Transition Stressors, Coping Orientation, and Alcohol Use in Emerging Adult College Students

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Abstract

Emerging adulthood, typically defined as ages 18 to 29 years, is a developmental stage marked increased autonomy, identity exploration, and frequent role transitions. While this period offers growth and opportunities, it also presents significant stressors. Prior studies have found higher rates of alcohol use for emerging adults when compared to other age groups. This holds true for heavy episodic drinking, a drinking behavior associated with increased risk of negative physical and psychological consequences. As suggested by stress and coping theories, this dissertation tested whether stressors and coping orientations were associated with alcohol use in a sample of emerging adult college students, specifically stressors were role transitions, negatively evaluated role transitions, and daily hassles, coping orientations were avoidant, approach, and emotional approach, and alcohol use was heavy episodic drinking and risky alcohol use. A sample of 185 undergraduate students (ages 18-25 years) from a large southern university completed self-report measures of past-month stressors, coping, and alcohol use. Logistic and linear regression results indicated that avoidant coping was positively associated with risky alcohol use while approach coping was inversely associated with risky alcohol use, as hypothesized. However, neither avoidant nor approach coping were associated with risky alcohol use. Emotional approach coping was not associated with either risky alcohol use nor heavy episodic drinking. Stressors were not associated with heavy episodic drinking or risky alcohol use in this study. The only interaction effect that was significant in this study was that of negatively evaluated role transitions x emotional approach coping for heavy episodic drinking. However, this was in the opposite direction than was hypothesized; the relationship between negatively evaluated role transitions and heavy episodic drinking was found to be stronger at

higher levels of emotional approach coping. Overall, this study provides useful information on the relationships between coping and alcohol uses in emerging adult college students, supports the use of psychoeducation-based interventions for college students. Directions for future study are suggested.

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Chapter 1

Introduction

A majority (72%) of people 18 to 25 years old have used alcohol in the past year, and 15% have an alcohol use disorder, which is greater than any other age group (SAMHSA [Substance Abuse and Mental Health Services Administration], 2020; CBHSQ [Center for Behavioral Health Statistics and Quality], 2021). College students of this age group are at risk to begin using substances, drink heavily, have alcohol related consequences, and to be diagnosed with an alcohol use disorder. (Miech et al., 2017; Linden-Carmichael & Lanza, 2018). *Heavy episodic drinking* is defined by the World Health Organization (WHO, 2018) as drinking 60 or more grams of pure alcohol at one time, at least once per month. This equates between four and five standard U.S. drinks; often the definition of heavy episodic drinking is five or more drinks for men and four or more drinks for women within a two-hour time frame or during a single "sitting." Rates of substance use, including heavy episodic drinking, gradually rise throughout adolescence and peak around 18 – 25 years old (Schulenberg et al., 2018). Nearly a third (29%) of young people engaged in heavy episodic drinking in the past month (CBHSQ, 2021), and several (7%) engage in heavy alcohol use, defined by SAMHSA as heavy episodic drinking on 5 or more days in the past month (CBHSQ, 2021). Even more concerning, many (12%) engage in *high-intensity drinking*, defined as consuming twice the threshold for heavy episodic drinking, meaning 10 or more drinks for men and eight or more drinks for women (Schulenberg et al., 2021).

In contrast to common beliefs about harmless drinking in youth, heavy drinking is associated with many *negative consequences* for physical health, mental health, and social functioning. Physical consequences include blackouts, physical injuries, unprotected sex, alcohol

poisoning and even death, with an estimated 1,519 18–25-year-olds dying every year from alcohol-related unintentional injuries, including vehicle crashes (Hingson et al., 2017; WHO, 2018). The risk of violence, homicide, sexual assault, and intimate partner violence also increase with heavy alcohol use (WHO, 2018). Long-term heavy alcohol use increases the risk of high blood pressure, heart disease, stroke, liver disease, digestive problems, certain types of cancer, and weakening of the immune system (WHO, 2018). Having an alcohol use disorder doubles the risk of anxiety or depressive disorders (Smith & Randall, 2012; McHugh & Weiss, 2019), and the risk for a suicide attempt increases seven times after drinking, and 37 times after heavy drinking (Borges et al., 2017).

Negative consequences from drinking may not deter many college students from continuing to drink. Experiencing negative consequences, such as feeling sick, blacking out, driving while intoxicated or riding with a drunk driver, getting hurt, acting obnoxious, missing class, and getting behind on schoolwork, has predicted frequent heavy drinking in the following semester (Martinez et al., 2014). Students who experienced negative consequences report planning to drink more in the upcoming week, and rate avoiding negative alcohol-related consequences as less important (Patrick & Maggs, 2008). This appears to be unique to younger adults, as older adults who experience negative consequences from drinking are more likely to stop drinking (White & Ray, 2014). College students may be less inclined to change their drinking behavior due to social beliefs that college is a kind of break from the real world that they will have to enter when they graduate, a time during which irresponsibility is not seen as a character flaw but as tolerable or even expected (Colby, 2009). Many college students view the benefits of alcohol use, such as enhancing social interactions, as outweighing potential negative consequences (Colby, 2009).

The developmental period, i.e., *Emerging Adulthood* ~18-29 years old, is often considered distinct from adolescence and adulthood and is a critical time to prevent alcohol related consequences and the development of alcohol use disorders (Schulenberg & Maggs, 2002; Arnett, 2000, Arnett et al., 2014). Although many consider conceptualizing this period as a separate life stage to be a recent phenomenon, one of the most well-known theorists on lifespan development, Erik Erikson (1968), discussed a developmental period of prolonged adolescence that sometimes occurs in western, industrialized societies. According to Erikson (1968), this life stage is defined by a psychosocial moratorium which grants people the chance to experiment with various social roles to find their niche in society, and which contains some of the traits of adolescence and some of the traits of young adulthood, but that is not fully identifiable as either one. Another theorist, Levinson (1978), called the years between 17 and 33 years the *novice phase* of adult development. The developmental task of the novice phase is to transition into adult life, building a stable foundation for the rest of adulthood. Building this stable foundation, however, involves a high degree of instability and change while adults in this stage are trying out different social roles and possibilities. Keniston (1971) used the term *youth* to refer to the period between adolescence and young adulthood. Youth is described as a period of role exploration and tension between the self and the greater society. Each of these conceptualizations, prolonged adolescence, the novice phase, and youth, points to a developmental period in which young people can delay more long lasting, concrete adult roles in favor of trying on varying social roles as an act of exploration.

One of the distinct characteristics of emerging adulthood is transition, including in marital/relationship status, living situation, number of children, and work or school status. Emerging adults report more variety of responses than other age groups, and they are more likely

to experience changes in these categories (Arnett, 2000). Adulthood is often thought of as the time when one settles into their long-term adult roles (marriage, career, children, etc.). The fact that the onset of these adult roles tends to be later for present day emerging adults, particularly in Western nations, than it had been for previous generations may contribute to emerging adults reporting a subjective feeling of not yet entering adulthood (Arnett, 2000). So, emerging adulthood may be thought of as a time during which one has at least some of the autonomy of adulthood, but not yet the role commitment (Arnett, 2000). This combination of increased autonomy from adolescence and decrease role commitment from the anticipated upcoming adulthood may be a contributing factor to risky behaviors, such as substance use, peaking during emerging adulthood (Arnett, 2000; Colby, 2009).

For emerging adult college students, stressful experiences can increase during this developmental stage. Nearly half (45%) of college students report themselves as experiencing higher than average stress levels, and 34% report that stress is their largest barrier to learning (ACHA, 2019). Stress can have a variety of negative impacts on one's body and mind, including headaches, muscle tension, chest pain, fatigue, sleep problems, anxiety, restlessness, irritability, and sadness (Mayo Clinic, 2021) High stress levels that are not well managed can lead to health problems such as high blood pressure, heart disease, and diabetes (Mayo Clinic, 2021).

Stress can generally be defined as a relationship between a person and their environment, in which they perceive some kind of threat from their environment (Folkman, 1984; Cofer & Appley, 1964). How an individual appraises this threat occurs in two parts: primary appraisal and secondary appraisal. Primary appraisal concerns how an individual thinks about some stimuli in their environment, including how important or significant they perceive this stimulus to be (Folkman, 1984; Appley & Trumbull, 1967). Secondary appraisal refers to one's assessment of

their ability and resources to cope with the given stressor (Folkman, 1984). Coping can be conceptualized as an attempt to reduce harm, loss, or distress associated with some stressor (Carver & Connor-Smith, 2010). Primary and secondary appraisal must also be considered together in order to get a full picture of an individual's stress and coping process. The stress and coping process has been associated with the way people engage in a number of risky behaviors, including alcohol use, heavy episodic drinking, and negative consequences from alcohol use.

This proposed study will test the relationships between transition stressors, coping, and heavy episodic drinking of emerging adult college students. Examining the relationship between variables theoretically connected to college student alcohol use, including heavy episodic drinking, is expected to advance knowledge about common stressful experiences for people in this developmental stage, and to inform future interventions to reduce and/or prevent negative consequences of alcohol use in emerging adult college students. Chapter 2 will describe concepts of stress and coping in greater detail. First, the next chapter will describe in more detail the theoretical frameworks and constructs, specifically stress and coping orientations, that are relevant to emerging adult alcohol use. Then, the chapter will review the current status of empirical evidence that connects transition stressors, coping orientation, and alcohol use in samples of emerging adult college students. Chapter 3 will describe the proposed methods of this dissertation study.

Chapter 2

Literature Review

In this chapter, I will review the literature on stress and coping. This will be divided into historical conceptualizations of stress, historical conceptualizations of coping, and will focus on the specific concept of transition stressors for emerging adults. This chapter will end with a review emphasizing the relevant empirical research of relationships between transition stressors, coping, and alcohol use of emerging adult college students.

Stress

One of the first theorists to discuss stress conceptualized stress as a physiological response state, calling stress a "nonspecific response of the body to any demand made upon it" (Selye, 1974, p. 14). The stress response is considered nonspecific because it requires an increase in adaptive functions in the body, regardless of what the body is adapting to. This differentiates the concept of *stress* from that of a *stressor*, which refers to an event or environmental factor, about which we may have a stress response (Selye, 1976). The concept of stress applies to both pleasant and unpleasant stimuli in equal measure, differentiating it from the term *distress,* which is always referencing something unpleasant (Selye, 1974). According to Selye (1974), distress may be thought of as a negative result, sometimes occurring due to excessive or damaging stress. While Selye's conceptualization of stress focused primarily on physiological stress, other theorists have expanded the concept of stress to include a psychological response state, in which someone perceives that their well-being or integrity is threatened, and that they must do something to protect it (Cofer & Appley, 1964).

Defining stress is complicated by the fact that the way individuals perceive stress is subjective. What is considered "stressful" differs from person to person, and the same stimulus will elicit varying levels of stress in different individuals. More holistic views of stress may

define it as a relationship between the person and their environment, and not necessarily as a product belonging to either (Folkman, 1984). Lazarus (1966) expressed that it would be wise to consider stress a generic term encompassing stimuli, stress reactions, and various intervening processes, such as appraisals. These sequences are often described as the stress process model. This view of the stress process accounts not only for traits of a given stressor, but for individual factors that may impact one's stress response.

An individual's stress response is dependent upon their appraisal or evaluation of a given situation or event; this is part of what contributes to varying stress responses between different individuals (Lazarus, 1963; McGrath, 1970). This appraisal occurs in two parts. *Primary appraisal* refers to the evaluation of the significance of a specific transaction between a person and their environment (Folkman, 1984). This includes how important a given event is to the individual, how positive or negative a situation is perceived to be, or how threatening the consequences of one's performance are thought to be. Events appraised as being personally significant to us are likely to result in a stronger stress response (Appley & Trumbull, 1967). *Secondary appraisal* refers to the evaluation of one's coping resources and options (Folkman, 1984). This includes beliefs about one's ability to cope with a given situation and evaluation of what coping strategies the individual has access to. Both primary and secondary appraisal are thought to influence how one responds affectively and behaviorally to a given situation.

Someone whose primary appraisal tells them that an upcoming event is highly significant may experience a high level of stress if their secondary appraisal tells them that they may not have the resources to cope with said upcoming event. On the other hand, if their secondary appraisal tells them that they have resources to cope, they are likely to experience a lower level of stress. For instance, if a student has an upcoming final exam that is worth a significant portion

of their grade in the course, their primary appraisal may tell them that this exam is a significant event. A student whose secondary appraisal tells them that they have the time and resources to study for this exam may experience a moderate level of affective arousal, motivating them to study for the exam. However, a student whose secondary appraisal tells them that they do not have the cognitive or logistical resources to do well on the exam may experience a high level of affective arousal, which may then impact their ability to prepare for said exam. If the coping resources are overwhelmed, the result could be distress.

Individual factors such as mental disorders may also have an impact on the appraisal and coping process. People with depression, for example, have been found to be more likely than people without depression to appraise themselves as needing more information in stressful situations (Coyne et al., 1981). This difference in secondary appraisal may influence both affective stress levels and behavior for people with depression. Additionally, people without depression are more likely than people with depression to appraise themselves as needing to accept their circumstances when faced with stressors (Coyne et al., 1981). Because people with and without depression appraise stressful situations differently, they are likely to cope with said situations differently.

There are many ways that stress has been operationalized in the literature including physiological measures, life event checklists, and self-reported stress levels. The two most common *physiological measures* of stress are heart rate and cortisol level (Fraizer & Parker, 2019), with higher levels of these being indicative of a stress response. Heart rate is typically measured in beats per minute using a heart rate sensor (Wolkow et al., 2016). Cortisol, the body's primary stress hormone, can be measured through saliva samples (Wolkow et al., 2016). Physiological measures of stress can be useful, objective ways of measuring physiological

responses to environmental stimuli over time. However, they are also resource intensive, and as noted by Seyle (1974), physiological stress responses are a general response, meaning that stressors other than those of interest to the study could also influence these measures.

Life event checklists ask participants to report whether they have experienced an event within a particular time frame. At times these checklists have a list of events, some checklists separate the events as positive or negative or allow respondents to assign positive or negative values to each event. Generally, the higher number of life events they report, the higher we expect their overall stress level to be. One commonly used life event checklist is the Schedule of Recent Experiences (Holmes, 1986), which asks about events such as "A major change in sleeping habits," "Death of a close family member," and "Major change in working hours or conditions." Another common checklist is the Daily Hassles Scale (DeLongis et al., 1988; Bolt, 2001). Hassles are irritants, or things that may annoy or bother you. On this measure, respondents are asked to rate each potential hassle (e.g., "The nature of your work," "Your physical appearance," "Pets") on a four-point scale from "None or not applicable" to "A great deal." Life event and hassles checklists can be useful to those looking to identify people who may be at a higher risk of experiencing stress or negative consequences related to stress. However, checklists may not account for the variability in how different people may appraise the same stressor. Even if there is a process for assessing appraisals of events, checklists may be limited because it is difficult to have a list of all potentially relevant stressful experiences.

Measures of Self-reported symptoms of stress included self-reported experiences of symptoms such as headaches, jaw tension, forgetfulness, etc. Typically, the total number of symptoms is summed into a total stress score. One widely used stress symptom measure is the Stress Symptom Checklist (Bourne, 2020). On this measure, respondents check off the physical

and psychological symptoms of stress that they have experienced in the last month and tally the number of symptoms they endorsed. Higher scores reflect greater stress levels on this tool, and there are cutoff scores that can be used: 0-7 symptoms – low; 8-14 symptoms – moderate, 15-21 symptoms – high; 22+ - very high. This type of measure has similar limitations as life event checklists, such as whether all potential symptoms are included. Further, there is substantial overlap between physical and psychological symptoms of stress and other conditions, such as allergies, digestive conditions, and anxiety or major depressive disorders, making it difficult to separate whether symptoms may be attributed to stress, or whether a disorder or condition causes the stress.

Other self-report stress measures use a traditional psychometric approach to assess stress. In these measures, there are a number of items about apparent stress responses. Respondents usually rate level of agreement or frequency on a Likert-type scale. One commonly used example of this kind of self-report measure, the Perceived Stress Scale (Cohen et al., 1983) is a 14-item measure that asks participants how often over the past month they experienced each of several stress responses. Examples of items include "nervous and stressed" and "that you were unable to control the important things in your life." Participants respond on a scale from 0 (*never*) to 4 (*very often*), with some items (e.g., "that you were on top of things") being reverse scored. The higher one's score, the more stress they may be experiencing. This kind of self-report measure has the advantage of capturing participant's subjective experience that includes their appraisal of stress, which can be important to understand when examining the relationship between stress and other variables. However, self-report measures are often subject to overreporting or underreporting, depending on the social desirability of the construct being

measured, and are often not connected to a specific stressor (e.g., Barnett, 1998; Lee, 1993; Tourangeau et al., 2000).

Some measures of stress combine measurement approaches. For example, the Life Experiences Survey (Sarason et al., 1978) combined the checklist approach with a rating of positive or negative experience with each event on a scale of -3 *extremely negative* to +3 *extremely positive*. This scale originally had 47 general events, 10 for students, and three open items where respondents could add additional stressful events. This measure has been widely used and has been adapted by adding or subtracting items to fit comment experiences of different samples (e.g., Smith et al., 2001). The measure has been scored either as the frequency of stressful events (e.g., counting all items, counting only negative (or positive) items, or appraisals of stressful experiences (e.g., summing ratings of each time); this approach has been influential on various kinds of stress measures (e.g., Cervantes et al., 2016). The concept of coping is closely tied to stress, which is typically considered a necessary condition to consider a given behavior as coping (White, 1974). Theories about coping will be reviewed in the next section.

Coping

Coping can be conceptualized as an attempt to reduce harm, loss, or distress associated with stress (Carver & Connor-Smith, 2010; Monat & Lazarus, 1991). Two of the broadest categories of coping are dispositional and transactional. *Dispositional coping* refers to habitual tendencies in the way an individual manages stress that is conceptualized to be stable across time (Haan, 1969). *Transactional coping* refers to a process in which an individual changes their coping response to meet the demands of specific stressors; this is the broad conceptualization of coping that will be utilized for this study (Lazarus & Folkman, 1984). Monet and colleagues (1972) argued that stress and coping responses vary in response to environmental factors;

different types of stressors may result in different stress responses. Similarly, understanding someone's approach to coping is integral to understanding their experience of stress (Lazarus, 1974). Coping strategies may vary due to varying stress conditions. Several frameworks have been utilized for classifying different coping strategies, and many measures are designed to have flexibility about measuring coping for those using different frameworks (e.g., Carver, 1997). The frameworks reviewed below are dispositional vs transactional coping (Haan, 1969; Lazarus & Folkman, 1984), direction action vs palliative modes (Lazarus, 1975), emotion-focused vs problem focused coping styles (Lazarus & Folkman, 1984; Parker & Endler, 1996), emotional approach coping (Stanton et al., 2000), vigilance coping vs cognitive avoidance (Krohne, 1993), and approach coping vs avoidance coping (Holahan et al., 1996).

Lazarus (1975) contrasted direct actions with palliative modes. *Direct actions* may be defined as behaviors aimed at changing some difficult relationship with one's social or physical environment. A student with an upcoming exam may engage in direct action through reading their textbook, going to their instructor's office hours, trying to guess or find out what kind of questions will be on their exam, etc. *Palliative modes* of coping, however, focus on relieving the emotional impact of stress. These could be thoughts or behaviors aimed at making a person feel better, but that does not change the stressor itself. A student with an upcoming exam may engage in palliative modes of coping by denying that their upcoming exam is important, using relaxation techniques to calm their anxiety, or by drinking to make themselves feel better. Most people will use both direct action and palliative coping strategies to some degree, though they may rely primarily on one or the other.

A coping conceptualization very similar to that of direct action vs. palliative modes that was identified early in coping research and that still attracts research attention is emotion focused

vs. problem focused coping styles (Lazarus & Folkman, 1984; Parker & Endler, 1996). *Problem focused coping* focuses on trying to solve or address the problem in some way. Problem focused coping is comparable to Lazarus's conceptualization of direct action (1975). *Emotion focused coping* refers to conscious activities aimed at regulating our emotions or affect. Emotion focused coping is not passive, but an internal restructuring in which we assign new meaning to a problem or direct our attention away from a problem (Lazarus & Folkman, 1984).

People who report using more emotion-focused coping are also more likely to have worse emotional outcomes, suggesting that coping with emotion was not successful (Stanton et al., 2002). However, measures of emotion-focused coping tend to focus on distress and escape/avoidance (e.g., "I've been saying to myself this isn't real;" "I've been saying things to let my unpleasant feeling escape;" Stanton et al., 1994). An alternative way of look at emotion-focused coping is to focus on *emotional approach coping*. Emotional approach coping involves acknowledging distress, processing distress, but not acting to alter it. Exposure to distress itself generally does not result in harm, and distress will lower over time; acting to avoid or escape distress, however, may result in harm.

Another dichotomy of coping strategies that focuses specifically on cognitive methods of coping is that of vigilance coping vs. cognitive avoidance (Krohne, 1993). *Vigilance coping* refers to intensified focus on and processing of threatening information, while *cognitive avoidance* refers to ignoring or avoiding threat related cues. Whether someone relies primarily on vigilance or cognitive avoidance coping can be assessed using The Mainz Coping Inventory (Krohne et al., 2000). This inventory describes 8 hypothetical situations that are thought to elicit anxiety in participants. Half of these hypothetical situations relate to physical threat (e.g., riding in a car with an inexperienced driver in poor driving conditions), while the other half relate to

ego-threat (e.g., having to take in important exam in 3 weeks). Each hypothetical scenario is followed by 18 possible coping choices categorized as either vigilance (watch driver carefully and try to tell in advance when they are going to make a mistake) or cognitive avoidance (be thankful the driver is not driving fast). Answers are summed into four subcategories: vigilance in ego-threat situations, cognitive avoidance in ego-threat situations, vigilance in physical threat situations, cognitive avoidance in physical threat situations.

The conceptualization for coping orientation that will be used for this study contrasts approach coping with avoidant coping. *Approach coping* refers to behaviors and cognitions that address a stressor or make efforts to resolve it (Holahan et al., 1996). Other conceptualizations of coping such as problem focused coping, cognitive coping or appraisal, and social coping are all considered approach coping strategies (Wills & Hirky, 1996). The defining feature of an approach coping strategy is that it involves an active investment of effort in the coping process. Contrasting this, a*voidant coping* refers to behaviors and cognitions aimed at avoiding a stressor and one's related emotions about a stressor (Holahan et al., 1996; Parker & Endler, 1996). Responses such as distraction, withdrawal, wishful thinking, daydreaming, and emotional discharge (venting one's emotions onto another person) would be classified as avoidant coping.

While both coping orientations have their place, people who primarily use approach coping skills tend to experience fewer psychological symptoms and to generally adapt better to stressors (Holahan et al., 1996). Approach coping strategies such as planning, reframing the situation, and using social support appear to buffer individuals against the negative impact of stress (Connor-Smith & Compas, 2002). Primary use of avoidance coping, however, is associated with more psychological distress, especially when it is used beyond just an initial crisis period. (Holahan et al., 1996). Avoidance coping strategies such as denial, blaming, and

venting, appear to amplify the negative effects of stress (Connor-Smith & Compas, 2002). Researchers have hypothesized that this occurs because attempts to manage unpleasant feelings through avoidance may increase one's overall distress about a given stressor, as well as create or exacerbate future problems (Menaghan, 1982).

One advantage of this model of coping is the focus of how much effort an individual invests into the coping process; coping strategies are judged by one's intent, not the outcome of their coping efforts. Regarding student's drinking behavior, their perceptions of the world appear to be more important than the realities of social norms or consequences (Borsari & Carey, 2003) pointing to the importance of understanding their internal conceptualizations. The approach vs avoidance model of coping gives reverence to the internal meaning of a coping strategy, rather than to its external "effectiveness."

Because approach and avoidance coping strategies are associated with the negative effects of stress in opposite ways, understanding how one chooses their coping strategy may help to improve the relationship between one's coping and their stress effects. According to Lazarus (1966), when people cannot use more active, direct, approach coping strategies, they may be more likely to engage in avoidant cognitive coping strategies, such as denial. While avoidant coping strategies like denial are generally thought to be less adaptive or healthy than more active or approach coping strategies, they are effective at reducing distress, at least temporarily. People with higher rates of denial experience less physiological arousal and better performance on memory tasks in which they may experience a shock – both when this shock is avoidable and when it is unavoidable (Houston, 1973). This reduction in arousal likely reinforces the use of this coping strategy, despite the associated long-term increase in distress (Connor-Smith & Compas, 2002).

How someone appraises their stressors and their ability to cope with these stressors is also likely to impact what coping strategies they decide to use. A person's primary appraisal, or how they view a given transaction between themselves and their environment, is likely to impact their secondary appraisal, or their evaluation of their coping resources and options. When people appraise a stressful situation as changeable (primary appraisal), they are more likely to engage in more direct, problem-focused coping (secondary appraisal; Folkman & Lazarus, 1980). Similarly, when a stressful situation is appraised as unchangeable, people are more likely to engage in emotion-focused coping (Folkman & Lazarus, 1980).

Cohen (2004) summarized two common mechanisms, direct effects and stress buffering, for how stress and coping could be related to health and associated variables. The *direct effects* model (sometimes called main effects model) suggests that stress or coping are related to health variables without regard to the presence or absence (or level) of the other. For example, a person's use of approach coping could be inversely related their alcohol use independently of how stressed a person feels. The *stress-buffering* model (sometimes called the interaction model) suggests that having access to particular resources may protect us against the negative effects of stress (Cohen & Wills, 1985). Coping has been considered as one of these resources (Morimoto et al., 2019) that may protect individuals experiencing stressors from negative outcomes. That is, the effect of coping on health depends on the presence or level of stress. For example, coping may be valuable in the context of high stress, but not have a relationship to health in the context of low stress. Approach coping strategies may moderate the relationship between stressors and health, weakening this relationship. On the other hand, avoidance coping strategies may not have the same buffering effect of approach coping strategies, and the greater use of avoidance coping may even strengthen the relationship between stressors and health.

Coping has at times been linked to alcohol or substance use, such as within the self-medicating hypothesis or a negative reinforcement paradigm. People often use alcohol as a avoidance or emotion-focused coping strategy to manage stress i.e., as a way of escaping or managing unpleasant emotional states (Khantzian; 1985). Called the *self-medication hypothesis*, this model also states that people develop preferences for substances based on the pharmacological effects of a given substance. Khantzian (1997) and colleagues (1990) suggested, for example, that people who heavily use alcohol tend to rigidly constrict their emotions, resulting in feelings of emptiness and isolation. Alcohol, a central nervous system depressant, was thought by Khantzian (1999) to allow people to relieve these constricted emotions. While there has been little empirical evidence to support the preferential use of particular substances based on individual symptoms, the general idea that people use substances to escape unpleasant emotional states has had strong empirical support (Henwood & Padgett, 2007).

Behavioral theory uses a *negative reinforcement* as a similar model to explain substance use. Instrumental conditioning suggests that substance use is a learned behavior, maintained through positive and negative reinforcement (Brandon et al., 2007). Positive reinforcement refers to the addition of a pleasant stimuli which increases the probability of repeating a given behavior. In the case of alcohol use, the pleasurable effects of drinking would likely serve as positive reinforcement. Negative reinforcement refers to the removal of a unpleasant stimuli that increases the probability of repeating a behavior. If drinking alcohol allows someone to escape unpleasant emotional states, i.e., avoidance coping, this would be negative reinforcement. Both of these mechanisms could explain continued or increased alcohol use over time.

As with alcohol use (see Chapter 1), avoidant coping appears to be highest during emerging adulthood and to decrease with age, while approach coping appears to have the opposite trajectory (Villanueva-Blasco et al., 2022). This makes it especially important to attend to the differing impact of avoidance and approach coping strategies in emerging adults. Given that there are high rates of both avoidant coping and substance use during this developmental period, these factors may interact to increase the negative consequences associated with alcohol use. Furthermore, emerging adult college students can experience a unique set of stressors—usually called transition stressors—that they may need to cope with, making the impact of their coping strategies important to understand.

Transition Stress

Emerging adult college students are a population vulnerable to stress; 34% of college students report that stress is their largest barrier to learning and 45% indicate that they have higher than average stress levels (ACHA, 2019). These high stress levels can have important consequences for students, for example, higher stress levels are associated with a higher risk of dropping out of university in the first year (Andersson et al., 2009). More than just experiencing high levels of stress, college students are experiencing a unique type of stress – the stress associated with role transitions. This stress is often described as *transition stress* or *role transition stress*. College students are transitioning into new life roles, many of which are developmentally normal during emerging adulthood, such as getting new jobs, moving, starting and ending relationships, etc. The stress that accompanies these role transitions is specific to this developmental stage, and therefore can be differentiated from other conceptualizations of stress (perceived stress, symptoms of stress, etc.).

Similar to how Seyle (1974) described that stress can occur from both positive and negative stressors, even normative role transitions have been thought to cause at least some level of stress or distress. But, the number of *negatively evaluated* role transitions may have a greater association with stress or distress. That is, students' primary appraisal of role transitions as positive or negative may influence their appraisal, or how they evaluate the potential threat of the situation and their coping resources. During primary appraisal, students may evaluate a role transition as threatening, important, or as having strong consequences—or they could view the transition as natural and desired. Alternatively, during secondary appraisal, they may evaluate themselves as not having enough coping resources or adequate coping strategies—or they could view their resources as sufficient to address a transition. Either of these negative appraisals could theoretically lead one to experience increased perceived stress levels. When stress levels increase, using coping skills to manage affective symptoms of stress becomes necessary.

One example of a life event checklist-type measure of role transition stress asked participants to report status and any changes on a list of potential events around education, employment, residence, and romantic relationships (Cadigan et al., 2021). Then, the extent to which a role transition was evaluated as positive or negative is assessed through asking participants to report how they believed this role transition has impacted their life on a Likert-type scale of 0 (*extremely negative*) to 4 (*extremely positive*). The way that various role transitions are evaluated makes a difference in the way that they impact student stress levels and outcomes. Though events appraised as positive can still illicit an affective feeling of stress and have been related to alcohol use in prior studies (Cadigan et al., 2021), events appraised as negative would be expected to illicit a high demand for coping resources in secondary appraisal. Therefore, we would expect for there to be a stronger relationship between negatively evaluated

role transitions, coping, and alcohol use, than between positively evaluated role transitions, coping, and alcohol use. It is also possible that students who are pursuing a higher number of role transitions, especially positively evaluated ones, may have more psychological resources to manage any additional stressors associated with these (Schulenberg et al., 2003).

Empirical Evidence

Stress

This section will review studies that tested the relationships between stress, coping, and alcohol use suggested by theory described above. Specifically, studies in this review are limited to studies which measured both (1) transition stress and/or coping, (2) alcohol use, and statistically tested a link between at least one construct in (1) or (2). For ease of comparison, all effect sizes will be shown with a Cohen's *d* (Cohen, 1992) equivalent, when there is sufficient information to calculate.

There is extensive research on the relationships between stress and alcohol for nearly 100 years, and much of this research has been the subject of several reviews and meta-analyses. These reviews often have mixed results, possibly linked to study contexts. Pohorecky (1991) found a number of inconsistencies across stress and alcohol use research, depending on variables included in individual studies, suggesting that how stress and alcohol use are related depend on a number of other factors. The specifics of the stress condition appear to be associated with alcohol use in different ways. Pohorecky (1991) found social stressors and some occupational stressors have been associated with a decrease in alcohol consumption, while self-disclosing speech and experiencing an electric shock had been associated with increased alcohol consumption. Economic stress, feelings of vulnerability, marital stress, poor physical health, and job stress appear to also be associated with increases in alcohol use in many studies. Experiencing stressful

life events and/or experiencing chronic stressors were both associated with increased alcohol use and risk for alcohol use disorder, and having an alcohol use disorder has been associated with an increase in alcohol use in response to stressors. Some of the studies reviewed found that after a natural disaster, such as in Buffalo Creek, WV after a flood, and in the towns surrounding Mount Saint Helens, WA after a volcano eruption, the rate of alcohol consumption in the area tends to increase. However, no increase in alcohol use was found among the workers after the Three Mile Island nuclear plant accident. Daily life stressors, such as work load, school stress, and family stressors, were associated with increased alcohol use in a number of studies. Alcohol use appears to have a stress-buffering effect only for moderate drinkers, not for abstainers or heavy drinkers; some studies found alcohol to have greater stress-buffering effects in rural samples as compared to urban populations. People with fewer coping resources, such as social support and self-confidence, were also found to use alcohol more frequently.

There are a wide variety of paradigms to study the relationships between stress and behavioral health, including alcohol use. As a brief overview of the scope of these kinds of studies, this section will briefly review animal analog studies and laboratory studies. The association of stress and alcohol use has been widely studied using animal models, providing a useful foundation for understanding how stress and alcohol use are associated physiologically. Becker and colleagues (2011) reviewed 148 studies assessing the relationship between stress conditions and alcohol use in animal studies. Seventy-seven of these studies examined the relationship between acute or non-chronic stress and alcohol use. Most of these studies assessed animal alcohol use prior to the onset of acute stress, and during the acute stress period and examined whether there was a change in alcohol use during these time points. Acute stress was induced in animals in a variety of ways, including inescapable foot shock,

restraint/immobilization, forced swim, social defeat, social isolation, tail pinch, fear-conditioned memories, food restriction, shock probe, saline injections, repeated cage changes, ultrasonic noise, and overcrowding. Alcohol was typically freely available to animals, in addition to water. Of the 77 studies testing the relationship between acute stress conditions and changes in alcohol use, 38 of them found no change in animal alcohol use, 16 of them found a decrease in alcohol use, and 23 of them found an increase in alcohol intake. Becker and colleagues (2011) also reviewed 71 studies that tested the relationship between chronic stress exposure and changes in alcohol consumption. Chronic stress was induced in these studies through early maternal separation, chronic isolation, overcrowding, and disturbing circadian cycle. Seventeen studies found no change in alcohol consumption, 15 studies found decreased alcohol consumption, and 39 found an increase in alcohol consumption.

There is also a body of research that is based in laboratory settings, and often induces stressful events in an experimental paradigm. Bresin and colleagues (2018) conducted a meta-analysis using 41 studies testing the relationship between laboratory induced stress, alcohol craving, and alcohol use in humans. Authors found significant small to medium differences in alcohol use following stress induction (d_{av} = .31, 95% CI [.11, .50], k = 21) as compared to control conditions. Alcohol craving was also higher following stress induction (d_{av} = .39, 95% CI [.04, .74, k = 14) compared to control groups. Additionally, in the stress induction condition, authors found a significant increase in alcohol craving from pre to post-induction (d_{av} = .36, 95% CI [.14, .58], k = 14). Although common, these experimental methods have been criticized for not generalizing to natural stress experiences.

More directly relevant to this manuscript, there is also a long history of research on stress and alcohol with college students. For example, Schry and White (2013) conducted a meta-

analysis on 44 studies that tested the relationship between social affective stress and alcohol use in college students. Contrary to their hypotheses, social affective stress was negatively correlated with all measures of alcohol use, including quantity (r= -.07, 95% CI [-.10, -.04], p < .001), frequency (r = -.10, 95% CI [-.13, -.08], p <.001), and frequency of heavy episodic drinking (r = -.08, 95% CI [-.11, -.04], p < .001). There are studies that examined other kinds of stress with college students as well. For example, O'hare and Sherrer (2000) collected data from 315 emerging adult college students (91% White; 36% women, *M* age = 18.6 years, age range = 18-23) as part of an adjudication process for having violated university rules about substance use. Symptoms of stress was assessed with an adapted version of the South Shore Problem Inventory-Revised (SSPI-R; O'Hare, 1995), which was dichotomized at the median (12) into low and moderate stress categories. The SSPI-R included 9 items related to affective symptoms of stress (e.g., loneliness, depression, hopelessness, tension, belligerence toward others, etc.). Participants were asked to rate how severely each symptom was currently affecting them on a scale from 1, *mild/no problem* to 5, *severe*. Changes in alcohol use were assessed using the Alcohol Change Index (ACI; O'Hare & Tran, 1997), a single item question, "In the past three months, how would you best describe your pattern of alcohol use?" Symptoms of stress were not related to changes in alcohol use.

Along the same lines as O'Hare and Sherrer (2000), but with a different measure of stress, Russell and colleagues (2017) collected data from 744 first-time college students (25% Hispanic/Latine, 27%European American, 23% Asian American 16% African American, and 9% multiracial; 49% men, *M* age = 18.4 years, age range = 16.9-20.8), who completed web-based surveys. Stressors were measured by six items adapted from the Daily Interview of Stressful Experiences (Almeida et al., 2002), which asked participants to reported whether on the previous

day they had experienced stressful interpersonal arguments, non-argument interpersonal tensions, school or work stressors, home stressors, friend/family stressors, and other general stressors. Alcohol use was measured by asking participants to report the number of drinks they consumed each day for 2 weeks each semester, over 7 semesters. Researchers assessed both whether stressors increased the likelihood of students drinking on any given day, and whether stressors were associated with the quantity of alcohol use on a drinking day. Researchers found that the odds of a student drinking on a given day increased with each additional stressor they experienced (*OR* = 1.08, 95% CI [1.03, 1.13], *d* = .04). Researchers also found that students who were experiencing more stressors on average had higher odds of drinking on any given day than students who were on average experiencing fewer stressors (*OR* = 1.69, 95% CI [1.20, 2.39], *d* = .29). The number of drinks consumed on a given drinking day also increased with each additional stressor (*IRR* = 1.04, 95% CI [1.02, 1.06]). These results suggest that both the likelihood of students drinking at all, and the quantity of alcohol they consume when they do drink may increase along with their stress symptoms.

In the last few years, there has been increasing attention on the effects of COVID-19 or the pandemic conceptualized as a stressful event. Fruehwirth and colleagues (2021) collected data from 439 first year college students between the ages of 18 and 20 (60% White, 7% Black, 18% Asian, 9% Hispanic, 6% other race/ethnicity; 72% female, *M* age = 18.9) before and after the start of the Covid-19 pandemic. Participants responded to questions regarding their alcohol use, i.e., “Over the past 30 days, on how many days did you have at least one drink of alcohol?” and “Over the past 30 days, on how many days did you have four or more drinks in a row, that is within a couple of hours, if you are female; five or more drinks in a row if you are male?” Participants also responded to questions about whether they had experienced common pandemic

related stressors, included student and parent work reductions, educational stressors (including difficulty with distance learning), and being diagnosed or hospitalized for Covid-19. Data was also collected about resilient coping using the Brief Resilient Coping Scale (Sinclair & Wallston, 2004), which asks participants to respond to items such as "I look for creative ways to alter difficult situations" and "I believe I can grow in positive ways by dealing with difficult situations" on a scale of 1, *does not describe me at all* to 5, *describes me very well*. Prevalence of alcohol use decreased from pre-pandemic to mid-pandemic (54% to 46%), heavy episodic drink also decreased (36% to 25%), but there was no significant change in days of alcohol use and past month heavy episodic drinking. Contrary to researcher hypotheses, none of the Covid-19 related stressors were associated with prevalence or intensity of alcohol use or heavy episodic drinking. However, when researchers looked only at participants who were already using alcohol prior to the pandemic, difficulties with distance learning were associated with increases in alcohol use (*RR* = 1.34, 95% CI [1.12, 1.60]) and increased days of heavy episodic drinking (*RR* = 1.50, 95% CI [1.16, 1.94]). Also contrary to researcher hypotheses, resilient coping was not associated with alcohol use.

Cho and colleagues (2023) collected data from 2,130 emerging adults (47% Hispanic/Latine, 19 % Asian, 5% Black/African American, 17% White, and 13% other race/ethnicity; 59% female, *M* age = 19.7 years) regarding their alcohol use, measured by past month frequency and quantity of drinks. Participants were also asked about their COVID-19 pandemic related stressors, measured by asking participants to report whether the following items were impacted by the Covid-19 pandemic: evicted from or lost home, lost job or work hours reduced, serious financial problems, and worried about future job prospects and impact on education. Researchers found that losing a job or having one's work hours reduced due to the

pandemic was significantly associated with an increase in the frequency of alcohol use from a pre-pandemic baseline (p = .004) and with an increase in the quantity of alcohol use (p = .002). Financial stressors associated with the pandemic were also associated with an increase in alcohol use frequency (p = .030), but not with quantity of alcohol used per drinking day (p = .77).

Role Transition Stressors

As shown in the previous section, the body of evidence about relationships between stress and alcohol have a very wide range of studies with multiple ways to assess or induce stress across multiple contexts. The next section will review literature that tested links between alcohol use and transition stressors, which is the stress construct of interest for this proposed study. I believe that the specificity of this approach has potential to expand knowledge about this construct, as well as provide information that may be used to create or adapt interventions to reduce or prevent emerging adult college student alcohol use and associated consequences. This section will review all available studies that tested links between other studies that have examined transition related stressors for emerging adults.

Patrick and colleagues (2018) collected data from 767 emerging adults (59% White, 18% Asian, 9% Hispanic/Latine, 5% Black, and 18% other race/ethnicity; 56% women, *M* age = 20.6, age range = 18-23) through monthly surveys collected for 24 consecutive months. These surveys asked participants to report their social role transitions in domains of education, work, and relationship status, and their highest number of drinks consumed on one occasion in the past month. Participants also reported the highest quantity of alcohol they consumed on one occasion in the last month, ranging from no drinks to 25 drinks or more. Researchers found that on average, participants who more often reported starting a job (*OR* = 1.37, 95% CI [1.13, 1.66]) or ending a relationship (*OR* = 1.29, 95% CI [1.07, 1.56]) were more likely to report any drinking in

a given month. A significant relationship was not found between reporting any drinking in a given month and ending a job, starting a relationship, starting school, or ending school. Participants who more frequently ended relationships tended to consume more drinks in their peak drinking occasion (*RR* = 1.06, 95%CI [1.02, 1.13]). The highest number of drinks participants reported drinking in a month was not significantly associated with starting a job (*RR*= .99. 95% CI [.97, 1.02]), ending a job (*RR* = 1.04, 95% CI [.99, 1.08]), starting a relationship (*RR* = 1.02, 95% CI [0.98, 1.06]), starting school (*RR*= 0.97, 95% CI [0.93, 1.02]), or ending school (*RR* = 0.98, 95% CI [0.93, 1.03]). Participants who reported starting a new relationship reported a higher peak number of drinks within the same month (*RR* = 1.09, 95% CI [1.04, 1.14]), as did participants who reported ending a relationship (*RR* = 1.09, 95% CI [1.05, 1.13]). A significant relationship was not found between alcohol use and starting a job, ending a job, starting school, or ending school.

Another important type of role transition common in emerging adulthood are those transitions associated with romantic relationships (e.g., ending a relationship, starting a relationship, casual dating, engagement, marriage, etc.) Salvatore and colleagues (2014) collected data from 2,056 first-year college students (51% White, 19% Black, African American, 15% Asian, 6% Hispanic/Latine, 9% other, multiracial, or declined to respond; 60% female) in the fall and spring semesters of their first year. Participants reported their alcohol use frequency, measured by the number of drinking days in the last month, alcohol use quantity measured by number of drinks on drinking days in the past month, alcohol related consequences measured by seven items adapted from the Semi-Structured Assessment for the Genetics of Alcoholism (Bucholz et al., 1994), and their relationship status. Alcohol use related consequences increased for the sample as a whole from their first semester to their second (*d* = -0.09). Significant change

in relationship status from semester one to semester two predicted changes in alcohol related consequences (partial $\eta^2 = .04$). Post-hoc analysis indicated that alcohol use consequences increased for people who transitioned from an exclusive dating relationship to being single, and decreased for those who were single at both timepoints ($p = .03, .01$). Alcohol use consequences were not significantly different for those who transitioned from being single into an exclusive relationship or for those in an exclusive relationship at both timepoints.

Allem and Colleagues (2016) collected data from Hispanic emerging adults in year one ($N = 2,151$, 41% male, M age = 22) and year two ($N = 1,406$, 41% male M age = 23) regarding their past month heavy episodic drinking and role transitions. Participants were asked whether they had engaged in heavy episodic drinking in the past month. Role transitions were measured by asking participants to report the transitions they had experienced in the past year (e.g., started a romantic relationship, broke up with a boyfriend or girlfriend, moved, etc.). Negative affect was measured through the Boston short-form CES-D (Kohout er al., 1993), which assesses specific depressive symptoms. Researchers found that in year one, starting a romantic relationship was positively associated with heavy episodic drinking ($OR = 1.49$, 95% CI [1.17, 1.89). Researchers also found that ending a romantic relationship was positively associated with heavy episodic drinking ($OR = 1.70$, 95% CI [1.31, 2.22]) in year one. Getting a new job in year one was positively and significantly associated with heavy episodic drinking ($OR = 1.26$, 95% CI [1.01, 1.60]). However, starting school ($OR = 1.03$, 95% CI [0.82, 1.29]) and moving residences ($OR = 1.03$, 95% CI [0.81, 1.32]) were not significantly associated with heavy episodic drinking. In year two of this study, researchers found starting a romantic relationship was positively associated with heavy episodic drinking ($OR = 1.37$, 95% CI [1.06, 1.79]). Ending a romantic relationship in year two was positively associated with heavy episodic drinking ($OR = 1.50$, 95%

CI [1.13, 2.00]). Getting a new job was significantly associated with heavy episodic drinking (*OR* = 1.71, 95% CI [1.35, 2.18]). In year two, transitions in living situation were also positively associated with heavy episodic drinking (*OR* = 1.34, 95% CI [1.03, 1.74]). Starting school, however, was not associated with heavy episodic drinking (*OR* = 0.82, 95% CI [0.64, 1.04]).

Experiencing a higher number of role transition stressors appears to be associated with alcohol use and related consequences. Patrick and Colleagues (2020) collected data from 778 emerging adults ages 18-24 (60% White, 18% Asian, 22% other race; 44% male, 52% above 21) on a monthly basis for 24 months regarding their social role transitions, and alcohol use. Role transition stressors were measured by asking participants to report changes occurring in the past month (e.g., moved to a new apartment). Alcohol use in the past month was measured by the Daily Drinking Questionnaire (Collins et al., 1985), which asks participants to report their typical number of drinks per each day of the week, and hazardous alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), which asks participants to respond to items such as "how often do you have six or more drinks on one occasion?" Higher scores on the AUDIT indicated more hazardous alcohol use. Latent class analysis (LCA) was used to divide participants into three classes: participants who experienced infrequent transitions (infrequent transitions class; 30%), participants who experience two or more transitions, but not in relationships (transitions except for relationships class; 39%), and participants who experienced frequent transitions (frequent transitions class; 31%). When compared to the infrequent transitions class, participants in the transitions except in relationships class reported elevated typical number of drinks per week (*CR* = 1.41, 95% CI [1.15, 1.73]), and hazardous alcohol use (*OR* = 2.04, 95% CI [1.13, 3.66]). Participants in the frequent transitions class also reported elevated typical number of drinks per week (*CR* = 1.62, 95% CI [1.31, 2.02]),

and hazardous alcohol use (*OR* = 1.83, 95% CI [1.01, 3.32]) when compared to the infrequent transitions class.

Furthermore, when emerging adults are assessed during a transition period, they report higher alcohol use than during non-transition periods. Cabrera and Palm Reed (2019) collected data from 117 recent high school graduates (75% White, 3% Black/African American, 6% Hispanic/Latine, 9% Asian/Pacific Islander, 1% other race/ethnicity; 67% female) on their alcohol use prior to and during a transition period. Alcohol use was measured by the Daily Drinking Questionnaire (Collins et al., 1985), which asked participants to report their number of drinks each day in a typical week, and during their heaviest drinking week. Researchers found significantly higher rates of drinking were reported during the transition period as compared to the past year (x^2 (4) = 63.32).

The number and type of transition stressors emerging adults face may not be all that matters; how students perceive or appraise their social role transitions may also impact their alcohol use and associated consequences. Cadigan and colleagues (2021) collected data from 767 young adults (60% White, 18% Asian, 9% Hispanic/Latine, 5% Black, and 17% other race/ethnicity; 57% female, *M* age = 21.11), who completed monthly surveys over two years. Participants reported their status and any recent role transitions concerning education, employment, residence, and romantic relationships. Participants then indicated on a five-point scale how positive or negative they believed the role transitions they'd experienced to be; the number of transitions rated as "negative" or "extremely negative" were then used to indicate negatively evaluated transitions. Participants also reported the frequency of their past month heavy episodic drinking frequency on a 5-point scale from 1 (*never*) to 5 (*2 days per week or more*), completed the Perceived Stress Scale (Cohen et al., 1983). Number of transitions was

associated with frequency of heavy episodic drinking on both a between persons (*OR* = 1.46, 95% CI [1.23, 1.74]) and a within persons level (*OR* = 1.06, 95% CI [1.01, 1.12]). Total number of transitions experienced was associated with perceived stress level, but in the opposite direction of that hypothesized (*d* = -0.03). Perceived stress was not associated with heavy episodic drinking, though it was significantly associated with alcohol related consequences (*RR* = 1.10, 95% CI [1.01, 1.13]). The number of negatively evaluated transitions was associated with overall perceived stress level at both the between persons (*d* = 0.13) and a within persons level (*d* = 0.27). The number of negatively evaluated transitions was not significantly associated with more frequent heavy episodic drinking (*OR* = 1.04, 95% CI [0.89, 1.21]).

Overall, there appears to be evidence linking transition stress to alcohol use in emerging adult college students. Specifically, four studies have focused on transition related stressors, and found small effect sizes (Patrick et al., 2018; Salvatore et al., 2014; Allem et al., 2016; Cabrera & Palm Reed, 2019). Two studies examined the relationship between the quantity of role transition stressors emerging adults have experienced and their alcohol use and related consequences, rather than on individual types of transitions (Patrick et al., 2020; Cadigan et al., 2021). These studies that focused on quantity of transition stressors have found small to medium effect sizes, larger than studies focusing on specific transition stressors. The next section will review studies that tested a relationship between various coping strategies and alcohol use.

Coping

Stevenson and colleagues (2020) collected data from 20 emerging adults (85% White; 55% female, *M* age = 21.74). Participants had been enrolled in a partial hospitalization program, and upon discharge agreed to complete a six-week ecological momentary intervention (EMI) using their smart phones. Participants were asked to come up with coping strategies that had

worked for them in the past (e.g., going for a walk), which would then be programed into the EMI. Participants completed daily assessments regarding their mood, coping skills, and alcohol use. Researchers found that a higher number of coping strategies used predicted a lower quantity of alcohol consumed on drinking days (d = -0.14). Researchers also found that using coping strategies weakened the relationship between a negative mood and quantity of alcohol consumed on drinking days (d = -0.10). Coping strategies were not associated with the likelihood of drinking alcohol on a given day, however.

Not all coping strategies have the same relationship with alcohol use and consequences, however. Britton (2004) collected data from 196 college students (87% White, 6% Black/African American, 7% Hispanic, Asian, Native American, or other race/ethnicity; 44% female, 38% male, 14% did not report gender, *M* age = 19.69). Participants completed self-report assessments regarding their coping strategies (The COPE; Carver et al., 1989), and alcohol use (The Quantity Frequency Variability scale; Cahalan & Cisin, 1968). Britton found that participants endorsing using substances to cope, an avoidant coping strategy, predicted the number of drinking days they reported (β = .45). Participants average number of drinks was also predicted by endorsing using substance to cope (β = 0.30), but higher emotional expression, an approach coping strategy, predicted a lower average number of drinks (β = -0.23). Heavy drinking days were predicted by using substances to cope (β = 0.48).

Metzger and colleagues (2017) collected data from 1,027 emerging adult university students ages 18-25 (70% Caucasian, 23% Black/African American, 4% Asian, 3% Hispanic/Latine, 1% American Indian/Alaskan Native, <1% Native American/American Indian, <1% Native Hawaiian/Pacific Islander; 75% female, *M* age = 20.17) regarding their stressors (Student Stress Survey; Ross et al., 1999), avoidant coping (Brief Cope; Carver, 1997), alcohol

use (two items from the Youth Risk Behavior Survey; Eaton et al., 2008), and driving under the influence in the last 30 days/in one's lifetime. Researchers found that avoidant coping was positively associated with drinking in the past 30 days (β = 0.15), 6 months (β = 0.14), heavy episodic drinking past 30 days (β = 0.12), heavy episodic drinking past 6 months (β = 0.12), driving under the influence in the past 30 days (β = .14), and driving under the influence in one's lifetime (β = .12). Academic stress was positively associated with alcohol use in the past 30 days (β = 0.10), in the past 6 months (β = 0.10), and with past 30 day drinking and driving (β = 0.11). Academic stress was not associated with heavy episodic drinking in the past 30 days (β = .05), past 6 months (β = .04), or driving under the influence in one's lifetime (β = .06).

A limited number of studies have examined the interactions between stress, coping, and alcohol use and related consequences in emerging adult college students. Corbin and colleagues (2013) collected data from 225 first year undergraduate students (56% women, 55% Caucasian, 17% Asian/Asian American, 9% Hispanic/Latine, 5% African American, 1% Native American, 6% multiracial or other race/ethnicity, *M* age = 18.41) on their perceived stress (Perceived Stress Scale; Cohen et al., 1983), approach coping strategies (four subscales of the COPE; Carver et al., 1989), coping as a motivator for drinking (avoidant coping; Modified Drinking Motives Questionnaire Revised; Grant et al., 2007), alcohol use (Daily Drinking Questionnaire; Collins et al., 1985), and negative consequences from drinking (Rutgers Alcohol Problem Index; White & Labouvie, 1989). The interaction between stress and two of approach coping strategies were significantly associated with weekly drinking (suppression of competing activities: β = -.214; restraint: β = -.171), however the interaction between stress and active coping (β = .156) and between stress and planning coping (β = .099) were not. Perceived stress significantly predicted experiencing negative consequences from alcohol use (β = .224), but not weekly drinking.

Planning coping strategies, a type of approach coping, was significantly associated with lower levels of negative consequences (β = -.16), but active coping, suppression of competing activities, and restraint were not.

Although there are only a handful of studies on the topic, it appears there is some evidence that coping is related to alcohol use in college student samples. Specifically, two studies have tested the relationship between coping orientation and alcohol use in emerging adults, both of which have found significant inverse relationships between approach coping and alcohol use, and one of which found a significant direct relationship between avoidant coping and alcohol use and related consequences (Stevenson et al., 2020; Briton, 2004). Two studies have tested the relationships between both stress and coping orientation to alcohol use (Corbin et al., 2013; Metzger et al., 2017). Both studies found significant relationships between stress and alcohol use, and between coping orientation and alcohol use. One of these tested the interaction between stress and coping on alcohol use, and found a significant interaction (Corbin et al., 2013).

Study Purpose

There have been no studies that tested links between transition stressors, coping, and alcohol use, which is a clear gap in the body of research. Understanding these relationships may help inform efforts to prevent heavy episodic drinking and the resulting negative consequences of emerging adult college students. Knowledge about experiences that are specific to this life stage and context are vital because emerging adult college students have the highest rates of alcohol use and related consequences. Heavy episodic drinking (aka binge drinking) will be the outcome because this construct has been used extensively as the target of intervention due to the relationships with adverse consequences (e.g., Cronce et al., 2018). The purpose of the proposed

study is to expand the literature on transition stressors, coping, and alcohol use for emerging adult college students. Specifically, I will test theoretically-informed relationships between transition stressors and negatively evaluated transition stress, two coping orientations (approach and avoidance), and heavy episodic drinking in a sample of emerging adult college students
It is hypothesized that:

Research Question 1 : Are role transition stressors associated with drinking?

Hypothesis 1a: Role transition stressors will be positively associated with heavy episodic drinking.

Hypothesis 1b: Role transition stressors will be positively associated with risky alcohol use.

Research Question 2: Are negatively evaluated role transitions associated with drinking?

Hypothesis 2a: Negatively evaluated role transition stressors will be positively associated with heavy episodic drinking.

Hypothesis 2b: Negatively evaluated role transition stressors will be positively associated with risky alcohol use.

Research Question 3: Are hassles related to drinking?

Hypothesis 3a: Hassles will be positively associated with heavy episodic drinking.

Hypothesis 3b: Hassles will be positively associated with risky alcohol use.

Research Question 4: Is coping related to drinking?

Hypothesis 4a: Avoidant coping will be positively associated with heavy episodic drinking.

Hypothesis 4b: Approach coping will be inversely associated with heavy episodic drinking.

Hypothesis 4c: Emotional approach coping will be positively associated with heavy episodic drinking.

Hypothesis 4d: Avoidant coping will be positively associated with risky alcohol use.

Hypothesis 4e: Approach coping will be inversely associated with risky alcohol use.

Hypothesis 4f: Emotional approach coping will be positively associated with risky alcohol use.

Research Question 5: Does coping moderate the relationship between role transitions and drinking?

Hypothesis 5a: Avoidant coping will strengthen the relationship between role transitions and heavy episodic drinking.

Hypothesis 5b: Approach coping will weaken the relationship between role transitions and heavy episodic drinking.

Hypothesis 5c: Emotional approach coping will strengthen the relationship between role transitions and heavy episodic drinking.

Hypothesis 5d: Avoidant coping will strengthen the relationship between role transitions and risky alcohol use.

Hypothesis 5e: Approach coping will weaken the relationship between role transitions and risky alcohol use.

Hypothesis 5f: Emotional approach coping will strengthen the relationship between role transitions and risky alcohol use.

Research Question 6: Does coping moderate the relationship between negatively evaluated role transitions and drinking?

Hypothesis 6a: Avoidant coping will strengthen the relationship between negatively evaluated role transitions and heavy episodic drinking.

Hypothesis 6b: Approach coping will weaken the relationship between negatively evaluated role transitions and heavy episodic drinking.

Hypothesis 6c: Emotional approach coping will strengthen the relationship between negatively evaluated role transitions and heavy episodic drinking.

Hypothesis 6d: Avoidant coping will strengthen the relationship between negatively evaluated role transitions and risky alcohol use.

Hypothesis 6e: Approach coping will weaken the relationship between negatively evaluated role transitions and risky alcohol use.

Hypothesis 6f: Emotional approach coping will strengthen the relationship between negatively evaluated role transitions and risky alcohol use.

Research Question 7: Does coping moderate the relationship between hassles and drinking?

Hypothesis 7a: Avoidant coping will strengthen the relationship between hassles and heavy episodic drinking.

Hypothesis 7b: Approach coping will weaken the relationship between hassles and heavy episodic drinking.

Hypothesis 7c: Emotional approach coping will strengthen the relationship between hassles and heavy episodic drinking.

Hypothesis 7d: Avoidant coping will strengthen the relationship between hassles and risky alcohol use.

Hypothesis 7e: Approach coping will weaken the relationship between hassles and risky alcohol use.

Hypothesis 7f: Emotional approach coping will strengthen the relationship between hassles and risky alcohol use.

Chapter 3

Methods

Participants and Procedures

This study recruited 185 students from a large southeastern university. To be eligible to participate, students had to be current undergraduates 18-25 years old. Students were recruited through an online platform, SONA, used by the university to allow students to participate in research studies in exchange for extra credit. Participants were 185 emerging adult undergraduate students, with a mean age of 20.19 (*SD* = 1.43), with a majority women (*n* = 136, 74%). A majority (85%) of participants were White/European American. Participants were generally distributed fairly across year in college, with 52 (28%) first year students, 35 (19%) second year students, 47 (25%) third year students, and 51 (28%) fourth year or higher students. See Tables 1 and 2 for full sample characteristics. The demographics measure used in this study was adapted from past studies of alcohol use in college student samples.

Sample Size Determination

Using G*power (Faul et al., 2009) for logistic regression, set to an anticipated small-to-medium effect size of OR = 1.75 (i.e., *d* = .35) based on the effects sizes found in literature above, desired statistical power level of .8, and alpha probability level of .05, the recommended sample size was 167 participants. 185 students were recruited to allow for 10% missing data or other non-usable responses.

Human Subjects Protection.

All study procedures were approved by the Auburn University IRB (23-635). Participation in this study was voluntary. After clicking the weblink to participate, students read an information letter and continued to the online Qualtrics survey if they agreed to participate. Participants could end their participation early and were not required to answer any questions

that they did not want to answer. Resources were provided for support at the end of the survey in case of any potential distress associated with answer questions regarding stressors, alcohol use, and/or coping. Data was secured on Qualtrics, which is a password protected platform, and no identifying information was collected from participants beyond standard demographic questions.

Measures

Stress

Transitions Stress. Participants were asked to report past-month role transitions in the domains of education, work, living situations, friendship, and romantic relationships (Patrick et al., 2018). For example, in the domain of work, participants were asked to indicate whether they had started a new job, started a new position, gotten a promotion, been reprimanded/demoted, ended a job, significantly increased their work hours, or significantly decreased their work hours. For each social role transition participants endorsed, they were asked to "Indicate the extent to which you viewed the change as having either a positive or negative impact on your life," and participants could respond with 0 = *extremely negative*, 1 = *negative*, 2 = *no impact*, 3 = *positive*, and 4 = *extremely positive*. This measure was be scored in two ways following instructions by Cadigan and colleagues (2021). First, the total number of events were counted. Second, the number of negatively evaluated transitions were then totaled based on the number of negative or extremely negative responses. Cadigan and colleagues (2021) did not report Cronbach's α for either role transitions or negatively evaluated role transitions. These are not psychometric scales, and therefore Cronbach's α would not be useful measures of reliability. Both role transitions and negatively evaluated role transitions are counts of possible transitions that participants may or may not have experienced, and some of the role transitions are unlikely to both occur within a month time frame (e.g., moved into an apartment and bought a house; started college classes

(previously not in college) and changed schools; thought I or my partner was pregnant but wasn't and found out I or my partner are pregnant; decided with partner to stop using birth control and started using birth control; relationship ended and became married).

Hassles. Participants were also asked to respond to a series of "hassles" (DeLongis et al., 1988; Bolt, 2001). Hassles are irritants, things that annoy or bother one. Participants were asked to rate how much of a hassle 47 prompts have been for them in the last month and may respond with 0 = *none or not applicable,* 1 = *somewhat*, 2 = *quite a bit*, 3 = *a great deal.* Responses were summed to create an overall hassles score. Examples of hassles included in this measure are co-workers or other students, classes, meeting deadlines, your living situation, and being lonely. In this sample, Hassles showed satisfactory internal consistency, $\alpha = .93$.

Coping Orientations

Approach and Avoidance Coping. Participants' coping orientations or styles were measured using the Brief COPE (Carver, 1997), a 28-item measure asking participants to report how often they engage in various coping strategies from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). Participant responses to each item were then divided into two categories, approach and avoidance coping (e.g., Eiesenber et al., 2012), and items were averaged to create their respective scale. Higher scores on each scale indicate greater use of that coping style. Items in the *approach* category include "I've been concentrating my efforts on doing something about the situation I'm in," "I've been getting emotional support from others," "I've been getting help and advice from other people," "I've been trying to see it in a different light, to make it seem more positive," "I've been trying to come up with a strategy about what to do," and "I've been accepting the reality of the fact that it has happened." Items in the *avoidance* coping category include "I've been turning to work or other activities to take my mind off

things," "I've been saying to myself 'this isn't real'," "I've been using alcohol or other drugs to make myself feel better," "I've been giving up trying to deal with it," "I've been saying things to let my unpleasant feelings escape," and "I've been criticizing myself." Approach and avoidance coping scales had satisfactory internal consistency αs = .90 and .81, respectively, in past studies with college students (McConaha et al., 2023). In this sample, approach coping α = .88, and avoidance coping α = .77, both showing satisfactory internal consistency.

Emotional Approach Coping. Participants' level of emotional approach coping was measured by asking participants to what extent they have been engaging in 8 emotional approach coping strategies from 1 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*; Stanton et al., 2000). Items were averaged to create a an emotional approach coping score. Items include "I take time to figure out what I'm really feeling," "I acknowledge my emotions," and "I allow myself to express my emotions." A prior validation study divided the Emotional Approach Coping scale into two sub scores, both of which had satisfactory internal consistency αs = .72 for Emotional Processing, and .82 for Emotional Expression. In this sample, emotional approach coping total score had satisfactory internal consistency, α = .93.

Alcohol Use

Heavy Episodic Drinking. To measure heavy episodic drinking, participants were asked to complete a modified daily drinking questionnaire (Collins et al., 1985). Students entered their alcohol use for each day of a typical one-week period during the last 30 days. Specifically, for each day of the week students reported the number of standard drinks they typically consumed following a visual representation and description of what constitutes a standard drink (e.g., 12 fluid ounces of regular beer, 5 fluid ounces of wine, and 1.5 fluid ounces of distilled

spirits/liquor). Heavy episodic drinking during the week was defined as at least one day with 4 + drinks for women/5+ drinks for men (Wechsler et al., 1994).

Risky Alcohol Use. To measure risky alcohol use, a modified version of U.S. AUDIT (U.S. version of the Alcohol Use Disorders Identification Test; Babor et al., 2016) was used. This is a widely-used screening measure for unhealthy alcohol use, defined as risky or hazardous consumption or an alcohol use disorder. The US-AUDIT has ten items; the first three items assess drinking behavior on a 7-point scale from 0 to 6, with a higher score indicating higher alcohol use. Items 4 through 8 assess negative consequences from alcohol use on a 5-point scale from 0 to 4, with a higher score indicating more frequent negative consequences. Items 9 and 10 assess interpersonal consequences on a 3-point scale from 0 to 4, with a higher score indicating higher consequences. Negative consequences assessed include how often they have failed to do what was expected of them because of drinking, how often they have felt guilt or remorse after drinking, and whether a relative, friend, doctor or other health care worker has been concerned about their drinking. A total score from 0 to 7 indicates low-risk consumption, 8-14 indicates hazardous or harmful alcohol use, and 15 or more indicates likelihood of alcohol dependence. In this sample, this scale had satisfactory internal consistency, $\alpha = .83$.

Analysis plan

Logistic Regression in SPSS (IBM Corp, 2021) was used to test the hypotheses regarding heavy episodic drinking because this is a binary outcome (yes or no). Linear Regression in SPSS (IBM Corp, 2021) was used to test the hypotheses regarding risky alcohol use, as this is a continuous outcome variable. All analyses controlled for gender, due to prior studies finding gender differences in stress levels and alcohol use (O'hare & Sherrer, 2000; Lee et al., 2018;

DiBello et al., 2018). I tested for missing data and use maximum likelihood or multiple imputation if needed following recommendations for missing data (Graham, 2009).

Preliminary analysis

Preliminary analysis assessed descriptive statistics, such as means and standard deviations for continuous variables, and frequency and proportions for binary/categorical variables. Linear regression analysis has an assumption of linearity, which I will assess for by plotting observed versus predicted values for a consistent linear pattern. The assumption of homoscedasticity was tested by visual inspection of a residual plot. VIF (Variance Inflation Factor) was used to test assumptions regarding multicollinearity. The assumption of normality for linear regression will be tested using the skewness statistic. Logistic regression has similar, but not as strict, assumptions as linear regression (Garson, 2016). There is no assumption of normality because the outcome variable is distributed as 0-1. There is no assumption of homogeneity of variance because the variances of predictors are not required to be the same at both levels of the DV. There is an assumption of independence of observations for both linear and logistic regression. This assumption is the most difficult to test and may be the least tenable given all students will be Auburn University students. To increase the possibility of meeting this assumption, I will not attempt to enroll students with very close connections, e.g., siblings or roommates. There is also the assumption there is no multicollinearity between predictors. To test this assumption, I correlated the predictor variables and used the VIF (Variance Inflation Factor), as with linear regression. I calculated Cronbach's α for all measures.

Hypotheses tests.

For the outcome variable of alcohol use, I entered the control variable (gender) in Block 1 of a logistic regression model. To test hypotheses about direct effects (i.e., hypotheses 1-4) I

entered predictors in Blocks 2 and 3, after centering each variable. Hassles, approach, avoidance, and emotional approach coping were entered into block 2. Role transitions stress and negatively evaluated role transitions were entered into separate models in block 3. To test hypotheses about stress buffering (i.e., hypotheses 5-7), interaction terms (centered predictor x centered moderator) were entered in Block 4. For the outcome variable of risky alcohol use, the above procedures were repeated in a Linear regression.

Chapter 4

Results

Preliminary Analysis

Multicollinearity between predictors was tested using VIF (Variance Inflation Factor). All VIFs were 5 or lower, indicating no problems with multicollinearity for either linear or logistic regression (Menard, 2001). All outcome variables in the linear regression analysis had skewness statistics with an absolute value less than 2, indicating an acceptable distribution of responses, i.e., no violation of the assumption of normality. Linear regression also has the assumption of linearity between variables which was examined by visual inspection of scatterplots, which showed the variables being approximately linear. The assumption of homoscedasticity was examined by visual inspection of a residual plot, which showed residuals appearing randomly dispersed with no clear patter, indicating acceptable homoscedasticity. The assumption of independence of observations is assumed to be met, as participants completed the survey independently. All variables contained less than 10% missing data, which Graham (2009) suggests can be ignored without biasing results.

Descriptive Statistics

Approximately one-third of participants (33%) reported having engaged in heavy episodic drinking in the last month. The mean Hassles Scale score within this study was 37.31 (*SD* = 18.85, m*in* = 0, *max* = 101). The mean avoidance coping score was 1.85 (*SD* = 0.48, *min* = 1.00, *max* = 3.20), mean approach coping score was 2.34 (*SD* = 0.61, *min* = 1.00, *max* = 4.00), and mean emotional approach coping was 2.16 (*SD* = 0.76, *min* = 1.00, *max* = 4.00). The mean risky alcohol use score was 7.20 (*SD* = 6.21, *min* = 0, *max* = 33), sitting right at the cut off for risky use. The mean number of role transition stressors reported by students was 3.06 (*SD* =

2.82, *min* = 0, *max* = 14), and the mean number of negatively evaluated role transition stressors were 1.56, (*SD* = 1.82, *min* = 0, *max* = 8).

Hypothesis Tests

Below results are presented for each hypothesis from the series of four hierarchical linear and/or logistic regressions. The four models had the same gender covariate, coping, and hassles, and differed based on which role transitions stressor variable was included as a predictor (because role transitions and negatively-evaluated role transitions were two ways to calculate the total score of this measure) and either of two outcomes (binary heavy episodic drinking or continuous risky alcohol use). Full hierarchical regression results are in Table 3 for Model 1 the logistic model with the role transitions predictor and heavy episodic drinking outcome, Table 4 for Model 2 the logistic model with the negatively evaluated role transitions predictor and heavy episodic drinking outcome, Table 5 for Model 3 the linear model with the role transitions predictor and risky alcohol use, and Table 6 for Model 4 the linear model with the negatively evaluated role transitions predictor and risky alcohol use outcome.

Stressors and Alcohol Use

Role transitions were not significantly associated with heavy episodic drinking (b = 0.02, SE = 0.06, p = .701, OR = 0.76) or risky alcohol use (b = 0.03, SE = 0.17, p = .883, β = -.02). Negatively evaluated role transitions were not associated with heavy episodic drinking (b = 0.02, SE = 0.10, p = .808, OR= 1.02), or risky alcohol use (b = -0.13, SE = 0.26, p = .610, β = -.04). Hassles were not related to heavy episodic drinking (b = 0.01, SE = 0.01, p = .302, OR = 1.01), or risky alcohol use (b = 0.03, SE = 0.03, p = .336, β = .08).

Coping and Alcohol Use

Avoidant coping (b = 0.69, SE = 0.43, p = .109, OR = 1.99), approach coping (b = -0.68, SE= 0.38, p = .077, OR = 0.51), and emotional approach coping (b = -0.26, SE = 0.28, p = .356, OR = 0.77) were not associated with heavy episodic drinking. Emotional approach coping was also not associated with risky alcohol use (b = -0.18, SE = 0.72, p = .801, β = 0.02). However, avoidant coping (b = 3.74, SE= 1.17, p = .002, β = .30) and approach coping (b = -2.71, SE = 0.99, p = .007, β = -.27) were associated with risky alcohol use.

Interactions

There was no significant role transitions x avoidance coping interaction for heavy episodic drinking (b = -0.20, SE = 0.14, p = .144, OR = 0.82), or for risky alcohol use (b = -0.08, SE = 0.36, p = .823, β = -.02). There was also no significant role transitions x approach interaction for heavy episodic drinking (b = -0.02, SE = 0.15, p = .919, OR = 0.99), or for risky alcohol use (b = -0.24, SE = 0.41, p = .562, β = -.07). There was no significant role transitions x emotional approach interaction for heavy episodic drinking (b = 0.12, SE = 0.12, p = .327, OR = 1.13), or for risky alcohol use (b = 0.02, SE = 0.31, p = .956, β = .01).

There was no significant negatively evaluated role transitions x avoidance coping interaction for heavy episodic drinking (b = -0.41, SE = 0.26, p = .114, OR = 0.66), or for risky alcohol use (b = -0.64, SE = 0.65, p = .320, β = -.09). There was also no significant negatively evaluated role transitions x approach coping interaction for heavy episodic drinking (b = -0.30, SE = 0.26, p = .261, OR = 0.75), or for risky alcohol use (b = -0.19, SE = 0.63, p = .767, β = -.03). There was no significant negatively evaluated role transition x emotional approach coping interaction (b = 0.58, SE = 0.51, p = .262, β = .10) for risky alcohol use. However, the negatively evaluated role transition x emotional approach coping interaction was significant for heavy

episodic drinking, such that heavy episodic drink was greater under higher levels of emotional approach coping (b = 0.46, SE = 0.22, p = .039, OR = 1.58).

There was no significant hassles x avoidance coping interaction for heavy episodic drinking (b = 0.01, SE = 0.03, p = .807, OR = 1.01), or for risky alcohol use (b = 0.03, SE = 0.06, p = .598, β = .07). There was no significant hassles x approach coping interaction for heavy episodic drinking (b = 0.02, SE = 0.02, p = .337, OR = 1.02), or for risky alcohol use (b = 0.02, SE = 0.06, p = .718, β = .05). There was no significant hassles x emotional approach coping interaction for heavy episodic drinking (b = -0.01, SE = 0.02, p = .578, OR = 0.99), or for risky alcohol use (b = -0.01, SE = 0.03, p = .804, β = -.02). In summary, there was little support for study hypotheses with the exception of significant relationships between avoidant coping and risky alcohol use, approach coping and risky alcohol use, and a significant interaction term negatively evaluated role transitions x emotional approach coping on heavy episodic drinking.

Chapter 5

Discussion

This study was one of the first to test relationships between stressors, coping orientation, and alcohol use, specifically testing the links between stress (role transitions, negatively evaluated role transitions, and daily hassles), coping (approach, avoidance, and emotional approach) and alcohol use (heavy episodic drinking, and risky alcohol use) in a sample of emerging adult college students. This study was designed to expand on prior research, which has often had mixed results regarding the association between stress and alcohol use (e.g., Pohorecky, 1991; Becker et al., 2011; Cho et al., 2023; Patrick et al., 2018; Alem et al., 2016; Patrick et al., 2018), perhaps due to fewer studies evaluated the relative impact of coping (e.g., Corbin et al., 2013).

Results of hypothesis testing generally supported null hypothesis throughout, contrary to expectations. Role transitions, negatively evaluated role transitions, and hassles did not have significant relationships with heavy episodic drinking or risky alcohol use. Avoidance coping was not related to heavy episodic drinking, but was significantly, positively associated with risky alcohol use. Approach coping was not related to heavy episodic drinking, but was significantly, inversely associated with risky alcohol use. Emotional approach coping was not related to heavy episodic drinking or to risky alcohol use. Emotional approach coping did, however, moderate the relationship between negatively evaluated role transitions and heavy episodic drinking such that this relationship was stronger for those with higher levels of emotional approach coping. No other interaction terms were significant. The following sections will discuss findings regarding heavy episodic drinking, then about stress, followed by coping main effects, then stress x coping interactions, and finally regarding gender.

Heavy Episodic Drinking and Risky Alcohol Use

A majority of participants (67%) in this study did not report engaging in heavy episodic drinking, and the average score for risky alcohol use (7.2) was right at the cut-off for risky use. Although these numbers are comparable to other studies with college student heavy episodic drinking (e.g., CBHSQ, 2023) and risky alcohol use (e.g., Verhoog et al., 2020), the high number of students included in this study who did not engage in heavy episodic drinking (e.g., relatively smaller group of heavy episodic drinking) and engaged in low-risk alcohol consumption may have reduced the ability to detect significant relationships in this sample. Future studies should consider recruiting students with a history of heavy episodic drinking and/or risky alcohol use, or purposely sample students with a wider range of drinking behaviors. Additionally, stress may impact drinking behavior in a way that does not cross the threshold into risky alcohol use or heavy episodic drinking. For example, there could be a relationship with several other drinking-related variables, such as overall quantity or frequency of alcohol use, or with likelihood to drink alone, but not with risky alcohol use or heavy episodic drinking. Therefore, future studies should also look at other types of drinking behaviors including qualitative reports of alcohol use behavior.

Stress

Contrary to the hypotheses of this study, none of the study measures of stressors were directly associated with either heavy episodic drinking or risky alcohol use. The results of this study align with prior research that has not found an association between various types of stress and alcohol use (O'hare&Sherrer, 2000; Bresin et al., 2018; Fruehwirth et al., 2021; Cadigan et al., 2021), and differs from prior research that did find an association between stress and alcohol use (Patrick et al., colleagues, 2020; Cabrera & Palm Reed, 2019; Bresin et al., 2018; Russell et al., 2017; Cho et al., 2023; Patrick et al., 2018; Allem et al., 2016; Schry & White, 2013; Russell et al., 2017). The results of this study add to the body of evidence suggesting no strong

relationship between transitions stress and drinking among mostly White, women college student emerging adults.

The participants of this study reported an average of three role transitions, and only one negatively evaluated role transition, which is generally consistent with past research (e.g., Allem et al., 2015; Cadigan et al., 2021). The most common role transition stressors reported by participants of this study were classes starting again after a break (35%), failed a test or assignment (30%), and moved into a new place to live (20%). All other role transitions were endorsed by less than 16% of participants. Despite the number of role transition stressors and negatively evaluated role transition stressors being comparable to past studies (e.g., Allem et al., 2015; Cadigan et al., 2021), the relatively low number of participants who had experienced role transitions may have contributed to the lack of relationship found between role transitions and heavy episodic drinking, as well as risky alcohol use. Future studies should attempt to recruit more participants, e.g., sampling first-year or transfer students near the beginning of their first semester, who have experienced recent role transition stressors to further examine this relationship.

On the other hand, it is important to note that several role transitions are related to events that might happen anytime during college; the most common negatively evaluated role transition stressors were failing a test or assignment (28%) and struggling to make friends on campus (14%). All other role transition stressors were negatively evaluated by less than 5% of participants; this low number of negatively evaluated role transitions may have contributed to the lack of relationship found with heavy episodic drinking and risky alcohol use. That is, the transitions could have been normative and expected, and did not cause a stress response. Future studies should consider enrolling participants who specifically endorse having experienced a

negatively evaluated role transition to further examine this relationship—or recruit students with a history of heavy drinking. Additionally, it may be the case that factors outside of just the quantity or evaluation of role transition stressors have a larger impact on college student alcohol use. For example, the amount of time taken up by the stressor, the student's appraisal of their resources to manage the stressor, or the emotional response to a stressful event. Future studies should consider adding these considerations to measures of role transition stressors.

Students had several hassles, that is they reported an average of 10 hassles (of a possible 47) in the last month. The most commonly endorsed hassles for participants of this study were classes or class workload (50%), one's own physical appearance (48%), having too many things to do (48%), not getting enough sleep (47%), troubling thoughts about the future (42%), and wasting time (41%). All other hassles were endorsed by less than 40% of participants. Many of the most commonly endorsed hassles appear to be related to academics, which may motivate students to engage in less alcohol use to improve their school performance. The average score on the measure of hassles was 37 (of a possible 188), indicating that overall students did not report their hassles as very stressful. Future studies should attempt to recruit more participants who endorse other types of hassles or stressful events (a range of academic stressors may be worth examining) to further test the relationships between hassles/stress and heavy episodic drinking and risky alcohol use.

Another consideration was that this study examined stressors, i.e., events, rather than the subjective impact of stress. A measure of the subjective impact may be a more useful measure of stress with respect to leading to heavy drinking as a way to reduce unpleasant emotional states. There are several ways to assess the subjective impact of stress that may be useful for a new or adapted stress measure. For example, the amount of time taken up by managing stressors, the

adverse impact to overall quality of life, or the social impact of a stressor are factors that should be considered in future studies. Measures could ask students to quantify how much time they spend thinking about or coping with a stressor, or to rank how much of an impact a stressor has had on their social functioning or activities of daily living (i.e., To what extent has this stressor impacted your ability to eat, sleep, take care of your hygiene, or complete day to day tasks?) may provide a more useful measure of the impact of stressors. Additionally, other broad categories of stress may interact with drinking behavior, so future studies should continue to examine other measures of stress with alcohol use, such as discrimination and acculturative stress for marginalized populations. Potential measures of discrimination stress to use in studies with members of marginalized groups include the Perceived Discrimination Scale (Williams et al., 1997), Trauma Symptoms of Discrimination Scale (Willimas et al., 2018), Multidimensional Acculturative Stress Inventory (Rodriguez et al., 2002), and the Social Attitudinal, Familial, Environmental Acculturative Stress Scale (Mena et al., 1987). Examining the relationship between discrimination and/or acculturative stress and alcohol use, including how coping orientation may influence this relationship, would further expand our knowledge base on the relationship between stress and alcohol use.

Furthermore, the timing of stressors may be important to establish a relationship with drinking. For example, if a stressor occurs on a Friday afternoon before a student is already planning to go to a bar with friends Friday evening, then stress may have a larger impact on drinking behavior than if it occurs on Tuesday morning because of the temporal distance—or a stressful event may prompt a drinking occasion, such as when a student goes to a bar after failing a test on Tuesday afternoon. Using a longitudinal design with time-sampling methods in which students are asked to report their stressors and substance use on a daily basis through an app or

webpage may allow researchers to draw conclusions about the temporal relationship between stressors and alcohol use. This information could then be used to help tailor coping interventions to address the temporal relationship between stressors and alcohol use, potentially making them more effective. For example, providing psychoeducation to students about when is the best time to engage approach coping skills to prevent negative impacts from stressors could assist students in implementing these coping skills effectively.

Coping

Hypotheses about the relationship between coping and drinking were partially supported. Risky alcohol use had significant main effects relationships with avoidance and approach coping. Avoidance coping was directly, positively associated with risky alcohol use, as hypothesized. The avoidance coping skills participants most commonly endorsed engaging in a medium amount or a lot were doing something to think less about it (51%), criticizing oneself (38%), and turning to work or other activities to take one's mind off things (35%). Because risky alcohol use may be an indication of using alcohol as an avoidant coping strategy, students who engage in more avoidance coping skills generally may be more at risk for engaging in risky alcohol use. Avoidant coping is characterized by efforts to disengage from stressors rather than approaching them, and alcohol use may function as a temporary way to avoid or disengage from stressors. Students who engage in alcohol use as an avoidant coping strategy may fall into a cycle of drinking to avoid a stressor, the stressor still being present after drinking, continuing to drink to avoid the stressor, etc. Overtime, this may lead to an increase in overall alcohol use, eventually crossing into risky alcohol use.

Approach coping was inversely associated with risky alcohol use, as hypothesized. The approach coping skills participants most commonly endorsed engaging in a medium amount or a

lot were looking for something good in what is happening (47%), trying to see things in a different, more positive light (44%), trying to come up with a strategy about what to do (44%), and thinking hard about what steps to take (43%). Having approach coping skills means a student is likely able to effectively manage stressors, meaning that they are less likely to engage with alcohol use as an avoidant coping strategy. The result that coping orientation is related to risky drinking, despite stressors not being related may indicate that a student's disposition toward coping may be more indicative of their drinking behavior than the number of stressors they happen to currently be experiencing. This was a cross-sectional study, which asked students to reflect on their stressors and drinking behavior over the last month, which may have also impacted results. Collecting longitudinal data in future studies may help provide more information on how these relationships look in real time. The results of this study align with prior research that has found a relationship between coping orientation and risky alcohol use (Metzger et al., 2017; Stevenson et al., 2020; Briton, 2004). The significance of this relationship despite not finding a significant relationship between coping orientation and heavy episodic drinking may indicate that this relationship exists even when the quantity of someone's alcohol use does not extend into heavy episodic drinking, which is classified as five or more standard drinks for men in one sitting, and four or more drinks for women in one sitting. For example, coping orientation may have an impact on other measures of drinking quantity such as number of drinking days, number of drinks in a week, or other alcohol use related variables such as likelihood of drinking alone and negative consequences from alcohol use.

This study did not find an association between emotional approach coping and risky alcohol use. The emotional approach coping skills participants most commonly endorsed engaging in a medium amount or a lot were acknowledging their emotions (42%), realizing that

their feelings are valid and important (40%), allowing themselves to express their emotions (31%), and taking time to express their emotions (30%). The finding that approach coping was related to risky alcohol use, but emotional approach coping was not may indicate that one's broad approach to coping is an important factor related to alcohol use, but not the narrower view of emotional approach coping. It may also be the case that the effectiveness of emotional approach coping is depended on contextual factors, like individual differences in emotion regulation, other coping skills of the individual, or social support. Additionally, this measure focuses on emotional awareness and expression, but may not fully capture other aspects of emotional approach coping, such as engaging in emotion regulation.

This study did not find an association between any coping orientations and heavy episodic drinking. This differs from prior research that found a relationship between coping orientation and quantity of alcohol use (Britton et al., 2004; Stevenson et al., 2020). These results could indicate that coping orientation is related to number of drinks but not to the extent of crossing the threshold into heavy episodic drinking, so the threshold for heavy episodic drinking may not have been useful for this sample. For example, there could be a relationship between the number of drinking days and coping orientation or between number of drinks in a week and coping orientation; future studies should examine the relationships between these variables. It is also important to note that a low number of participants in this study endorsed heavy episodic drinking, which may have limited the ability to detect relationships to heavy episodic drinking. Past research has found mixed results when examining the relationships between coping, stress, and alcohol use (Corbin et al., 2013), the results of this study suggest that there may not be a relationship between stress and alcohol use, but coping may be related to alcohol use in some contexts. Because of the negative health effects associated with heavy episodic drinking

(Hingson et al., 2017; WHO, 2018), future research should continue to examine possible risk and protective factors around drinking behavior and related consequences.

Interaction Effects

A small but significant interaction effect was found for heavy episodic drinking between negatively evaluated role transitions and emotional approach coping, however, in the opposite direction than hypothesized. It was hypothesized that the associated between negatively evaluated role transitions and heavy episodic drinking would be weaker under conditions of high relative to low emotional approach coping. However, the opposite pattern was found, such that the relationship was stronger under conditions of high relative to low emotional approach coping, as can be seen in Figure 1. Because negatively evaluated role transitions rely on participants subjective evaluation of their stressors, it may be the case that people who engage in more emotional approach coping may be more likely to negatively evaluate their role transitions because they are more aware of their emotions. This may account for the results that emotional approach coping was associated with a stronger relationship between negatively evaluated role transitions and heavy episodic drinking. Another possibility is that that an unmeasured third variable is causing people with high stress to have high emotional approach coping and drinking. There are many possible third variables but as one example, people who are overwhelmed by stressful events may try to cope in multiple ways, in this case both by increasing emotional approach coping and by drinking more. Finally, out of 18 independent interactions tested, this may have reached statistical significance due to chance. Further study and replication is needed to confirm the verity of this finding.

The interaction terms between role transitions and approach, avoidance, and emotional approach coping were not related to heavy episodic drinking or risky alcohol use. Additionally,

the interaction terms between negatively evaluated role transitions and approach and avoidance coping were not related to heavy episodic drinking. The interaction terms between negatively evaluated role transitions and approach, avoidance, and emotional approach coping were also not related to risky alcohol use. The interaction terms between daily hassles and approach, avoidance, and emotional approach coping were not related to heavy episodic drinking or risky alcohol use. These results suggest that it is possible that coping does not have a moderating or intensifying effect with stress as theorized. However, the lack of interaction effects found in this study could also have been impacted by the low number of stressors and the somewhat lower amount of heavy episodic drinking reported by participants. Additionally, it may be the case that if stress and coping interact to influence alcohol use, it does not cross the threshold into heavy episodic drinking or risky alcohol use. Future studies should attempt to recruit students who have already been identified as engaging in heavy episodic drinking and/or risky alcohol use to examine possible predictors of this drinking behavior.

Gender

Women made up a significantly larger portion (74%) of this sample than men, which may be important to consider in interpreting the lack of gender differences found in this study. The over-representation of women in this sample is likely reflecting the gender breakdown (73% women, 27% men in 2023) of the College where data was collected, even though the University as a whole has close to even numbers of women and men undergraduates (Auburn University, 2024). No variables in this study, including alcohol use, stress, and coping, had significant gender differences, which departs from many past studies that have found gender differences in some of these variables (e.g., O'hare & Sherrer, 2000; Lee et al., 2018; DiBello et al., 2018). Sampling from all undergraduates would likely have resulted in a more even breakdown by

gender, which may have enabled this study to find significant gender differences in heavy drinking or other variables. However, there has been some recent evidence that gender gaps in alcohol use are declining, and recent nationally representative U.S. studies show that differences have largely disappeared in recent years (e.g., White, 2020). For emerging adults, there is some evidence that women are drinking heavily at rates even higher than men (e.g., White, 2020). The lack of gender differences in this study are consistent with the overall trends in those more recent national surveys, which shows women and men appear to be moving toward one another in terms of drinking patterns and risks. Is it important to note that there are still gender-based disparities in adverse consequences or harms from drinking, so future research should examine factors that may be related to alcohol use, as well as disparities in health related to alcohol for women. This knowledge may inform prevention/intervention strategies on college campuses.

Limitations

This study should be considered in light of several limitations. This study was a non-representative sample of students from a single college within a large, public university in the southeastern U.S. Therefore, future studies should consider random/representative sampling strategies, recruiting from other parts of the U.S., and/or from different types of institutions. Additionally, the racial/ethnic make-up of this sample was predominantly White/European American, and future studies should consider recruiting strategies that may capture more participants from other racial and ethnic backgrounds. The participants of this study were also predominantly Heterosexual/straight; given the impact of minority stress and its relationship with alcohol use in the LGBT+ community (Schipani-McLaughlin et al., 2022) and other similar effects of discrimination for marginalized and underrepresented racial/ethnic minority groups (Buckner et al., 2022, Pittman et al., 2019), future studies should take steps to recruit more

participants from this population, or to have studies that are delimited to LGBT+ or racial/ethnic minority samples to better understand alcohol and related risks for these marginalized groups. Additionally, future studies should consider examining these constructs in a non-college population to test whether their relationships differ in a community sample, which may have members with different types of stressors. This study utilized cross-sectional data collection, so temporal inferences could not be made. If future studies were to use longitudinal data collection across four years of college, this would likely provide insight into the normative trajectory for stress, coping orientation, and alcohol use, as well as their relationships to each other. As noted in the literature review, there are multiple potential measures of stress, coping, and drinking that could be used in future studies and may lead to different results. Given the history of mixed results in studying the relationship between stress and alcohol use, future studies should continue to examine how various types of stress and stressors may interact with alcohol and related consequences. Additionally, examining other reasons for drinking in college students such as entertainment, for leisure, as a social activity, or to celebrate may provide useful knowledge about possible contributing factors to alcohol use in this population.

Implications

There were significant relationships between approach and avoidant coping orientations with alcohol use, suggesting that these may be fruitful foci for intervention. Future clinical research with an experimental design comparing students who attend an intervention to teach approach coping skills and discourage avoidance coping to a control group who do not may also shed more light on the influence of coping orientation on stress levels and alcohol use. Future research should also consider examining other forms of substance use within this framework; specifically, cannabis use as recreational use becomes legalized in more states. Future studies

should also examine other reasons for using alcohol outside of coping with stress for this population, such as drinking as a social activity or to celebrate, which are common for emerging adult college students.

Given the relationships found between avoidance and approach coping and risky alcohol use, the results of this study may support the benefit of providing psychoeducation on coping orientation to college students. More specifically, teaching students approach coping skills such as utilizing emotional and instrumental support, planning, positive reframing, and acceptance. Teaching students the possible negative impacts of avoidance coping skills and assisting them in recognizing avoidance coping skills they may already be engaging in such as self-blame, venting, behavioral disengagement, denial, and self-distraction may also be beneficial for students. This is especially true given that emerging adults tend to use fewer approach coping strategies, and more avoidant coping strategies than other age groups (Villanueva-Blasco et al., 2022), and may therefore benefit from an intervention meant to address this. This may also be useful in promoting mental health generally.

There has been documented success with coping skills trainings for college students. For example, Long and colleagues (2021) evaluated a six-week intervention designed to enhance stress management, coping, and emotion regulation in college students. Participants were first-year students living in residence halls. The program integrated mindfulness practices (e.g., breathing exercises, body scans, yoga) with cognitive-behavioral coping strategies (e.g., cognitive reframing, emotion regulation, self-compassion). Each session focused on a specific theme, such as understanding stress responses, building emotional tolerance, and fostering compassion. These sessions also included experiential exercises and take-home practices. This program focused on enhancing mindfulness to foster present-moment awareness, self-regulation,

and adaptive appraisals of stressors. Results showed significant improvements in mindfulness, active coping, emotion regulation, self-compassion, and perceived well-being, which were maintained at a three month follow up.

As another example, Morales-Rodríguez & Morales-Rodríguez (2024) conducted a four-month psychoeducational program aimed at enhancing mindfulness, resilience, coping strategies, and communication skills in undergraduates. This program included weekly two-hour seminars that included some face-to-face activities and some online activities. Sessions focused on breathing techniques, emotional awareness, positive communication, cognitive restructuring, and mindfulness exercises. Participants were assessed before and after completing the program using self-report measures of mindfulness, self-efficacy, resilience, coping, and communication skills, and were compared to a control group of students who did not receive the intervention. Results showed statistically significant improvements in mindfulness, emotional expression, social support, cognitive restructuring, communication skills, and resilience. Maladaptive coping of social withdraw significantly decreased. Participants also reported high satisfaction with the program, reinforcing its value as a preventative tool for mental health in university settings.

There is also some evidence that online interventions can be beneficial. Harrer and colleagues (2018), tested the effectiveness of a seven-week internet and app-based intervention designed for college students with elevated stress levels. This intervention was grounded in cognitive-behavioral therapy, mindfulness, and self-compassion, and it offered interactive online modules with optional e-coach feedback. It targeted mechanisms like stress appraisal, emotional regulation, and self-care behaviors. When compared to a waitlist control group, participants who completed this intervention showed significantly reduced scores on self-report measures of

stress, depression, and anxiety, as well as improved academic performance and productivity. These results remained stable at a three-month follow-up.

The results of these studies support the use of psychoeducation-based interventions for improving college student's coping skills, which is likely to have a positive impact on their overall well-being, as well as decrease their likelihood for risky alcohol use. Additionally, given that a number of the stressors most endorsed by students were related to academics, timing these interventions just before periods when students are likely to experience the most stress, such as at the start of semesters or near finals, may be additionally beneficial. Many universities already incorporate some form of mental health or substance use prevention curriculum in their orientation procedures; psychoeducation on coping orientation could be a helpful addition. Furthermore, adding a brief coping measure as a standard screening tool used by college counseling centers may be clinically useful in providing a helpful starting place for clinical interventions for students who may be at risk for risky alcohol use.

Despite its limitations, this study furthers our knowledge of the relationships between stress, coping, and alcohol use and related consequences. This study did not find a relationship between any measure of stressors and alcohol use. Future studies should continue to examine varying types of stress and stressors, as well as other measures of alcohol use to further increase our understanding of this relationship. In this study, the only interaction effect that was significant was that of negatively evaluated role transitions x emotional approach coping on heavy episodic drinking. This effect occurred in the opposite direction than was hypothesized, as emotional approach coping strengthened the relationship between negatively evaluated role transitions and heavy episodic drinking. This may be attributable to the subjective self-report nature of both variables, as people who are likely to self-report engaging in emotional approach

coping may be more likely to be comfortable with unpleasant emotions, and therefore more likely to rate their role transitions as negative. This may also have made them more likely to engage in heavy episodic drinking when stressed by their negatively evaluated role transitions. Future studies should further examine the relationship between subjective self-report measures of stress and stressors with alcohol use to better understand this relationship. Additionally, gathering qualitative data in addition to quantitative may assist with understanding student's experience with this relationship.

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Table 1

*Participant Characteristics (*N *=185)*

Characteristics	*N*	*%*
Women	138	74
Men	47	25
Black/African American	10	5
Asian/Pacific Islander	10	5
Hispanic/Latino/a/e	4	2
White/European American	157	85
Biracial/Multiracial	2	1
First year students	52	28
Second year students	35	19
Third year students	47	25
Fourth year or higher	51	28
Bisexual/pansexual	5	3
Heterosexual/straight	175	95
Questioning/other	1	1
Single (not dating)	90	49
Dating casually	17	9
Dating seriously	76	41
Engaged	2	1
No children	184	100
Live with parents	37	20
Live with siblings	16	9
Live with other relatives	1	1
Live with friends/roommates	141	76
Live with dating partner	9	5
Live with spouse/fiancé/committed partner	1	1
Live alone	23	12

Note. Percentages may not sum to 100 because some students preferred not to respond.

Table 2

*Participant Variables (*N *=185)*

Characteristics	*N*	%	α	*Min*	*Max*
Heavy Episodic Drinking	61	33	--	--	--
	M	*SD*	α		
Age	20.29	1.65	--	18	25
Hassles	37.31	18.85	.93	0	101
Avoidance coping	1.85	0.48	.77	1.00	3.20
Approach coping	2.34	0.61	.88	1.00	4.00
Emotional approach coping	2.16	0.76	.93	1.00	4.00
Risky Alcohol Use	7.20	6.21	.83	0	33
Role transitions	3.06	2.82	.67	0	14
Negatively evaluated transitions	1.56	1.82	.64	0	8

Note. Cronbach's α was only calculated for multi-item scales.

Table 3.

*Model 1: Predictors of Heavy Episodic Drinking – Role Transition Stressors (*N = *185).*

	Step 1				Step 2				Step 3				Step 4			
Predictor	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*
Gender	-0.01	0.39	.980	0.99	-0.15	0.40	.720	0.87	-0.14	0.41	.726	0.87	-0.06	0.42	.881	0.94
HAS					0.01	0.01	.302	1.01	0.01	0.11	.326	1.01	0.01	0.01	.342	1.01
AVC					0.69	0.43	.109	1.99	0.67	0.43	.125	1.94	-0.87	0.50	.083	2.38
APC					-0.68	0.38	.077	0.51	-0.67	0.38	.084	0.51	-0.73	0.42	.081	0.48
EAC					-0.26	0.28	.356	0.77	-0.27	0.28	.340	0.76	-0.34	0.31	.441	0.79
RT									0.02	0.06	.701	0.76	0.05	0.07	.421	1.06
RT x AVC													-0.20	0.14	.144	0.82
RT x APC													-0.02	0.15	.919	0.99
RT x EAC													0.12	0.12	.327	1.13
HAS x AVC													0.01	0.03	.807	1.01
HAS x APC													0.02	0.02	.337	1.02
HAS x EAC													-0.01	0.02	.578	0.99

Note. RT = Role Transitions. NERT = Negatively evaluated role transitions. HAS = Hassles. AVC = Avoidant Coping. APC = Approach Coping. EAC = Emotional Approach Coping. **Bold** shows significant relationships.

Table 4.

*Model 2: Predictors of Heavy Episodic Drinking – Negatively Evaluated Role Transition Stressors (*N *= 185).*

	Step 1				Step 2				Step 3				Step 4			
Predictor	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*
Gender	-0.01	0.39	.980	0.99	-0.15	0.40	.720	0.87	-0.14	0.41	.727	0.87	0.01	0.42	.981	1.01
HAS					0.01	0.01	.302	1.01	0.01	0.01	.303	1.01	0.01	0.01	.581	1.01
AVC					0.69	0.43	.109	1.99	0.69	0.43	.108	2.00	0.84	0.52	.103	2.38
APC					-0.68	0.38	.077	0.51	-0.68	0.38	.084	0.51	-0.72	0.43	.091	0.49
EAC					-0.26	0.28	.356	0.77	-0.27	0.28	.348	0.77	-0.16	0.32	.610	0.85
NERT									0.02	0.10	.808	1.02	-0.00	0.11	.978	1.00
NERT x AVC													-0.41	0.26	.114	0.66
NERT x APC													-0.30	0.26	.261	0.75
NERT x EAC													**0.46**	**0.22**	**.039**	**1.58**
HAS x AVC													-0.01	0.02	.781	0.99
HAS x APC													0.03	0.02	.198	1.03
HAS x EAC													-0.01	0.02	.685	0.99

Note. RT = Role Transitions. NERT = Negatively evaluated role transitions. HAS = Hassles. AVC = Avoidant Coping. APC = Approach Coping. EAC = Emotional Approach Coping. **Bold** shows significant relationships.

Table 5.

*Model 3: Predictors of Risky Alcohol Use – Role Transition Stressors (*N = *185).*

	Step 1				Step 2				Step 3				Step 4			
Predictor	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*
Gender	-0.13	1.03	.901	-.01	-0.38	1.00	.700	-.03	-0.38	1.00	.704	-.03	-0.45	1.03	.665	-.04
HAS					0.03	0.03	.336	.08	0.03	0.03	.349	.08	0.03	0.03	.387	.08
AVC					**3.74**	**1.17**	**.002**	**.30**	**3.71**	**1.19**	**.002**	**.30**	**3.71**	**1.30**	**.005**	**.30**
APC					**-2.71**	**0.99**	**.007**	**-.27**	**-2.69**	**1.00**	**.008**	**-.26**	**-2.71**	**1.04**	**.010**	**-.27**
EAC					-0.18	0.72	.801	0.02	-0.19	.73	.795	-.02	-0.10	0.75	.895	-.01
RT									0.03	0.17	.883	-.02	-0.01	0.18	.966	-.004
RT x AVC													-0.08	0.36	.823	-.02
RT x APC													-0.24	0.41	.562	-.07
RT x EAC													0.02	0.31	.956	.01
HAS x AVC													0.03	0.06	.598	.07
HAS x APC													0.02	0.06	.718	.05
HAS x EAC													-0.01	0.03	.804	-.02

Note. RT = Role Transitions. NERT = Negatively evaluated role transitions. HAS = Hassles. AVC = Avoidant Coping. APC = Approach Coping. EAC = Emotional Approach Coping. **Bold** shows significant relationships.

Table 6.

*Model 4: Predictors of Risky Alcohol Use – Negatively Evaluated Role Transition Stressors (*N = *185).*

	Step 1				Step 2				Step 3				Step 4			
Predictor	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*	*b*	*SE*	*p*	*β*
Gender	-0.13	1.03	.901	-.01	-0.38	1.00	.700	-.03	-0.41	1.00	.677	-.03	-0.35	1.02	.732	-.03
HAS					0.03	0.03	.336	.08	.03	.03	.335	.08	0.02	0.03	.430	.07
AVC					**3.74**	**1.17**	**.002**	**.30**	**3.72**	**1.18**	**.002**	**.30**	**3.55**	**1.29**	**.006**	**.28**
APC					**-2.71**	**0.99**	**.007**	**-.27**	**-2.71**	**1.00**	**.007**	**-.27**	**-2.51**	**1.04**	**.017**	**-.25**
EAC					-0.18	0.72	.801	0.02	-0.16	0.72	.822	-.02	-0.03	0.75	.972	-.00
NERT									-0.13	0.26	.610	-.04	-0.20	0.28	.478	-.06
NERT x AVC													-0.64	0.65	.320	-.09
NERT x APC													-0.19	0.63	.767	-.03
NERT x EAC													0.58	0.51	.262	.10
HAS x AVC													0.03	0.06	.572	.06
HAS x APC													0.01	0.06	.905	.01
HAS x EAC													-0.01	0.03	.867	-.02

Note. RT = Role Transitions. NERT = Negatively evaluated role transitions. HAS = Hassles. AVC = Avoidant Coping. APC = Approach Coping. EAC = Emotional Approach Coping. **Bold** shows significant relationships

Figure 1

Emotional Approach Coping moderation on negatively evaluated role transitions and heavy episodic drinking