuse is a major issue for the emerging adult population, especially in college settings. Resilience and SOC have been shown to have a positive relationship and developing these skills may help emerging adults prevent issues with substance use. Since SOC has overlap with other models of resilience, and individuals with higher resilience, SOC, and RTC have been shown to have fewer alcohol and other substance abuse problems, it can be surmised that individuals with high levels of SOC will have lower levels of alcohol abuse disorders. There remains a gap in the literature, however, on the nature of the relationship between SOC and an individual's RTC. The research questions for the current research thus are: What is the relationship between SOC and RTC, what is the relationship between SOC and alcohol use, what is the relationship between alcohol use and RTC, and what is the relationship between environmental factors and SOC, RTC, and alcohol use? Further, I also will attempt to examine the predictors of both RTC and SOC models. This study aims to integrate the theoretical perspectives of SOC and RTC to explore how they jointly may contribute to recovery processes among emerging adults.

● Chapter III: Method

Study Design

This study employed an online survey method which provided quantitative data about the SOC, RTC, and alcohol abuse among collegiate students in the emerging adult population. Data were collected at the University of Nevada, Reno. Participants assessed their levels of SOC, RTC, and alcohol use via an online survey to understand the complex relationship between them. Data collection and recruitment occurred between the months of November 2020 and January 15th, 2021 which included the Fall and interim winter semesters. The university's online system, (SONA) which recruits students from pools of social science courses, was used to collect data.

Participants

Participants in this study were 180 students in social science classes at University of Nevada, Reno. All individuals were screened to be between the ages of 18-25 as the young emerging adult population was the focus of the current study. Of the 180 participants, 134 identified as female, 45 were male, and 1 choose not to identify their biological sex. When it came to self-identified gender, 43 identified as man, 135 identified as woman, and 1 participant identified as other. The sexual orientation of participants was varied. 17 students identified as bisexual (9.4%), 153 identified as heterosexual (85%), 5 identified as homosexual (2.8%), 2 identified as other (1.1%), and one identified as pansexual (0.6%).

The average age of participants was 20.03 with a standard deviation of 1.9 years. Most participants were undergraduate students ($n=169$) with some graduate students

also participating ($n=11$). Study participants reported their ethnicity as American Indian or Alaskan Native (0.6%), Asian (10.6%), Black or African American (1.7%), Latino (17.8%), Native Hawaiian/Pacific Islander (1.7%), Other (1.1%), White (64.4%), and multiethnic (1.8%) with one participant choosing not to answer.

To examine possible socioeconomic differences in variables, participants identified as either lower class (8.94%), middle class (84.92%), and upper class (6.15%). Finally, 68 respondents (37.8%) identified as first-generation students (See Table 1).

Table 1: Respondent Demographics

Variable	Mean (range)	n (%)
Age (years)	19.22 (18-25)	
Biological Sex		
	<i>Female</i>	134 (74.4%)
	<i>Male</i>	45 (25.0%)
	<i>Prefer not to self-describe</i>	1 (0.6%)
Sexual Orientation		
	<i>Heterosexual</i>	153 (85.0%)
	<i>Bisexual</i>	17 (9.4%)
	<i>Homosexual</i>	5 (2.8%)
	<i>Pansexual</i>	1 (0.6%)
	<i>Other</i>	2 (1.1%)
Ethnicity		
	<i>White/Caucasian</i>	116 (64.4%)
	<i>Black/African American</i>	3 (1.7%)
	<i>Hispanic/Latino</i>	32 (17.8%)
	<i>Asian/Pacific Islander</i>	20 (11.2%)
	<i>Native American/Alaskan Native</i>	1 (0.6%)
	<i>Biracial or Multiracial</i>	3 (1.7%)
	<i>Other</i>	4 (2.6%)
College Status		
	Undergraduate	169 (93.9%)
	Graduate	11 (6.1%)
First-Generation Student		
	Yes	68 (37.8%)
	No	112 (62.2%)

Note. Overall $N = 180$, though the total sample for each item may differ slightly due to missing data.

Procedures

Course credit was offered to participants upon the completion of the web-based survey system, SONA. Participants completed a participation agreement form before engaging in the study. The consent form informed participants that they were able to withdraw from the study at any point in time. 182 total participants started the survey, one opted out and another did not complete any of the sample items, resulting in their exclusion from analysis. Thus, a total of 180 participants were included in the final sample. The estimated time to complete the survey was 15 minutes, yet most students finished between 5 and 10 minutes. A copy of the IRB approval is included in Appendix A.

Demographics

Demographic information was collected from all participants. These items included age, biological sex, self-identified gender, sexual orientation, race/ethnicity, collegiate status (undergrad or graduate student), first-generation college student, and socioeconomic status. Additional items included questions about their own nicotine, marijuana, and other illicit substance use. Two other items asked about drinking patterns as related to the emergence of COVID-19. Notably, no participants indicated that their drinking had not increased at all since the COVID-19 crisis. Eleven participants were unsure (6.1%), 152 reported their drinking had increased a little (84.4%), and 16 answered that their drinking had increased a lot (8.9%).

Measures

An online survey was used to collect data from all participants. Survey questions related to demographics were specifically chosen for the purpose of this study. Existing

survey scales and screening tools from the research literature were used to collect relevant data on SOC, RTC, and alcohol use disorder identification. A copy of the survey in its entirety is included in Appendix B.

Alcohol Use Disorder Identification Test (AUDIT)

The AUDIT (Saunders et al., 1993) was developed by the World Health Organization as a collaborative multi-cultural screening tool to detect individuals with harmful or hazardous alcohol consumption. It is a 10-item questionnaire which assesses the consumption, drinking behaviors, adverse reactions, and other alcohol-related issues. It has been found to be a valid cross-cultural screening assessment and intervention tool with relatively little variance between different countries and cultures (Saunders et al., 1993). Questions 1-3 measure consumption, 4-6 measure behaviors, 7 & 8 measure adverse reactions, and 9 & 10 measure alcohol-related problems.

Examples of questions in the AUDIT are 'how often do you have a drink containing alcohol' and 'have you or somebody else been injured because of your drinking' (Saunders et al., 1993). Scores vary between 0-40, with research indicating that 98% of alcoholics scored an 8 or more and 99% of alcoholics scored a 10 or more (Saunders et al., 1993). Among drinkers, drinking behavior and adverse effects from drinking had high levels of reliability at 0.93 and 0.81 respectively (Saunders et al., 1993). Scores of 1-7 indicate low risk, 8-14 suggest hazardous consumption, and scores of 15 and higher indicate alcohol dependence. Internal consistency of the AUDIT was found to be excellent ($\alpha = 0.96$) in one validation study (Noorbakhsh et al., 2018). In the current study, high internal validity was found ($\alpha = .849$, see Table 2 for all Cronbach alpha values).

SOC Orientation to Life Questionnaire

Research of Antonovsky's SOC scale has found this measurement to be feasible, reliable, valid, and cross-culturally relevant (Eriksson & Lindstrom, 2005). This scale is a stable construct for young adults (Kroninger-Jungaberle & Grevenstein, 2013) and factors on the SOC scale have a strong relationship with factors measuring mental health including optimism, hardiness, self-esteem, sense of mastery, learned resourcefulness, social skills, and locus of control (Eriksson & Lindstrom, 2006). SOC items have a strong negative correlation with anxiety, PTSD symptoms, depression, anger, and perceived stress (Eriksson & Lindstrom, 2006). Sample items from the scale include 'Do you have the feeling that you are being treated unfairly?' and 'How often do you feel that there is little meaning in the things you do in your daily life?'

The current study employed the brief SOC scale which was developed to measure SOC's stress-buffering capabilities and has measurements of manageability (items 3, 5, 10, 13), meaningfulness (items 1, 4, 7, 12), and comprehensibility (items 2, 6, 8, 9, 11), (Holmefur et al., 2014). The brief SOC scale includes 13 items which measure an individual's outlook on life. No differences have been found between genders, education level, or age groups, with no ceiling or floor effect (Holemfur et al., 2014). Twelve of the thirteen items have been shown to have a goodness-of-fit with only one item having a slight misfit (Holemfur et al., 2014). The mean alpha of the 13-item SOC scale has been found to be .82 (Antonovsky, 1993) and .80 (Saravia et al., 2014). The current study revealed high internal consistency for the total SOC scale ($\alpha = .830$). The three subscales of SOC, however, only achieved adequate internal consistency scores: comprehensibility

($\alpha = .641$), manageability ($\alpha = .607$), meaningfulness ($\alpha = .612$).

Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

The SOCRATES was developed to assess drinker's motivation for change by measuring three motivational processes which underlie the stages of change (Miller & Tonigan, 1996). This measure is reliable and withstands test-retest reliability and accurately predicts long-term alcohol treatment success. The SOCRATES is a 19-item scale which measures three distinct aspects of readiness to change: taking steps, recognition, and ambivalence (Miller & Tonigan, 1996). Taking steps consists of 8-items (4, 5, 8, 9, 13, 14, 18, 19), problem recognition measures 7-items (1, 3, 7, 10, 12, 15, 17), and ambivalence is measured with 4 (2, 6, 11, 16). Sample items from this scale include the statements 'I really want to make changes in my drinking' and 'I am a problem drinker.'

Cronbach alphas for the 19-item SOCRATES scales ranged from .83 to .96 for Taking Steps, .85 to .95 for Recognition, and .60 to .88 for Ambivalence (Miller & Tonigan, 1996). The current study found high internal validity ($\alpha = .957$) for the total SOCRATES scale. The three subscale dimensions also had high internal validity, recognition ($\alpha = .914$), ambivalence ($\alpha = .900$), and taking steps ($\alpha = .934$).

Environmental Factors

Participants also identified environmental risk factors which could interact with the scales above. Eight questions were asked:

1. Did your parents/caretakers use alcohol in the home while growing up?
2. Did other family members use alcohol in the home while growing up?

3. Did your parents/caretakers use any other substances in the home while growing up?
4. Did other family members use other substances in the home while growing up?
5. If you have people living with you or roommates do they use alcohol?
6. If you have people living with you or roommates do they use any other substances?
7. Does your current closest circle of friends use alcohol?
8. Does your current closest circle of friends use any other substances?

The responses to these eight questions were summed to find a total environmental risk score. There was high internal validity for the use of these items in a scale to assess environmental risk factors ($\alpha = .823$).

Assumptions

The researcher assumed that participants could accurately gauge their alcohol use and would answer questions regarding alcohol consumption truthfully. The researcher also assumed that all participants would accurately and honestly answer questions about their families, friends, roommates, and their own nicotine, marijuana, and other substance questions.

Table 2*Scale and Subscale Reliabilities*

Scale	Subscale	Cronbach's Alpha	Number of Items	N
AUDIT		.849	10	177
SOC-13		.830	13	175
	Comprehensibility	.641	5	178
	Manageability	.607	4	178
	Meaningfulness	.612	4	177
SOCRATES		.957	19	174
	Recognition	.914	7	178
	Taking Steps	.934	8	175
	Ambivalence	.900	4	180
Environmental Risk		.823	8	177

Note. Scale reliabilities were calculated on all cases in which the scale had complete responses. Given that there was missing data across many cases, the total N varies across scale analyses.

Chapter IV: Results

Quantitative data analysis methods were employed to examine study research questions. The collected data were transferred into the IBM Statistical Package 27 for the Social Sciences (SPSS). Reliability analyses were first conducted to ensure that the measurements were consistent and reliable. Pearson's correlation coefficient was calculated along with stepwise linear regressions to explore the hypotheses.

Descriptive Statistics (See Table 1)

First-generation college students had slightly lower SOC ($M = 51.97$, $SD = 10.56$) than those who did not identify as first gen ($M = 52.96$, $SD = 10.40$). First-generation students scored higher on alcohol use ($M = 6.54$, $SD = 4.97$) than non first generation ($M = 5.10$, $SD = 4.87$). They also had slightly higher RTC scores ($M = 34.04$, $SD = 13.93$) than non first-generation students ($M = 32.44$, $SD = 15.69$). Yet, nicotine use, marijuana use, drinking increase from the pandemic, and other illegal substance use was similar in the two groups. First-generation students did identify higher environmental substance use risks ($M = 10.53$, $SD = 6.23$) than non ($M = 9.53$, $SD = 6.99$).

Regarding graduate vs undergraduate status, graduate students had lower rates of SOC ($M = 45.89$, $SD = 12.64$) than undergrads, although caution is warranted given the relatively small number of graduate students in the sample ($n=11$) ($M = 52.82$, $SD = 10.20$). Graduate students had lower levels of alcohol use ($M = 4.55$, $SD = 3.42$) and RTC ($M = 26.18$, $SD = 8.99$) than undergrads ($M = 6.09$, $SD = 5.04$, $M = 33.91$, $SD = 14.78$). Nicotine use was slightly higher in the undergraduate sample ($M = 1.52$, $SD = .764$) than the graduate sample ($M = 1.18$, $SD = .405$). Both populations had almost identical

marijuana, other illicit substance use, and drinking rate increases due to the pandemic. However, undergraduate students had much higher environmental risk ($M = 10.41$, $SD = 6.56$) than graduate level students ($M = 4.73$, $SD = 3.00$).

Biological sex was examined rather than self-identified gender, as the two groups were nearly identical with only one individual selecting a different gender than their biological sex and another selecting other. Males had higher alcohol use ($M = 7.11$, $SD = 4.32$) than females ($M = 5.63$, $SD = 5.14$). Males also had increased RTC ($M = 36.27$, $SD = 13.64$) than females ($M = 32.60$, $SD = 14.84$). Females had higher levels of SOC ($M = 53.32$, $SD = 10.54$) than males ($M = 49.87$, $SD = 9.68$). The two groups showed similar rates of nicotine use, marijuana use, other substance use, drinking increases from COVID-19, and environmental substance use risk.

Sexual orientation was coded as either heterosexual (1) or LGBTQ (2) so that groups were more similar in sample sizes for the regression model input. 15% of respondents identified as LGBTQ and 85% responded as heterosexual. Members of the LGBTQ community had much higher SOC ($M = 58.64$, $SD = 9.65$) than heterosexuals ($M = 51.45$, $SD = 9.65$). LGBTQ individuals also had higher alcohol use ($M = 6.36$, $SD = 5.86$) and RTC ($M = 36.80$, $SD = 17.28$) than heterosexuals ($M = 5.92$, $SD = 4.84$, $M = 32.83$, $SD = 14.02$). Nicotine use, marijuana use, other illicit substance use, and pandemic drinking increases were similar among the two groups.

Ethnicity was coded as either White (1, $n=116$) or Non-White (2, $n=53$) for better sample sizes between groups within the regression model. White individuals had lower SOC ($M = 51.83$, $SD = 10.40$) than Non-White participants ($M = 53.60$, $SD = 10.43$). White

individuals had higher alcohol use scores ($M = 6.89$, $SD = 5.02$) than Non-White ($M = 4.38$, $SD = 4.50$). However, White participants had much lower RTC ($M = 32.06$, $SD = 14.34$) than Non-White participants ($M = 36.21$, $SD = 14.79$). Drinking increases due to the pandemic and illicit substance use was similar among the two groups. Yet, White individuals had higher nicotine scores ($M = 1.62$, $SD = .79$) than Non-White participants ($M = 1.29$, $SD = .63$), and higher marijuana use ($M = 2.72$, $SD = 1.67$ vs $M = 2.24$, $SD = 1.50$). White students also identified more environmental risk ($M = 11.14$, $SD = 6.71$) than Non-White students ($M = 8.19$, $SD = 5.78$).

RTC and SOC

Research Question I

Is there an association between RTC and SOC within emerging adults? This question sought to understand if there was a relationship between these two factors. We were unable to find any prior research on the integration of these scales. If a relationship does exist between them, then substance use counselors may be able to heighten RTC with SOC skill building exercises.

Hypothesis I

RTC and SOC will have a positive relationship. Participant data was collected via the 13-item SOC brief scale (Holemfur et al., 2014) and SOCRATES (Miller & Tonigan, 1996) which provided quantitative data on an individual's life orientation and RTC, respectively. Data were analyzed using Pearson's correlation coefficient.

Results indicated that RTC ($M = 33.44$, $SD = 14.595$) and SOC ($M = 52.34$, $SD = 10.486$) have a small positive significant correlation ($r = .185$, $p = .013$) (see Table 3).

Increased SOC was related to higher levels of motivation and RTC. These results support the hypothesis that RTC and SOC are associated with each other. Further analyses of the three subscales of both SOC (manageability, comprehension, meaningfulness) and RTC (recognition, taking steps, ambivalence) were conducted to explore any possible relationships between these factors.

Pearson's correlation coefficient indicated that comprehension has a significant positive relationship with ambivalence ($r = .169, p = .023$), but not recognition ($p = .203$) or taking steps ($p = .120$). Manageability was both significantly positively correlated with recognition ($r = .192, p = .010$) and ambivalence ($r = .234, p = .002$), but not taking steps ($p = .105$). The aspect of meaningfulness within the sense of coherence model was also significantly positively correlated with both recognition ($r = .177, p = .017$) and ambivalence ($r = .173, p = .020$), but not taking steps ($r = .127, p = .089$).

Research Question II

Are higher levels of RTC associated with lower levels of alcohol use? This research question sought to identify the interaction between alcohol use and RTC in the emerging adult population. Exploring this relationship could help predict at what levels of alcohol use an individual begins understanding their need to change the behaviors which they are engaged in.

Hypothesis II

RTC and alcohol use will have a negative relationship. Miller and Tonigan's SOCRATES (1996) was again used to collect quantitative data via Likert scale. The AUDIT

(Saunders et al., 1993) also collected quantitative data via Likert scale. These values were examined with Pearson's correlation coefficient to identify any possible relationship.

Analysis of the data indicated that RTC ($M = 33.44$, $SD = 14.595$) and alcohol use ($M = 5.99$, $SD = 4.965$) scores were significantly moderately positively correlated ($r = .459$, $p = <.001$) (see Table 3). As alcohol use increased, individuals were more aware of a greater need to change their drinking behaviors and had increased motivation. Alcohol use was also split into 4 categories: no use, low-risk use, hazardous use, and likely dependence. Participant responses indicated that 24 had no use (13.3%), 96 had low-risk (53.3%), 49 engaged in hazardous use (27.2%) and 11 were at a likely dependent level of alcohol use (6.1%). RTC was significantly positively correlated with alcohol use risk level ($r = .335$, $p = <.001$). This pattern of results is the opposite of what was predicted.

Research Question III

Is SOC negatively associated with alcohol use scores and other substance use within emerging adults? This research question was developed to explore the relationship between alcohol use and SOC. Alcohol use scores were provided via quantitative data using the AUDIT (Saunders et al., 1993). SOC was evaluated using the brief life orientation scale (Holemfur et al., 2014).

Hypothesis III

SOC will have a negative relationship with alcohol use and other substance use. Quantitative outputs were assessed using Pearson's correlation coefficient (see Table 3). No relationship existed ($r = .064$, $p = .392$). Alcohol use was also divided into non-users (scores of 0), low risk (0-7), hazardous alcohol use (8-14), and likely dependence (15+).

Again, no relationship was found with SOC and differing levels of hazardous alcohol use ($r = .038, p = .610$). The three subscales of SOC were also not related to AUDIT scores or alcohol use risk levels.

Further, SOC was examined in correlation to nicotine use, marijuana use, and other illicit substance use. SOC was not related to nicotine use ($r = .017, p = .821$), marijuana use ($r = .101, p = .178$), or other illicit substance use ($r = -.043, p = .568$). This pattern of results did not support the third hypothesis.

Research Question IV

Do environmental risk factors have a relationship with SOC, RTC, AUDIT, and hazardous drinking scores? This research question sought to understand how environmental risk factors including parental, family member, roommates, and close friend substance use played a role in differing levels of SOC, RTC, and alcohol use. Eight items assessed environmental risk factors via Likert scale.

Hypothesis IV

Environmental risk factors will be related to lower SOC, higher RTC, AUDIT scores, and alcohol use risk level, and other substance use. Quantitative data was assessed via Pearson's coefficient (see Table 3). Environmental substance use had a significant positive relationship with RTC ($r = .201, p = .007$) as well as alcohol use scores ($r = .414, p < .001$) and alcohol risk levels ($r = .427, p < .001$). However, a significant relationship with SOC was not found ($r = .132, p = .077$).

Additionally, environmental risk factors were examined in the context of participants' nicotine use, marijuana use, and other illicit substance use. Environmental

risk had a significant positive relationship with nicotine use, ($r = .220, p = .003$), marijuana use ($r = .321, p = <.001$), and other illicit substance use ($r = .187, p = .012$) by participants.

Table 3

Pearson Correlations of Study Scale Variables

	AUDIT	SOC	Manage ability	Compre hension	Meaningfu lness	RTC	Taking Steps	Recogni tion	Ambivalence	Environmental Risk
SOC	.064 (.392)									
Manage ability	.019 (.804)	.857*** ($<.001$)								
Compreh ension	.084 (.261)	.877*** ($<.001$)	.656*** ($<.001$)							
Meaning fulness	.059 (.433)	.853*** ($<.001$)	.594*** ($<.001$)	.600*** ($<.001$)						
RTC	.459*** ($<.001$)	.185* (.013)	.183* (.014)	.134 (.074)	.166* (.026)					
Taking Steps	.399*** ($<.001$)	.141 (.059)	.121 (.105)	.116 (.120)	.127 (.089)	.927*** ($<.001$)				
Recogniti on	.412*** ($<.001$)	.177* (.017)	.192** (.010)	.095 (.203)	.177* (.017)	.894*** ($<.0001$)	.684*** ($<.001$)			
Ambivale nce	.472*** ($<.001$)	.220** (.003)	.234** (.002)	.169* (.023)	.173* (.020)	.906*** ($<.001$)	.725*** ($<.001$)	.862*** ($<.001$)		
Environm ental Risk	.414*** ($<.001$)	.132 (.077)	.092 (.221)	.107 (.153)	.141 (.059)	.201** (.007)	.154* (.039)	.199** (.008)	.227** (.002)	
Alcohol Risk Classifica tion	.914*** ($<.001$)	.025 (.740)	-.022 (.774)	.037 (.624)	.044 (.557)	.914*** ($<.001$)	.293*** ($<.001$)	.285*** ($<.001$)	.360*** ($<.001$)	.427*** ($<.001$)

Note. For each item the correlation is reported (r) with the p value following in parentheses.

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

Research Question V

How does alcohol use, SOC, demographics, and environmental covariates

influence RTC? This research question sought to understand the predicting covariates of RTC. A stepwise multiple linear regression was used to analyze the moderating predictors of RTC. Total SOC score was used rather than the subscales of SOC because subscales showed only moderate alpha coefficients. Covariates included alcohol use, SOC, demographic factors, other substance use, environmental substance use, hazardous alcohol risk classification, and COVID-19 as possible predictors.

A multiple regression model significantly predicted RTC. There was no evidence of multicollinearity as evidenced by tolerance scores greater than 0.1 and VIF less than 10. The assumption of normality was met, as assessed via P-P plot. Two cases were recognized as outliers based on standardized residuals ± 3 standard deviations. Alcohol use, ethnicity, and SOC predicted RTC. Cases were excluded pairwise for all regressions hereafter due to the exploratory nature of the study to preserve power.

A multiple regression model significantly predicted RTC $F(1, 175 = 46.777, p = <.001)$, adjusted $R^2 = .206$, suggesting that the AUDIT made up 20.6% of the variance within RTC. There was a significant F change from model A to B, indicating that ethnicity had a moderating effect of RTC, accounting for another 6.5% of variance $F(2, 174 = 33.101, p = <.001)$, adjusted $R^2 = .267$. In addition, a significant F change from model B to C existed. SOC was an additional moderating covariate of RTC $F(3, 173 = 23.885, p = .041)$, adjusted $R^2 = .281$. SOC accounted for another 1.7% of the variance. Therefore, model C was analyzed (see Table 4).

Model C had an R^2 value of .293 and standard error of the estimate sat at 12.379. Participant RTC was increased by 1.501 for every 1 point on the AUDIT, 7.571 based on ethnicity which was dummy coded, and .184 for each point of SOC. First-generation status, graduate/undergraduate status, nicotine use, marijuana use, other illegal substance use, environmental risk, age, biological sex, sexual orientation, socioeconomic class, and drinking increases due to COVID-19 were not significant predictors of RTC.

Table 4

Multiple Regression Analysis for Readiness to Change

<i>Model C</i>	<i>b</i>	<i>SE</i>	<i>B</i>	<i>VIF</i>	<i>95% CI</i>
RTC (Constant)	4.562	1.535			[-6.02, 15.32]
Alcohol Use	1.501***	.194	.511	1.070	[1.118, 1.885]
Ethnicity	7.571***	2.018	.248	1.073	[3.588, 11.554]
Sense of Coherence	.184*	.090	.132	1.014	[-.007, .361]
N 176					
Adjusted R ² .281					
F 23.885					

*Note: *p < .05, **p < .01, ***p < .001*

Research Question VI

What factors predict SOC in emerging adult collegiate students? This research question explored the possible factors which interact within the model of SOC. Two stepwise multiple linear regressions were used to analyze the moderating effects of SOC. The first included alcohol use, RTC, demographic factors, other substance use,

environmental substance use, and COVID-19 as possible predictors. The second regression used the same factors except the three subscales of RTC were used instead of the total SOCRATES score, as all subscales showed high alpha coefficients.

A multiple regression model significantly predicted SOC. The assumption of normality was met as assessed via P-P plot. There was no evidence of multicollinearity as indicated via tolerance scores greater than 0.1 and VIF less than 10. Sexual orientation, college status, RTC, and biological sex all predicted SOC.

The multiple regression model significantly predicted SOC $F(1, 175 = 10.682, p = .001)$, adjusted $R^2 = .052$ which provides evidence that sexual orientation made up 5.2% of the variance within SOC. There was a significant F Change from model A to B $F(2, 174 = 8.239, p = .020)$, adjusted $R^2 = .076$. This indicated college status made up 2.9% of the variance. Another significant F Change existed between model B to C, $F(3, 173 = 6.910, p = .048)$, adjusted $R^2 = .092$. RTC predicted an additional 2% of variance with SOC. Further, a significant F Change existed between models C and D, $F(4, 172 = 6.436, p = .040)$, adjusted $R^2 = .108$. Biological sex accounted for another 2.2% of variance within the SOC model. Model D was assessed.

Model D had an R^2 of .129 with a standard error of the estimate 9.902. Standardized beta was .149. Participant's SOC was increased by 6.235 if they were LGBTQ, decreased 6.755 if they were graduate students, increased .117 for each point of RTC, and increased 3.582 if they were female (see Table 5). Ethnicity, first-generation status, nicotine use, marijuana use, other illegal substance use, environmental risk, age, socioeconomic class, and drinking increases due to COVID-19 were not significant

predictors of SOC in the current model.

Table 5

Multiple Regression Analysis for Sense of Coherence

<i>Model 1 (with RTC)</i>	<i>b</i>	<i>SE</i>	<i>B</i>	<i>VIF</i>	<i>95% CI</i>
Sexual Orientation	6.235**	2.163	.207	1.019	[1.967, 10.504]
Collegiate Status	-6.775*	3.134	-.155	1.017	[-12.940, -.569]
RTC	.117*	.052	.162	1.039	[.014, .219]
Biological Sex	3.582*	1.735	.149	1.022	[.158, 7.006]
Constant	42.238***	5.494			[31.395, 53.052]
N	176				
Adjusted R²	.108				
F	6.346				

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

A second multiple linear regression was conducted using the three subscales of RTC instead of total SOCRATES scores because all three subscales had acceptable alpha coefficients. This analysis was conducted to see if one of the subscales of RTC created a better model for predicting SOC. The model again significantly predicted SOC, except this time it was ambivalence which predicted SOC. Ethnicity, first-generation status, nicotine use, marijuana use, other illegal substance use, environmental risk, age, socioeconomic class, taking steps, recognition, and drinking increases due to COVID-19 were not significant predictors of SOC in the current model.

Model A indicated sexual orientation predicted SOC $F(1, 175 = 10.682, p = .001)$,

adjusted $R^2 = .052$. A significant F change existed from models A to B, $F(2, 174 = 9.549, p = .006)$, adjusted $R^2 = .088$. Ambivalence predicted more variance than RTC, accounting for 4.1%. There was a significant F change from models B to C, $F(3, 173 = 7.874, p = .039)$, adjusted $R^2 = .105$. Another significant F change existed between models C to D, $F(4, 172 = 7.148, p = .039)$, adjusted $R^2 = .123$. College status and biological sex both accounted for 2.2% of the variance of SOC within this model. Model D was assessed.

Model D had an R^2 value of .143 and a standard error of the estimate sat at 9.822. Participant's SOC was increased by 6.203 if they were LGBTQ, increased .587 for each point of ambivalence, decreased by 6.658 if the participant was a graduate student, and increased by 3.644 if they were female (see Table 6).

Table 6

Multiple Regression Analysis for Sense of Coherence

<i>Model C</i>	<i>b</i>	<i>SE</i>	<i>B</i>	<i>VIF</i>	<i>95% CI</i>
Sexual Orientation	6.203**	2.142	.206	1.016	[1.974, 10.431]
Ambivalence	.587**	.209	.201	1.031	[.174, 1.000]
Collegiate Status	-6.658*	3.104	-.153	1.014	[-12.784, -.532]
Biological Sex	3.644*	1.719	.151	1.020	[.251, 7.036]
Constant	42.036***				[31.544, 52.517]
N	176				
Adjusted R²	.123				
F	7.148				

*Note: *p < .05, **p < .01, ***p < .001*

Chapter V: Discussion

Alcohol abuse among the emerging adult population is a pressing issue which impacts the lives of not only college students, but all 18–25-year-olds. This transitional period of life is the focal point of whether an individual will be able to succeed later in life. Hazardous patterns of drinking formed during this time often interacts with how well a person will be able to adapt to other life stressors. These patterns can continue into adulthood (Blevins et al., 2018). Understanding the reasons for RTC and motivation to have healthier drinking habits can help the field of addiction treatment provide more resources to this population. This study examined the complex relationship with RTC, SOC, and alcohol use levels. I found no other studies which examined RTC and SOC together in a single study. Integration of these two models may inform recovery processes and help substance abuse counselors increase motivation to change alcohol abuse behaviors through SOC skill-building exercises. See Table 7 for a list of research questions and whether or not they were supported.

Table 7

Research Question I - Are RTC and SOC positively associated?	Hypothesis Supported: RTC and SOC are positively correlated
Research Question II - Will RTC and alcohol use be negatively associated?	Hypothesis Not Supported: RTC and alcohol use are positively associated
Research Question III - Will SOC have a negative relationship with alcohol and other substance use?	Hypothesis Not Supported: No Relationship found
Research Question IV - Will environmental risk be negatively associated with SOC, but positively associated with RTC and substance use?	Hypothesis Somewhat Supported: Environmental risk was positively associated with RTC, alcohol use, marijuana use, nicotine use, and other illicit substance use, but shared no relationship with SOC.
Research Question V - What are the predictors of RTC?	Alcohol Use, Ethnicity, and SOC predicted RTC
Research Question VI - What are the predictors of SOC?	Sexual orientation, collegiate status, RTC, and biological sex predicted SOC. Using the subscales of RTC, an even better model was created with sexual orientation, ambivalence, collegiate status, and biological sex predicting SOC.

Hypothesis Testing

Hypothesis Test I

The first research question sought to identify any possible relationship between RTC and SOC. These two models indeed had a significant positive correlation. This means that RTC and SOC may influence each other, though causality was not examined specifically in the current research. Furthermore, several of the three subscales of each of these scales also were interrelated. Comprehensibility and ambivalence were positively related. This indicated that an individual's ability to comprehend stressful events as normal is related to being more open to thinking about drinking behaviors. It could be that comprehending stressful events as normal aspects of life helps an individual recognize the negative consequences of their drinking habits to work through denial.

Manageability had a significant positive relationship with both recognition and ambivalence. Individuals with high manageability may have better skills at using the resources available to them to recognize issues with their drinking patterns and resolve the ambivalence surrounding it. Meaningfulness also was related to recognition and ambivalence. This may indicate that an individual's ability to find meaning from adverse events has a positive relationship with helping them recognize issues and be open to problems stemming from their drinking patterns.

Interestingly, taking steps within the RTC model was not related to any aspect of SOC. Thus, levels of SOC does not seem to correlate with whether an individual is taking the steps necessary to change unhealthy drinking behaviors. It may be that SOC only plays a role in helping an individual recognize and resolve ambivalence around those

behaviors.

Hypothesis Test II

Research question 2 examined the relationship between differing levels of alcohol use and RTC. I predicted that high risk and hazardous level users would have lower RTC. This was predicted due to my experience working in the addiction field. Oftentimes, individuals with high levels of alcohol use are unable to recognize their issues with addiction and have low levels of motivation, especially if they are mandated into treatment.

However, results were the opposite of what I expected. Instead, higher levels of hazardous drinking were associated with higher levels of RTC. This indicates that high level drinkers and hazardous users are aware of the negative effects from their use and that they have higher motivation to change that use, even if they are not taking the steps to do so. This may only be specific to college students and emerging adults and further research is needed among more diverse samples. Individuals with addictions for most of their life and in drug treatment centers may not have this same level of motivation. All three subscales of the SOCRATES were related with increasing alcohol use as well as the hazardous alcohol use classification. According to this pattern of results, levels of alcohol use have a positive relationship with college students' motivation to change their drinking patterns.

Hypothesis Test III

My third research question sought to examine the relationship between SOC and alcohol use. I predicted that higher levels of SOC would be related to decreased levels of

alcohol use. No relationship was discovered between the alcohol use scores and SOC. These results are interesting because prior research has indicated that SOC has a buffering effect from the negative consequences of alcohol use (Tobamidanik & Zabkiewicz, 2009). Also, decreased levels of SOC predicted death from alcohol-related behaviors and dropping out of treatment (Andersen & Berg, 2001). RTC also has been linked to successful treatment outcomes (DiClemente et al., 2010). It is possible that alcohol use and hazardous risk levels have little to do with SOC. Rather, as indicated from hypothesis testing II, SOC may play a role in allowing individuals to be successful later when they decide to stop drinking. In the current sample, SOC was not associated with drinking patterns.

Hypothesis Testing IV

The fourth hypothesis examined the role of environmental risk with RTC, SOC, and alcohol use. Environmental risk had a significant positive relationship with alcohol use scores, hazardous risk levels, RTC, and all three subscales of RTC. This pattern of results indicates that environmental factors are important when evaluating drinking behaviors in emerging adults. As family members and friends engaged in alcohol use and other substance abuse, participants also engaged in higher levels of alcohol use and had more motivation to change those drinking patterns. It is not clear from this correlation analysis if the environmental use or the participants' self-use was associated with RTC as none of those variables were manipulated in an experimental way.

Also, correlational analysis indicated that environmental risk had significant positive relationships with using nicotine, marijuana, and other illicit substances. This

again highlights the importance of context for substance use and those who engage in risky substance abuse behaviors. Family members, roommates, and friends who engage in substance abuse may influence an individual to partake in the same activities through social learning and their need to belong. It is important for individuals who wish to change their substance use behaviors to be cognizant of the environmental risks they place themselves in. Spending time with others who engage in substance use increases the likelihood that the individual will also partake in those same behaviors.

Research Question V

The purpose of this research question was to understand which factors predicted RTC among collegiate emerging adults. Alcohol use, ethnicity, and SOC significantly accounted for RTC. Individuals who engage in high-risk drinking behaviors are more likely to have increased motivation to change those behaviors. Interestingly, ethnicity also played a role in RTC. This was a surprising covariate, as white individuals engaged in higher drinking behaviors, yet nonwhite individuals had higher levels of RTC and motivation. These results were counterintuitive with the results of hypothesis testing II which indicated that RTC was positively associated with alcohol use. We predicted that individuals with higher alcohol use would have lower levels of RTC, because of their high levels of use. It seems that RTC for nonwhite individuals at least, did buffer against drinking patterns, although that was not the general pattern of results for all participants.

SOC was another significant independent variable of RTC in the regression model. This indicates that SOC does indeed predict motivation. SOC may allow an individual to access their resources in a positive manner to recognize their problems with alcohol and

help them resolve those issues by thinking critically about their ambivalence about substance use behaviors, rather than denying that there is a problem. This model supports my hypothesis that SOC and RTC can be integrated to understand underlying recovery processes. SOC posits that individuals with a certain life orientation are less likely to view themselves from a victim mentality. This mental awareness and adaptability to stressful life events may have a relationship with an individual's RTC.

Research Question VI

This analysis sought to understand the predictors of SOC within the emerging adult college population. Four predictors of SOC were found: sexual orientation, college status, RTC, and biological sex. LGBTQ students had higher levels of SOC in the current sample. Also, undergraduates had increased levels of SOC. This pattern of results may support the challenge model of SOC, yet further research is necessary to assess how SOC is developed and expressed among emerging adults. LGBTQ students may have increased SOC due to their ability to adapt to the stressful situations that are related to their minority status. Meanwhile, graduate students may have had decreased SOC because typically they are engaging in more stressful activities (internships, thesis, classes, and work) when compared to undergraduates who may not have as much stress related demands. Previously, education level has not been found to impact SOC (Holemfur et al., 2014). While a certain degree of stress and adversity may be necessary to increase levels of SOC, too much stress can lead to a decrease in coping ability.

Biological sex also mediated SOC in the current sample. Women had much higher levels of SOC than men. This is counter to prior research that SOC was consistent

between men and women (Holemfur et al., 2014). Age was not significant in the SOC model, even though research has suggested that SOC increases throughout the lifespan as individuals age (Eriksson & Lindstrom, 2005). More research is needed to assess the developmental processes related to SOC among emerging adults.

RTC predicted SOC, yet a second regression model indicated that it was ambivalence that accounted for more variance than overall RTC. This pattern of results suggests that individuals who are motivated to change, specifically those who can recognize their ambivalence and overcome denial of the impacts of drinking patterns, also are more likely to manage life stressors with a positive orientation. Having the ability to live with ambivalence seems congruent with the ability to adapt to adverse events that cause stress.

Summary of Results

This research study attempted to uncover the motivating factors for individuals who use alcohol by examining RTC and SOC. Previous research found that SOC buffered smoking behaviors (Ayo-Yusuf & Rantao, 2013) and was important for abstaining from illicit substances (Feigin & Sapir, 2005). However, current results indicated no relationship between SOC and alcohol use or other substances. Only environmental factors were related to substance use. Rather, it was RTC which had a significant relationship with SOC. Thus, it appears that SOC could be used to understand motivation within alcohol users to better understand RTC. To my knowledge, this is the first study which specifically examined RTC and SOC together. Current findings indicate that SOC can be better understood not as a buffering mechanism against substance use, but rather a life

orientation which helps individuals overcome substance use by recognizing their issues with risky behaviors and having increased RTC.

Specifically, the SOC subscales of comprehensibility was related to ambivalence, manageability to both ambivalence and recognition, and meaningfulness to both ambivalence and recognition. None of these subfactors of SOC were related to the taking steps subscale of RTC. While SOC did not have a relationship with an individual taking the steps to change their drinking patterns, their SOC life orientation was related to their recognition and ambivalence levels. Comprehending stressful events as a normative aspect of life may play a role in also allowing individuals to think more deeply about their drinking patterns and buffer against denial of the negative consequences of substance abuse. Managing resources in the environment to overcome stressors also seems to buffer against denial and allow a person to recognize their issues. Viewing events as meaningful obstacles to overcome rather than falling victim to may do the same. Having a better understanding of the world and the ability to create coherence from life events is linked to analyzing problems from problematic alcohol use. Longitudinal research is required with the subscales of SOC and RTC to understand the deeper interconnected nature of the two as well as the cause and effect nature of these theories.

Theoretical Implications

Current findings support the integration of SOC and RTC models. Since SOC is a life orientation that helps individuals overcome and adapt to stress, it can be integrated into the RTC model which has to do with substance abuser's motivation to deal with the stressors that addiction can cause. SOC was originally formulated to incorporate stress as

a normal aspect of life. Unfortunately, substance abuse and addiction is also a normal part of life for millions of people across the world.

SOC may allow individuals to both recognize their need for change and resolve denial of the negative consequences they face from not changing those behaviors. It also may help individuals adapt to stressful scenarios to overcome issues stemming from substance abuse. SOC appears to be a promising conceptual framework for alcohol abusing populations because it coincides with what recovery workers are already doing. Substance abuse counselors already help clients develop manageability in their lives regarding their addictions and help clients increase comprehensibility to access the resources in their environment to overcome obstacles. They also help clients create meaning in their life to avoid falling back into addictive behaviors. This study supports that work by integrating SOC into the substance abuse field to help increase motivation and RTC behaviors which can prevent negative consequences of substance use.

Practice Implications

Practice implications of the current study includes employing SOC to better understand recovery motivation levels and RTC. Specifically, both recognition of problem drinking and the ability to live within and resolve ambivalence around drinking behaviors offers additional direction for recovery efforts. Unfortunately, this research did not include SOC skill-building exercises as a manipulated variable to understand the effect on RTC and drinking problems. A next step might be to examine how SOC can be formally incorporated into recovery efforts. Such SOC infused interventions might provide a valuable tool for substance abuse counselors and clinicians who work within the realm of

addiction.

This study supports further investigation of SOC within the substance abuse field. Increasing individual stress adaptation skills helps individuals increase their motivation to change. The skill of constructing coherence from a world full of stress supports change.

Future Research

One avenue for future researchers to examine is how all six subscales of these two models could be integrated to understand substance abuser's motivation processes. Experimental research which manipulates SOC through skill-building exercises at a longitudinal level may help shed light on RTC. Researchers may want to examine the use of cognitive behavioral therapy to increase SOC levels. To our knowledge, there are few if any true SOC skill-building exercises and techniques to be used in the clinical realm. Further research may help develop such exercises to see the impact of RTC in substance addiction.

Further, research on SOC and RTC specifically among substance abuse treatment populations are needed. Environmental risk and external support systems also may be additional promising factors to examine in the study of RTC within SOC. Finally, the degree of negative consequences caused by substance abuse experienced by individuals with lower RTC or SOC could be examined.

Limitations

As with all studies, limitations exist and need to be noted. One limitation of the current study is that the sample was only taken from university students in social science courses at a large, western public university. This limits the generalizability of the study.

Further, study of those in residential treatment programs and older individuals who suffer from substance use behaviors is needed. Also, only using an online survey limited the results. Increased diversity of general samples and multiple methods would increase the power of the integration of RTC and SOC. Another limitation of the study was that it did not specifically look at what kind of negative consequences occurred from drinking habits, and if more serious negative consequences were related to an aspect of RTC or SOC. Additionally, the subscales of SOC had only adequate alphas, which limited the ability to examine which aspects of SOC predicted RTC.

This study used only correlational data to examine the relationships between variables of interest. While this provides the basis for future research, the current study cannot address causality among the variables of interest. Future research employing longitudinal and experimental rather than quasi designs are needed. Another limitation is that not all the evaluated data had equal sample sizes among groups.

Conclusion

Current findings add to the field of addiction by providing evidence that SOC and RTC are positively related. This provides a promising direction for the use of SOC as a useful framework when addressing substance abusing populations, especially emerging adults and college students. Possessing high levels of SOC and an orientation which prevents an individual feeling like they are a victim to the stressful events impacting them possibly acts as a buffer against low motivation levels. SOC had significant relationships with the recognition and ambivalence subscales within RTC. This study provides a basis for the integration of these two models to better understand how individuals may

surmount the challenges associated with substance abuse.

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Appendix A

IRB Approval

University of Nevada, Reno Research Integrity 218 Ross Hall / 331, Reno, Nevada 89557 775.327.2368 /

775.327.2369 fax www.unr.edu/research-integrity DATE: November 18, 2020 TO: William Evans FROM:

University of Nevada, Reno Institutional Review Board (IRB) PROJECT TITLE: [1682486-1] Sense of

Coherence, Alcohol Use, and Readiness to Change Among Emerging Adults REFERENCE #: Social

Behavioral SUBMISSION TYPE: New Project ACTION: DETERMINATION OF EXEMPT STATUS REVIEW TYPE:

Exempt DECISION DATE: November 18, 2020 REVIEW CATEGORY: Exemption Category # 2i -- An IRB

member has reviewed this project and has determined it is EXEMPT FROM IRB REVIEW according to

federal regulations. Please note, the federal government has identified certain categories of research

involving human subjects that qualify for exemption from federal regulations. Only the IRB has been

designated by the University to make a determination that a study is exempt from federal regulations.

The above-referenced protocol was reviewed and the research deemed eligible to proceed in accordance

with the requirements of the Code of Federal Regulations on the Protection of Human Subjects (45 CFR

46.101). -- Reviewed Documents • Abstract/Summary - SONA Abstract .docx (UPDATED: 11/13/2020) •

Application Form - Exempt IRB Flex Min Risk No Federal Support SOC RTC Alcohol Abuse.docx (UPDATED:

11/13/2020) • Consent Form - Informed Consent SOC, RTC, Alcohol Use in Emerging Adults.docx

(UPDATED: 11/16/2020) • Questionnaire/Survey - Survey Measure.docx (UPDATED: 11/13/2020) •

University of Nevada, Reno - Part I, Cover Sheet - University of Nevada, Reno - Part I, Cover Sheet

(UPDATED: 11/13/2020) If you have any questions, please contact Christine Wallace at (775) 327-2372 or

at crwallace@unr.edu. NOTE for VA Researchers: You are not approved to begin this research until you

receive an approval letter from the VASNHCS Associate Chief of Staff for Research stating that your

research has been approved by the Research and Development Committee. Sincerely, - 2 - Generated on

IRBNet Richard Bjur, PhD Janet Usinger, PhD Co-Chair, UNR IRB Co-Chair, UNR IRB University of Nevada

Reno University of Nevada Reno This letter has been electronical

Appendix B

University of Nevada, Reno Information Sheet to Participate in a Research Study

Study Title: The Relationship Between Sense of Coherence, Alcohol Abuse, and Readiness to Change
Among Emerging Adults

Investigators:

William Evans, PhD (775) 784-7013

Ryan Knuppenburg (315) 730-2574

Protocol Number: [1682486-1]

Purpose: You are being asked to participate in a research study which asks you about your personal alcohol drinking habits, as well as questions regarding your willingness to change those drinking habits. There will be other questions about how you look at life and manage stress. You will also be asked a few demographic questions. You must be at least 18 years old to participate, but not older than 25.

Participants: You are being asked to participate because you are between the ages of 18-25 and enrolled in a social sciences course at the University of Nevada, Reno and need Social Research Participation Credit. You are not obligated to participate in this specific study for credit.

Procedure: If you choose to participate, you will be directed to an online survey and asked about your alcohol drinking habits and your willingness to change those habits. You will also be asked about your life orientation, a scale developed to understand how you deal and overcome stress. There will be questions about drinking habits among your roommates, family members, and basic demographic questions. The survey is expected to take about 10-15 minutes to complete. You will earn 1 Social Research Participation Credit (SRPC) for taking part in this study. You must complete at least 80 percent of this study to earn 1 Social Research Participation Credit (SRPC). You will receive credit immediately upon completion of the survey if you have completed at least 80 percent of the survey (48 questions). You are not obligated to participate in this particular research study and you are not obligated to explain why you did not participate. You do not need to give a reason if you are unable to participate in this study or choose not to participate at a later time. You will need to complete all sections in one sitting, as you are not allowed to resume at another time from where you left off. While you are participating, your responses will be stored in a temporary holding area as you move through the sections, but they will not be permanently saved until you complete all sections.

Risks: There are no known risks to participating in this study. If you are uncomfortable answering or unable to answer any question you may leave it blank. Although you are encouraged to answer every question. There are no right or wrong answers to any of the questions and you should answer as completely and honestly as possible.

Benefits: There may be no direct benefits to you as the participant except for the experience you gain from participation in a research study. However, the information contributed to the study may aid in the further understanding of alcohol abuse in college students and emerging adults as a whole.

Confidentiality: The online survey is completely confidential. Should you choose to participate, your answers will not be connected in any way to your identity and no personal identifiers will be attached to the survey in order to later determine which participant answered in which manner. Only the experimenters will have access to your responses. The questionnaire is set up on Qualtrics. Qualtrics may also use cookies to recognize visitors and provide personalized content or track their progress through surveys; grant unimpeded access to the website; and track usage behavior and compile data for website improvement purposes. If you are using a personal computer and wish to remove the cookies, obtain instructions for deleting cookies from the help menu or contact your Internet provider. If you are using a computer in a public domain, to limit access to your survey responses, close the Internet browser immediately after completing the survey.

Costs/Compensation: There is no cost to you other than the time you spend completing the survey. You will receive one SRPC credit for participating in this study.

Right to Withdraw: You may choose not to answer questions you do not want to answer or withdraw from the study at any time without penalty. You will still receive your one SRPC credit if any of these conditions apply. None of the questions require answers. If you wish to withdraw, click the link on the top right screen that says "Exit this survey" and your credit will be awarded at the end of the study. You do not need to give any reason for withdrawing from the study.

Questions/Contact information: If you have any questions, please contact Ryan Knuppenburg (ryanknuppenburg@nevada.unr.edu) or Dr. Bill Evans (wevans@unr.edu). You may discuss a problem or complaint or ask about your rights as a research participant by calling the University of Nevada, Reno Research Integrity Office at (775) 327-2368. You may also use the online Contact the Research Integrity Office form available from the Contact Us Page of the University's Research Integrity Office Website at <https://www.unr.edu/research-integrity/contact> by simply highlighting the website, right clicking, and selecting "go to"

Please print OR save a copy of this information sheet for your own records.

Please respond to the question below whether or not you are willing to participate in this study. If you do not wish to participate, you may click the "Exit this survey" button at the top right corner of the screen and you will promptly exit the study.

Do you agree to participate in this survey?

- Yes
- No

Please select the answers which best apply to you.

Never	Disagree	Slightly Disagree	No Opinion	Somewhat Agree	Agree	Always
er	e	e	n	at	e	s

Do you have the feeling that you really don't care about what is going on around you?

Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

Has it happened that people whom you counted on disappointed you?

Until now your life has had: no clear goals – very clear goals and purpose

Do you have the feeling that you are being treated unfairly?

Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

Doing the things you do every day is: a source of deep pleasure and satisfaction – a source of pain and boredom

Do you have very mixed-up feelings and ideas?

Does it happen that you experience feelings that you would rather not have to endure?

Many people, even those with a strong character, sometimes feel like losers in certain situations. How often have you felt this way in the past?

When certain events occurred, have you generally found that: you overestimated or underestimated their importance – you assessed the situation correctly?

How often do you have the feeling that there is little meaning in the things you do in your daily life?

How often do you have feelings that you are not sure you can control?

Please answer these questions as honestly as possible to the best of your ability. Please consider all answers based on a standard drink of alcohol. One standard drink includes a 12-ounce beer, 1-ounce shot of liquor, or 5-ounces of table wine (half a full glass). Please keep in mind that most mixed drinks served at a bar contain multiple servings of alcohol.

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
How often do you have a drink containing alcohol?	1 or 2	3 or 4	5 or 6	7-9	10 or more

How many drinks containing alcohol do you have on a typical day you are drinking?

Never Less than monthly Monthly Weekly Daily or almost daily

How often do you have six or more drinks on one occasion?

How often during the last year have you found that you were not able to stop drinking once you had started?

How often during the last year have you failed to do what was normally expected of you because of drinking?

How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

How often during the last year have you had a feeling of guilt or remorse after drinking?

How often during the last year have you been unable to remember what happened the night before because of your drinking?

No Yes, but not in the last year Yes, during the last year

Have you or someone else been injured because of your drinking?

Has a relative, friend, doctor, or other healthcare worker been concerned about your drinking or suggested you cut down?

Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drinking. For each statement, select one choice from strongly disagree to strongly agree, to indicate how much you agree or disagree with that statement right now. Please answer as truthfully as possible.

Strongly Disagree Disagree Undecided or Unsure Agree Strongly Agree

I really want to make changes in my drinking.

Sometimes I wonder if I am an alcoholic.

If I don't change my drinking soon, my problems are going to get worse.

I have already started making some changes in my drinking.

I was drinking too much at one time, but I've managed to change my drinking.

Sometimes I wonder if my drinking is hurting other people.

I am a problem drinker.

I'm not just thinking about changing my drinking, I'm already doing something about it.

I have already changed my drinking, and I am looking for ways to keep from slipping back to my old pattern.

I have serious problems with drinking.

Sometimes I wonder if I am in control of my drinking.

My drinking is causing a lot of harm.

I am actively doing things now to cut down or stop drinking.

I want help to keep from going back to the drinking problems that I had before.

I know that I have a drinking problem.

There are times when I wonder if I drink too much.

I am an alcoholic.

I am working hard to change my drinking.

I have made some changes in my drinking, and I want some help to keep from going back to the way I used to drink.

Are you a first generation college student?

- Yes
- No

Select your college status.

- Undergraduate
- Graduate

Do you use nicotine in the form of cigarettes or other vape products containing nicotine?

- Yes, regularly
- Yes, but only when drinking or using other substances
- No, not at all

Do you use marijuana?

- Yes, regularly
- Occasionally
- Only when drinking or using other substances
- Rarely
- Never

Do you use illegal substances including, but not limited to cocaine?

- Yes, regularly
- Occasionally
- Only when drinking or using other substances
- Rarely
- Never

Please select the answers which best represent your experiences with your family and friends and their substance use.

	Never	Sometimes	About half the time	Most of the time	Always
Did your parents/caretakers use alcohol in the home while growing up?					
Did other family members use alcohol in the home while growing up?					
Did your parents/caretakers use any other substances in the home while growing up?					
Did other family members use other substances in the home while growing up?					
If you have people living with you or roommates do they use alcohol?					

If you have people living with you or roommates do they use any other substances?

Does your current closest circle of friends use alcohol?

Does your current closet circle of friends use any other substances?

Please select your current age.

- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

What is your biological sex?

- Male
- Female

What is your sexual orientation?

- Heterosexual
- Homosexual
- Bisexual
- Pansexual
- Other

What is your self-identified gender?

- Man
- Woman
- Transgender
- Gender Fluid (shift between genders)
- Agender (no sense of gender)
- Other

What is your race/ethnicity?

- White
- Latino
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other

Have your drinking patterns changed since the emergence of COVID-19?

- Definitely yes
- Probably yes
- Might or might not
- Probably not
- Definitely not

Has your drinking increased since the emergence of COVID-19?

- Yes, a lot
- Yes, a little
- Unsure
- Not at all

Select the socioeconomic class you most identify with.

- Lower Class
- Middle Class
- Upper Class

Thank you for participating in this research study designed to better understand personal alcohol drinking habits, how you look at life and manage stress, and your willingness to change those drinking habits. The overall research question for this study is: What is the relationship between an individual's Sense of Coherence and Readiness to Change among alcohol using emerging adults? *Sense of Coherence* helps individuals overcome stress by managing, comprehending, and creating meaning from stressful events.

Evaluating *Readiness to Change* may elucidate ways to increase hope and resiliency within individuals who engage in substance abuse. We appreciate your participation in this study. We realize some of these questions were personal in nature and may have brought back some memories of past or present issues. If you have concerns about your previous or current relationships or substance use, we encourage you to contact Student Counseling Services at UNR. This counseling service is open to all students at UNR and is located right here on campus. Counseling Services, Pennington Student Achievement Center, Suite 420.
775-784-4648.