

2020

# Towards a Developmental Theory of Coping: The Structure and Function of Coping in Emerging Adults

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TOWARDS A DEVELOPMENTAL THEORY OF COPING: THE STRUCTURE AND  
FUNCTION OF COPING IN EMERGING ADULTS

A Dissertation Presented

by

Virginia Diane Peisch

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy  
Specializing in Psychology

August, 2020

Defense Date: May 14, 2019  
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## ABSTRACT

Coping plays an important role in human adaptation and well-being. However, surprisingly little is currently known about the normative development of coping. The 'coping families' framework, outlined by Skinner and colleagues (2003), provides a promising approach to the study of coping in developmental samples. The current examination tested the coping families approach in emerging adults. A total of 425 individuals (63.5% female), aged 18-31 years (*M* age 25.04 years), were recruited online through Amazon's Mechanical Turk (MTurk) to complete questionnaires on demographic information, personality, childhood adversity, stress, coping behaviors in response to an interpersonal problem, mental health, emerging adult identity, substance use behaviors, and competence. Exploratory factor analysis (EFA) examined the structure of coping behaviors. Bivariate correlations were used to examine associations between age and coping behaviors, and regression analyses examined associations between coping behaviors and various adaptive and maladaptive outcomes. EFA results yielded partial support for the coping families approach. Correlations between age and coping were not significant, suggesting that there were no meaningful age shifts in coping in the present sample. Lastly, regression analyses suggested that coping behaviors significantly predicted some adaptive and maladaptive outcomes, after statistically accounting for potential confounding variables, such as personality and childhood adversity. Findings are integrated within existing research and implications for applied work are discussed.

## **ACKNOWLEDGEMENTS**

I would like to warmly thank my advisor, Dr. Keith Burt, for his thoughtful, attentive, and generous guidance throughout the development of my dissertation study. I would also like to thank my dissertation committee members, Dr. Jamie Abaied, Dr. Rex Forehand, Dr. Andrew Rosenfeld, and Dr. Lawrence Shelton, for their constructive feedback and helpful insight. Thank you to the Department of Psychological Sciences at the University of Vermont for providing funding for this research project. I also owe gratitude to my family and friends for providing consistent love and support throughout my life and educational career.

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## **Introduction**

Coping responses occur daily in individuals of all ages; these behaviors are fundamental to human adaptation and well-being (Thompson et al., 2010; Skinner & Zimmer-Gembeck, 2016). Here, coping is defined as “action regulation under stress, which includes coordination, mobilization, energizing, directing and guiding behaviors, emotion and orientation when responding to stress” (Zimmer-Gembeck et al., 2014, p. 65). Despite the importance of coping across the lifespan, surprisingly little is currently known about the development of coping (Skinner & Zimmer-Gembeck, 2016). Moreover, given that increased levels of stress are often reported by emerging adults (Coccia & Darling, 2016; Pierceall & Keim, 2007), it is of particular interest to understand how this segment of the population is responding to stress. Are emerging adults developing new ways of coping or using a wider array of coping behaviors in response to greater levels of perceived stress during this life stage?

### **Stress and Coping**

Scholarly interest in stress and coping is longstanding and, historically, these two concepts have often been considered together (Frydenberg, 2014). Stress can be defined as “environmental events or chronic conditions that objectively threaten the physical and psychological health or well-being of individuals” (Grant et al., 2003, p. 449), and various lines of research have indeed established a connection between stress and physical and/or mental health problems (e.g., Compas, 2006; Dohrenwend, 2000; Grant et al., 2003; Thoits, 2010). Coping, in effect, is conceptualized as the buffer between stress on the one hand and psychopathology or resilient functioning on the other hand (e.g., Compas & Reeslund, 2009; Curtis & Cicchetti, 2007; Jaser & White, 2011). One of



the oldest and most widely-cited definitions of coping illustrates the close connection between stress and coping: Lazarus and Folkman (1984) conceptualized coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). This definition highlights the transactional process between the individual and his/her environment. In order to cope, an individual must first appraise an event as being stressful in that it exceeds the resources available to them (Lazarus & Folkman, 1984).

Scholars have distinguished between ‘dispositional coping’ and ‘situation-specific coping’ (Moos, Holahan, & Beutler, 2003). Whereas ‘dispositional coping’ describes an individual’s trait-like, general coping tendencies, ‘situation-specific coping’ focuses on the individual’s coping responses to a specific stressor (Moos et al., 2003). Support for the ‘situation-specific’ view comes from research showing that coping responses vary depending on the type and severity of stress with which the individual is confronted (Compas, Forsyth, & Wagner, 1988; Irion and Blanchard-Fields, 1987; Zimmer-Gembeck, Skinner, Morris, & Thomas, 2013). Zimmer-Gembeck and colleagues (2013) found, for example, that support-seeking and opposition (e.g., venting, blaming others)—two specific coping behaviors—were more commonly employed when young adolescents were confronted with peer-related than with parent-related stress. Similarly, Compas, Forsythe, and Wagner (1988) found that college students reported using different coping responses across academic and social domains. Further, Irion and Blanchard-Fields (1987) reported that coping responses depended on the severity of the stress source; ‘instrumental coping’ strategies were used in less threatening situations whereas ‘palliative coping’ strategies were used in more threatening situations. Accordingly,

several coping questionnaires, such as the Responses to Stress Questionnaire (RSQ; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000) require participants to report their coping behaviors in response to a specific source of stress, such as illness, academic stress, or interpersonal problems. Taken together, it is plausible to expect that individuals will manifest different coping patterns across different types of stress.

### **Conceptualization of Coping**

There has been little consensus on how to best define and measure the construct of coping (Compas et al., 2001; Compas et al., 2014; Frydenberg, 2014; Skinner & Zimmer-Gembeck, 2016). For example, in their extensive review of the literature, Compas and colleagues (2001) concluded that “there has been little consensus regarding the dimensions or categories that best discriminate among different coping strategies” (p. 5). The continued debate can at least partially be attributed to the fact that coping describes many complex processes, some of which occur privately (e.g., changing cognitions) and some of which are readily observed (e.g., going for a run; Skinner & Zimmer-Gembeck, 2016). Regrettably, the use of different coping definitions and measures has hindered a meaningful aggregation of knowledge across studies (Frydenberg, 2014; Skinner & Zimmer-Gembeck, 2016). Somewhat related, scholars have lamented the fact that assessments of coping, most of which rely on self-report, often have poor psychometric properties (see Parker & Endler, 1992).

In recognizing the conceptual and methodological challenges in the coping literature, Skinner, Edge, Altman, and Sherwood (2003) reviewed the knowledge base and provided concrete recommendations for future work. For example, they advised that coping research should not conceptualize coping as occurring in distinct ‘higher-order’

dimensions—a recommendation that had already been made elsewhere (e.g., Compas et al., 2001). Higher-order conceptualizations of coping include, for example, approach versus avoidance (e.g. Roth & Cohen, 1986), problem-focused versus emotion-focused (e.g., Folkman & Lazarus, 1980), and engagement versus disengagement (Compas et al., 2001) coping. A primary concern is that it is often difficult to definitively assign a given coping behavior (e.g., reaching out to a friend, wearing lucky socks, thinking about a problem over and over) to one specific, higher-order category of coping (e.g., avoidance, emotion-focused). The function of a given coping behavior (‘instance of coping’) likely depends on contextual factors, including the type of stress with which the individual is confronted (Skinner et al., 2003).

### **The Coping Families**

In an attempt to address some of the noted shortcomings in the conceptualization and assessment of coping, Skinner and colleagues (2003) identified 12 ‘coping families.’ This hierarchical system of coping was established based on the authors’ comprehensive review of coping research that had used a wide range of methodologies, including exploratory factors analysis (EFA), confirmatory factor analysis (CFA), and rational sorting (Skinner et al., 2003). The 12 coping families describe a wide range of coping responses, most namely: problem-solving<sup>1</sup>, information seeking, self-reliance, support-seeking, accommodation, negotiation, delegation, isolation, helplessness, escape, submission, and opposition (Skinner et al., 2003). These coping families reflect a comprehensive list of potential coping responses that represent “functionally

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<sup>1</sup>“Problem-solving” as referred to here is distinct from “problem-focused” coping. Problem-solving describes narrow efforts to solve a problem whereas problem-focused coping describes broader, task-oriented efforts.

homogeneous” ways of coping (Zimmer-Gembeck & Skinner, 2011, p. 3). Skinner and colleagues (2003) recommended that future work focus on these conceptualizations of coping rather than on higher-order processes (e.g., problem versus emotion-focused coping). This list is deemed to be useful in that it provides a “comprehensive menu of coping options” for the study of coping with different types of stress that occur at different ages (Skinner et al., 2013, p. 807). Further, the coping families may be used to establish coping profiles or to link types of coping to various outcomes of interest (Skinner, & Zimmer-Gembeck, 2016). The coping families can be used in child and adult research and when measuring ‘domain-general’ as well as ‘domain-specific’ coping behaviors (Skinner et al., 2003).

Scholars have discouraged the use of labels, such as ‘good’ and ‘bad,’ when describing coping families as this view is too simplistic (Zimmer-Gembeck & Skinner, 2008). Nevertheless, it appears that some coping families are more frequently associated with well-being and adaptation than others. For example, support-seeking, problem-solving, and accommodation have been linked in prior research to positive developmental outcomes (Skinner et al., 2013; Skinner & Zimmer-Gembeck, 2016). In contrast, empirical evidence suggests that other coping responses, such as escape, submission, and opposition, are often linked to maladaptation (Skinner et al., 2013; Skinner & Zimmer-Gembeck, 2016).

Although the complete list of 12 coping families provides a useful overview of potential coping responses, scholars recognize that some coping families are used much more readily than others (e.g., Skinner et al., 2003; Skinner et al., 2013). The frequency with which each coping family is used depends on the type of stressor with which the

individual is confronted as well as on the developmental level of a given individual (Skinner et al. 2013). As an example, when studying how third to sixth grade students dealt with academic stress, Skinner and colleagues (2013) deliberately did not measure the coping family of negotiation as “it generally is not an option for students to negotiate with their teachers” (p. 807). In fact, a review of the literature suggests that six of the 12 coping families are jointly core to the coping construct, particularly commonly used, and relevant to emerging adulthood: support-seeking, problem-solving, accommodation, escape, submission, and isolation (e.g., Skinner et al., 2003; Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2008; 2011). For example, in their seminal article on the 12 coping families, Skinner and colleagues (2003) identify the following coping families as being “clearly core”: problem-solving, support-seeking, escape, and accommodation (p. 239). Beyond this, two additional coping families—submission and isolation—appear relevant to the developmental period of emerging adulthood. Prior research suggests that ruminative thinking, a core aspect of submission, occurs at higher rates in 25-35-year-olds than in older adults (Nolen-Hoeksema & Aldao, 2011). Further, emerging adults gain independence from their family during this developmental stage and, as a key developmental task, form new social and intimate relationships (Arnett, 2000; 2006). As such, it appears highly relevant to assess whether (and to what degree) emerging adults are using coping behaviors included in the two coping families of submission and isolation.

### **The Development of Coping**

Although child- and adolescent-focused coping research emerged nearly three decades ago and has received considerable scholarly attention (Compas, 1987; Compas et

al., 2001, Frydenberg, 2014), little is currently known about the normative development of coping. This may be surprising given that the ability to cope with stress represents “a central facet of human development” (Compas et al., 2001, p. 87). Further, a given coping response may depend on the social, cognitive, neurological, and emotional developmental level of an individual (Compas, 2006; Compas et al., 2014; Frydenberg, 2014). Depending on an individual’s age, he/she will have access to different resources (e.g., support provided by caretakers, executive function, language ability), thereby shaping the ensuing regulatory response (Compas, 2006, 2009). Accordingly, more complex coping responses are expected to emerge across development (Compas, 2009).

Meaningful progress in the aggregation of knowledge on the development of coping appears to have been hampered by two main factors. First, much of the coping research has examined individual differences in coping within a narrow age group (e.g., examining how aspects of coping are related to adjustment); few investigations to date have explicitly examined changes in coping that may occur within or across developmental periods (Compas et al., 2014; Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2011). Second, progress in this area has also been hampered by the lack of consensus on how to define and measure coping across development (e.g., Blount et al., 2008; Compas et al., 2001). Knowledge of normative age-graded changes in coping provides the foundation for future work; such information can inform researchers on what aspects of coping to measure at a given developmental period and clinicians on how to intervene (Compas et al., 2014). It is therefore critically important to fill these basic knowledge gaps (Compas et al., 2014; Skinner & Zimmer-Gembeck, 2016).

Nonetheless, a recent effort has been made to integrate what is known about the normative development of coping. An integrative review of 62 developmental studies on coping used the framework of the 12 coping families to identify age-related shifts in coping (Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2011). Specifically, Zimmer-Gembeck and Skinner categorized the items on coping measures used across various studies into the 12 families described above to allow for meaningful detection of change. These scholars were particularly interested in ascertaining developmental change within the same coping family across time (Zimmer-Gembeck & Skinner, 2011). Stated differently, a goal was to examine how coping manifests itself across development. Results from this analysis led authors to conclude that “broad global age-related differences and changes” occur, such that coping becomes more differentiated, consolidated, and flexible (Zimmer-Gembeck & Skinner, 2011, p. 54). More specifically, three of the 12 coping families were found to be used commonly by children and adolescents: problem-solving, distraction, and support-seeking (Zimmer-Gembeck & Skinner, 2011). In addition, children (and especially adolescents) were also found to utilize escape, accommodation, and self-reliance when dealing with stress (Zimmer-Gembeck & Skinner, 2011). Further, sophisticated coping responses that involve decision-making, planning, and reflection, were found to emerge later in development (i.e., adolescence or early adulthood; Skinner & Zimmer-Gembeck, 2016).

Given that drastic developmental changes occur during adolescence (e.g., improvements in critical thinking skills, greater information processing abilities, greater awareness of social stimuli, greater independence from adult caregivers), scholars have examined coping behaviors of adolescents (see Garcia, 2010, for a review of research;

Skinner & Zimmer-Gembeck 2016). Skinner and Zimmer-Gembeck (2016) synthesized the literature in this domain, concluding that once adolescents reach early adulthood, “their coping systems are very different from those that they brought with them into early adolescence” (p. 205). For example, adolescents use a wider array of coping strategies than younger children, and the flexible use of varied coping is linked to adaptation (Skinner & Zimmer-Gembeck, 2007). Further, coping behaviors aimed to modify the stressful situation, such as instrumental coping, decrease during adolescence and are gradually replaced by coping strategies that aim to manage the emotion (Frydenberg & Lewis, 2000). Of note, prior research on adolescents has successfully applied the framework of the 12 coping families to this developmental group (e.g., Zimmer-Gembeck, 2015; Zimmer-Gembeck et al. 2013; Zimmer-Gembeck, Van Petegem, & Skinner, 2016).

In sum, existing developmental research on coping documents considerable normative change in coping behaviors such that an individual’s ability to respond to stress becomes increasingly complex as other abilities, such as cognition and communication, mature. Although Zimmer-Gembeck and Skinner (2011) predicted that significant further change in coping would occur between the age of middle to late adolescence, which they conceptualize as including ages 18 to 22 years, the overwhelming majority (i.e., 93%) of studies included in this review included participants who were 18 years or younger (see Table 5 of Supplementary Information, Zimmer-Gembeck & Skinner, 2011). In fact, the authors summarize coping research for three developmental periods: preschool age, middle childhood, and adolescence. Regrettably, this review of developmental research on coping did not extend beyond adolescence. As



such, little is currently known about potential normative changes in coping that occur between the ages of 18 and 29 years.

### **Coping During Emerging Adulthood**

In his seminal work on emerging adulthood, Arnett (2000, 2006) suggests that the years between 18-29 are theoretically and empirically different from prior and ensuing ages. The scholar looks to contextual factors when accounting for the emergence of this new developmental period. Demographic and cultural shifts that have occurred since the mid-20<sup>th</sup> century in certain developed countries are believed to have created a time when individuals are neither neatly classified as adolescents nor as young adults (Arnett, 2000; Arnett, Žukauskienė, & Sugimura, 2014). As such, emerging adulthood is a relatively new phenomenon that only occurs in certain cultures; it is not a universal developmental stage (Arnett, 2006). Among other things, emerging adults often reduce their contact with parents, gain greater autonomy, explore their identity, and learn how to form and maintain romantic relationships (Arnett, 2000). Unlike adolescents, emerging adults have reached sexual maturity, are not in secondary school, and no longer have a minor legal status. In contrast to young adults, emerging adults have often not yet established stable and long-term work, interpersonal, and family commitments (Arnett, 2000; Arnett et al., 2014). Taken together, emerging adulthood is viewed to include the following five features: “identity explorations, instability, self-focus, feeling in-between, and possibilities/optimism” (Arnett, 2006, p. ix).

The considerable educational, relationship, and employment changes that occur during emerging adulthood often create unstable lifestyles for this developmental group (Arnett, 2000; Arnett et al., 2014). As such, it is not surprising that emerging adults report

high levels of stress (Pierceall & Keim, 2007) in several areas, including academic (28.4%), social (peers: 20.7%; family: 17.5%), and financial (6.8%) domains (Aldridge-Gerry et al., 2011). Further, high rates of mental health disorders are reported by emerging adults (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Kessler et al., 2005; Kessler & Wang, 2008).

Given that emerging adults experience high levels of stress across several domains, scholars have examined coping responses of this age group. For example, Brougham and colleagues (2009) asked college students about the types of stress they experienced as well as the coping behaviors with which they respond to the various forms of stress. These scholars found that higher levels of stress were reported by women and that women used more emotion-focused coping strategies compared to men (Brougham et al., 2009). Emotion-focused coping describes behaviors that aim to express and/or modify emotions (Brougham et al., 2009). As a second example, Pritchard and Wilson (2006) conducted a longitudinal study across the first college semester with first-year-students to examine whether coping styles changed during this transitional period. Although no significant change was found, the scholars noted that the examined timeframe of one semester may have been too short to detect potential change.

More recently, Coiro and colleagues (2017) examined associations between coping behaviors of 135 undergraduate students and mental health outcomes of interest. In their cross-sectional study, Coiro et al. (2017) found that students with high levels of interpersonal stress also reported high levels of physical and mental health problems. Of note, these students also reported less use of ‘engagement coping’ strategies and these

coping responses accounted for a significant portion of the association between stress on the one hand and mental health problems on the other hand.

It is important to acknowledge that extant research on coping in emerging adults has been conducted with homogenous samples: with predominantly female, Caucasian, and middle to upper class participants (Brougham, 2009; Coiro, et al., 2017). In addition, an overwhelming majority of research has recruited a convenience sample of college students, which may not fully represent the breadth of emerging adults (Bettis et al., 2017; Brougham, 2009; Coiro et al., 2017). Regrettably, such demographic characteristics limit generalizability of findings.

Further, meaningful comparison across studies and aggregation of knowledge on emerging adulthood coping is made difficult in light of different methodologies that have been used. A quick review of available research illustrates this point. The construct of coping in emerging adults has been measured with many different questionnaires, including the Responses to Stress Questionnaire (RSQ; see Bettis et al., 2017; Coiro et al., 2017), the Brief COPE (see Lee, Dickinson, Conley, & Holmbeck, 2014), the COPE (see Dyson & Renk, 2006; Walker & Stephens, 2014), the Emotion Coping Trait Meta-Mood Scale (see Johnson, Gans, Kerr, & LaValle, 2010), other validated questionnaires (see Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994; Tobin, Holroyd, Reynolds, & Wigal, 1989), as well as non-validated questionnaires (see Park, Armeli, & Tennen, 2004; Shields, 2001). As has been discussed in detail elsewhere (e.g., Skinner et al., 2003), the different coping questionnaires are based on different definitions and conceptualizations of coping, even while often tapping from broadly similar item content. As such, there is currently limited consensus knowledge on coping in emerging adults. A

specific question of interest is whether coping strategies change across emerging adulthood. Arnett's (2000) view of emerging adulthood as a separate developmental period, which presents individuals with a set of new and unique developmental tasks, could support the hypothesis that 18-29-year-olds are learning new ways of coping.

### **Gaps in the Literature**

The foregoing review highlights that emerging adults are often confronted with high levels of stress (e.g., Coccia & Darling, 2016), particularly in academic and interpersonal domains (Aldridge-Gerry et al., 2011). Perhaps not surprisingly, high rates of mental health concerns have also been noted in this segment of the population (Eisenberg et al., 2007; Kessler et al., 2005; Kessler & Wang, 2008). Coping may play an important role in buffering the association between stress and maladaptation (e.g., Compas & Reeslund, 2009; Curtis & Cicchetti, 2007; Jaser & White, 2011). Although efforts have been made to examine the coping families—a promising new way of conceptualizing and measuring coping (Skinner et al., 2003)—in children and adolescents (Zimmer-Gembeck & Skinner, 2011), no study to date has examined support for the coping families in emerging adult samples. Further, limited developmental research has asked whether meaningful shifts in coping occur during emerging adulthood. Based on developmental research on children and adolescents, which has documented considerable normative change in coping across development (Skinner & Zimmer-Gembeck, 2016), one might expect coping behaviors of emerging adults to continue to develop in the face of novel demands and increased levels of perceived stress. A further gap in the current knowledge base pertains to links between coping and adaptation; unfortunately, much prior work has focused solely on negative outcomes, such as depression, anxiety,

physical health problems, and substance use (e.g., Bettis et al., 2017; Coiro et al., 2017; Lee et al., 2014; Park et al., 2004). However, having information about coping and adaptation could inform applied clinical work (Skinner et al., 2013; Zimmer-Gembeck & Skinner 2016).

### **Aims and Hypotheses**

The current study used a cross-sectional study design and self-report data from emerging adults to expand work in three important ways.

*Aim 1: To examine the factor structure of coping in emerging adults and determine whether there is support for the six primary coping families.*

Hypothesis 1: Based on existing theoretical and empirical data, exploratory factor analysis (EFA) was expected to yield support for the six coping families in emerging adults.

*Aim 2: To determine whether there are developmental shifts in coping that occur during emerging adulthood. Specifically, this study sought to determine whether age is a significant predictor of coping within the emerging adult sample.*

Hypothesis 2: Based on prior research showing that the breadth of coping strategies increases with age (Zimmer-Gembeck & Skinner, 2011), it was expected that age is significantly and positively correlated with breadth of coping (i.e., number of coping items across all domains endorsed as being used at least some of the time). Further, it was expected that the use of two specific coping families would increase across emerging adulthood: problem-solving and submission. Zimmer-Gembeck & Skinner (2011) concluded that the use of problem-solving and rumination (a form of submission) coping increase during

adolescence; it was therefore hypothesized that this developmental trend would continue during emerging adulthood. No specific predictions were made for the other four coping families.

*Aim 3: To conduct a functional analysis of the six coping families and determine which coping behaviors are associated with adaptive and maladaptive functioning.*

Hypothesis 3a: It was expected that coping families previously associated with adaptation would be associated with adaptive functioning (i.e., psychological well-being, competence). Further, this significant association was expected to occur at high but not low levels of stress.

Hypothesis 3b: It was expected that coping families previously associated with maladaptation would be linked to psychological distress. Further, this significant association was expected to occur at high but not low levels of stress.

Given that gender differences in coping have been found in prior research (e.g., Brougham et al., 2009), the role of gender as a moderating variable was also tested.

## **Method**

### **Procedure**

All study procedures were approved by the Institutional Review Board (IRB) at the University of Vermont (UVM). Participants were recruited online via Amazon's Mechanical Turk (MTurk) to complete all questionnaires. MTurk is a popular online crowdsourcing application used in the social sciences (Chandler, Mueller, & Paolacci, 2014). Participants select Human Intelligence Tasks (HITs) of interest and are compensated for their work (for a comprehensive review of MTurk see Chandler & Shapiro, 2016). Collection of data via MTurk includes several advantages. For example,

data can be collected within a short amount of time and for a minimal cost (e.g., Buhrmester, Kwang, & Gosling, 2011; Horton & Chilton, 2010). Further, prior research indicates that MTurk samples are significantly more diverse with regard to race, socioeconomic background, and educational status than are college samples (e.g., Buhrmester et al., 2011; Casler, Bickel, & Hackett, 2013). With regard to reliability and validity, MTurk data is comparable to data that is collected via traditional methodology (Buhrmester et al., 2011; Shapiro et al., 2013). These strengths suggested that MTurk was an appropriate means for data collection in the present study.

Eligibility criteria for the present study were to have at least 90% task approval for previous HITs and to be between the age of 18-30 years old. To ensure that individuals of all desired ages were represented in the sample, two separate MTurk studies, identical in form but differing in age criteria, were created to stratify the sample (18.00-24.99 years; 25.00-30.99 years)<sup>2</sup>. Further, to ensure that the study sample was representative of the general population with regard to current educational status, the two age groups were further stratified by this characteristic (i.e., 18.00-24.99 years: 45% currently student; 25.00-30.99 years: 15% currently student; Snyder & Dillow, 2012).

Data collection occurred through the online survey platform Qualtrics, which was accessible to participants from a private computer or laptop. To ensure that responses were not provided randomly, six attention check items were included in the survey (e.g., “Please select the *Never* response option”). Twenty-seven participants were excluded from the study due to failing more than one of the six attention checks. Following guidelines put forth by Eysenbach (2004), 18 participants were removed from the study

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<sup>2</sup> The following two MTurk premium qualifications were selected for this study: Age 18.00-24.99 years, Age 25.00-30.99 years.

due to completing the survey in under five minutes. Upon completing the questionnaires, a unique completion code was provided to each participant through Qualtrics; this code was then used to compensate participants \$2.40 for their work.

## **Participants**

Data from 470 participants were gathered initially. Twenty-seven participants were excluded based on failed attention checks and 18 participants were excluded based on having a questionnaire completion time of under five minutes. Therefore, the final working sample included 425 participants. Independent samples t-tests and chi-square tests of independence compared excluded participants ( $n = 45$ ) from non-excluded participants ( $n = 425$ ) on key demographic variables. Independent samples t-tests suggested that excluded participants did not differ significantly from non-excluded participants on age or socioeconomic status. Chi square tests of independence suggested that significant group differences emerged for gender such that males were more likely to be excluded than any other gender identity. However, the excluded group did not differ from the non-excluded group with regard to ethnicity or education. The final sample included participants between the ages of 18-31<sup>3</sup> years ( $M$  age = 25.04,  $SD$  = 2.68). Two-hundred and seventy participants identified as female (63.5%), 152 participants identified as male (35.8%), and three participants identified as “other” gender (0.3%). Participants identified as White (68.4%), Black (11.3%), Hispanic (9.9%), Asian (6.1%), Biracial (2.6%), American Indian (0.7%), and Other (1%). The median household income in the present study was \$23,000. Table 1 includes more detailed information on participant demographics.

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<sup>3</sup> Despite the creation of two age groups in MTurk, one participant reported an age of 31 years and was retained in this sample.



Table 1

*Demographic Characteristics of Study Participants*

	<i>M (SD) or Percentage</i>
Age	25.04 (2.68)
Gender (% Female)	63.5%
Race/Ethnicity	
White	68.4%
Black	11.3%
Hispanic	9.9%
Asian	6.1%
Biracial	2.6%
American Indian	0.7%
Other	1.0%
Education	
Some High School	0.9%
Completed High School	12.5%
Some College	31.8%
Completed 2-year College	9.9%
Completed 4-year College	36.0%
Some Graduate School	4.2%
Completed Graduate School	4.7%
Educational Status	
Not currently enrolled as a student	64.0%
Currently enrolled as part-time student	11.3%
Currently enrolled as a full-time student	24.0%
Employment Status	
Not currently employed	22.1%
Currently employed	77.9%
Hours work/week	36.6 (10.86)
Living Arrangement	
Living with parents	26.8%
Living with roommates	16.0%
Living with romantic partner	40.7%
Living alone	15.3%
Relationship Status	
Single	35.3%
In a casual relationship	4.7%
In a romantic relationship	59.5%
Divorced	0.2%
Children (% who have children)	19.8%

## Measures

**Demographics.** Participants provided demographic information, including age, gender, racial/ethnic identity, socioeconomic status (SES), highest level of education completed, current educational status, current employment status, information about their current living situation (e.g., living at home), and family status (see Appendix A). Demographic variables were used to describe the sample and as covariates when testing significant results for robustness or when correlated with key study variables. Age was included as a predictor variable when examining potential change in coping across emerging adulthood.

**Personality.** Participants completed the 20-item Mini IPIP (Donnellan, Oswald, Baird, & Lucas, 2006; see Appendix B). Based on the Big Five factor model of personality (e.g., Costa & McCrae, 1992), the Mini IPIP assesses five aspects of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Intellect/Imagination. Each of these five dimensions is assessed with four questions. Specifically, respondents were asked to read statements and choose from a 5-point Likert scale (1 = *very inaccurate*; 5 = *very accurate*) how much each statement describes themselves. Example items include “Am the life of the party” (Extraversion), “Get chores done right away” (Conscientiousness), “Have frequent mood swings” (Neuroticism), “Have a vivid imagination” (Intellect/Imagination), and “Feel others’ emotions” (Agreeableness). Acceptable psychometric properties have been documented elsewhere (e.g., Donnellan et al., 2006). Mean scores for the Mini IPIP subscales were used as covariates in key analyses. In the current study, the Mini IPIP Cronbach’s alpha values ranged from .75 to .83.

***Adverse childhood experiences.*** Participants completed the 10-item Adverse Childhood Experiences Questionnaire (ACEs; Dube et al., 2003; Felitti et al., 1998) to assess early life adversity (see Appendix C). Specifically, participants were asked to read a list of statements and endorse any that described their childhood experiences, such as “Were your parents ever separated or divorced?” or “Did a parent or other adult in the household often push, grab, slap, or throw something at you?” Scores for each item were summed and greater scores reflect higher levels of childhood adversity. ACEs scores were used as covariates in key analyses. The Cronbach’s alpha value for the present sample was .77.

***Coping.*** Participants completed 26 items to assess coping behaviors. These items were selected from existing measures for the present study after reviewing the literature and consulting with experts in the field (see Table 2 and Appendix D). Specifically, 26 items were selected to assess the following six coping families: support-seeking, problem-solving, accommodation, escape, submission, and isolation. These six coping families were chosen based on a review of extant literature (e.g., Skinner et al., 2003; Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2008; Zimmer-Gembeck & Skinner, 2011) as well as their relevance to the developmental period of emerging adulthood. Whereas support-seeking, problem-solving, and accommodation have most commonly been linked to adaptation, escape, submission, and isolation have been linked to less desirable outcomes (Skinner et al., 2013; Skinner & Zimmer-Gembeck, 2016). Each coping family was assessed with four or five items, using a 4-point Likert scale (0 = *not at all*; 1 = *a little*; 2 = *some*; 3 = *a lot*). Question stems were modified to ensure consistency across items (e.g., the question stem was changed from “I

would work on..." to "You worked on..."). A situation-specific approach was used: participants were instructed to reflect on recent interpersonal problems (e.g., arguing with a friend/partner, fighting with a romantic partner) that they experienced within the last month and how they coped with those types of stressors (Zimmer-Gembeck & Locke, 2007). Prior work suggests that a situation-specific approach to coping is more reliable than a dispositional approach (Lazarus, 1999; Todd, Tennen, Carney, Armelu & Affleck, 2004). Given that much prior work on coping has examined responses to interpersonal stress (e.g., Clarke, 2006; Coiro et al., 2017; Zimmer-Gembeck, Lees, Bradley, & Skinner, 2009) and emerging adults report high levels of stress in interpersonal domains (Aldridge-Gerry et al., 2011; Dusselier, Dunn, Wang, Shelley, & Whalen, 2005), participants reported their coping responses for interpersonal stress. Example items included: "You worked on solving the problem" (problem-solving) and "You tried to just accept the situation" (accommodation). Finally, in an effort to identify coping behaviors that potentially develop during emerging adulthood, participants were asked whether they use any additional strategies to cope with interpersonal stress (write-in field). Mean scores from the coping questionnaire were used in key analyses, including as a predictor in regression analyses.

Table 2

*Coping Items Used to Examine the Structure of Coping*

Family of Coping <sup>1</sup>	Example Behaviors <sup>1</sup>	Items Used to Assess Family of Coping	Factor Item Loaded onto for the 7 Factor Model
Problem-solving	Strategizing	You worked on solving the problem. <sup>2</sup>	Problem-solving
	Instrumental action	You tried to make things better by changing what you did. <sup>3</sup>	Problem-solving
	Planning	You thought about which things are best to handle the problem. <sup>3</sup> You did something to solve the problem. <sup>3</sup>	Problem-solving Problem-solving
Support-seeking	Contact seeking	You went and sought the support or help of someone close to you (e.g., parent, friend). <sup>2</sup>	Support-seeking
	Comfort Seeking	You let other people know how you felt. <sup>3</sup>	Support-seeking
	Instrumental aid	You told others how you would like to solve the problem. <sup>3</sup>	Support-seeking
	Spiritual support	You talked to someone who could help you figure out what to do. <sup>3</sup> You spent time with someone who cheered you up. <sup>4</sup>	Support-seeking Support-seeking
Accommodation	Distraction	You tried to just accept the situation. <sup>2</sup>	Avoidance
	Cognitive restructuring	You reminded yourself that things were going pretty well for you overall. <sup>3</sup>	Cognitive restructuring
	Minimization	You did something to distract yourself (e.g., exercise, listen to music). <sup>3</sup>	<i>Dropped from EFA</i>
Escape	Acceptance	You tried to notice or think about the good things in your life. <sup>3</sup>	Cognitive restructuring
	Cognitive avoidance	You tried to get away from the situation as fast as possible. <sup>2</sup>	<i>No clear loading</i>
	Behavioral avoidance	You avoided thinking about the problem. <sup>3</sup>	Avoidance
	Denial	You wished that bad things wouldn't happen. <sup>3</sup>	Wishful thinking
Isolation	Wishful thinking	You wished it would just stop or go away. <sup>6</sup> You just didn't think about it. <sup>6</sup>	Wishful thinking Avoidance
	Social withdrawal	You went off to be by yourself (or to be alone). <sup>2</sup>	<i>Dropped from EFA</i>
	Concealment	You did not tell anyone about it. <sup>4</sup>	<i>No clear loading</i>
	Avoiding others	You tried to keep people from finding out. <sup>4</sup> You tried to hide it. <sup>4</sup>	Concealment Concealment
Submission	Rumination	You felt like it was not even worth trying to deal with the situation. <sup>2</sup>	Avoidance
	Rigid perseveration	You kept thinking about it over and over. <sup>4</sup>	Rumination
	Intrusive thoughts	You couldn't get it out of your head. <sup>4</sup> You did nothing. <sup>5</sup>	Rumination Avoidance

*Note.* <sup>1</sup>Information is based on Skinner, Edge, Altman, & Sherwood (2003). <sup>2</sup>Questions modified from Zimmer-Gembeck, Skinner, Morris, & Thomas (2013). <sup>3</sup>Questions modified from the Children's Coping Strategies Checklist (Ayers, Sandler, West, & Roosa, 1996). <sup>4</sup>Questions modified from Skinner, Pitzer, & Steele (2013). <sup>5</sup>Questions taken from Zimmer-Gembeck, Petegem, & Skinner (2016). <sup>6</sup>Item was added based on recommendation by Dr. Zimmer-Gembeck (email communication, 10/10/2017).

***Perceived stress.*** The Perceived Stress Scale-10 (PSS-10; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988) was used to assess participants' overall levels of perceived stress (see Appendix E). In ten items, the PSS-10 evaluates how unpredictable, uncontrollable, and overwhelmed respondents are with their current lives. Participants indicated on a five-point Likert scale (0 = *never*; 4 = *very often*) how much positively-, and negatively-phrased statements about stress describe their experiences in the past month. Scores range from 0 to 40 with higher scores reflecting greater levels of perceived stress. Example items include: "In the past month, how often have you felt nervous and 'stressed'?" and "In the past month, how often have you felt that things were going your way?" The psychometric properties of PSS-10 have been documented elsewhere (Cohen & Williamson, 1988); the Cronbach's alpha value for the PSS-10 in the present study was .90. Stress was used to describe the sample and mean scores were used as an interaction variable when examining the association between coping and adaptation/maladaptation.

***Emerging adult status.*** The short form of the Inventory of Dimensions of Emerging Adulthood (IDEA-8; Baggio, Iglesias, Studer, & Gmel, 2015) was used to examine four aspects of emerging adulthood (see Appendix F). Respondents were asked to think about "this time in your life" and respond on a 4-point Likert scale (1 = *strongly disagree*; 4 = *strongly agree*) whether certain statements reflect their life experiences in "the present time" and the "next few years to come." The IDEA-8 includes four subscales: Experimentation/Possibilities, Negativity/Instability, Identity Exploration, and Feeling "In Between." Example questions include: "Is this period of your life a time of many possibilities?", "Is this period of your life a time of exploration?", and "Is this

period of your life a time of feeling adult in some ways but not in others?” Mean scores for the IDEA-8 subscales were used to describe the sample and to examine how emerging adult status is associated with age, coping, and other outcomes. In the present study, the Cronbach’s alpha values for the IDEA-8 subscales ranged from .64 to .82.

**Competence.** Competence was assessed using a modified version of the Self-Perception Profile for College Students (SPPCS; Harter, 2012; see Appendix G). The four specific domains of romantic relationships, parent relationship, social acceptance, and job competence were assessed. Participants choose one response option for each statement (*describes me very poorly, describes me quite poorly, describes me quite well, describes me very well*; Wichstrom, 1995). Example items are “I am able to develop romantic relationships” (Harter Romantic), “I am able to get along with my parents quite well” (Harter Parent), “I am able to make new friends easily” (Harter Social), and “I am quite satisfied with the way I do my job” (Harter Job). Higher scores reflect greater levels of competence. Mean scores for Harter subscales were used as outcome variables in key analyses. In this study, Cronbach’s alpha values for the four Harter scales ranged from .85 to .92.

**Well-being.** The Mental Health Continuum-Short Form (MHC-SF; Keyes, 2002; Keyes et al., 2008) was used to assess emotional, social, and psychological well-being (see Appendix H). Respondents were asked to reflect on the past month and to indicate how often they experienced certain signs of well-being. The MHC-SF includes 14 total items (three items for emotional well-being; five items for social well-being; six items for psychological well-being), using a 6-point Likert scale. Example items include: “How often did you feel happy?”, “How often did you feel good at managing the

responsibilities of your daily life?" A standardized mean score of the MHC-SF was used to calculate the aggregate outcome variable of psychological/interpersonal satisfaction. In the present study, the Cronbach's alpha value for the MHC-SF was .93.

***Psychological distress.*** The Depression Anxiety and Stress Scale, Short Form (DASS-21; Lovibond & Lovibond, 1995) was used to assess psychological distress, including depressive symptoms, anxiety symptoms, and perceived levels of stress (see Appendix I). Respondents indicate on a 4-point Likert scale, ranging from *did not apply to me at all* to *applied to me very much, or most of the time*, how much 21 items reflected their experiences. Example items include "I felt that I had nothing to look forward to" and "I found it difficult to relax." This measure has demonstrated adequate psychometric properties (Crawford & Henry, 2003; Henry & Crawford, 2005). Sum scores of the DASS were used in this study when examining psychological distress as a key outcome variable. Cronbach's alpha values for the present study were .90 for the anxiety subscale, .93 for the depression subscale, and .90 for the stress subscale.

***Alcohol use.*** Participants' alcohol consumption was assessed using the 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente & Grant, 1993; see Appendix J). The AUDIT questionnaire has been recommended by the World Health Organization as a brief screening tool for disordered alcohol consumptions (Saunders et al., 1993). Example questions include "How often do you have a drink containing alcohol?" and "How often do you have six or more drinks on one occasion?" Participants were asked to choose one of several response options that best reflected their consumption patterns (e.g. *monthly, weekly*). Scores were summed and higher scores reflected greater levels of alcohol use. Strong psychometric properties



have been documented in college and primary care settings (Barry, & Fleming, 1993; Fleming, Barry, & Macdonald, 1991). In the present sample, the Cronbach's alpha value was .88. The AUDIT score was used as an outcome variable in key analyses. Further, participants were asked to indicate whether they "drink alcohol to cope with stress" on a scale ranging from *never* to *daily or almost daily*.

***Cannabis use.*** Participants' cannabis use was assessed with a single question. Participants were asked how often they had used cannabis during the past six months, using six response options (e.g., *never; not used in the past 6 months; a few times; monthly; weekly; daily*). The cannabis use score was utilized as a key outcome variable.

### **Data Analytic Plan**

First, using SPSS Version 24 (IBM Corp, 2016), descriptive statistics for demographic variables (e.g., age, SES, educational status) and main study variables (i.e., scales, subscale scores) were calculated to describe the sample. Correlations between the main study variables were run to examine these associations. Intercorrelations within adaptive variables (e.g., Harter Parent and Harter Job) and within maladaptive variables (e.g., AUDIT and DASS) were lower than expected, which did not allow for the computation of an aggregate 'adaptive' and 'maladaptive' score. Instead, a total of six outcome variables (three positive, three negative) were used in regression analyses. For positive outcomes, psychological/interpersonal satisfaction (i.e., an aggregate score of Harter Social, Harter Romantic, and well-being) was computed because these variables were intercorrelated with a value of .5 or higher. Two additional positive outcomes—Harter Parent and Harter Job—were considered. For negative outcomes, the AUDIT score, cannabis use score, and DASS score were used.

***Aim 1.*** To ascertain the appropriate number of factors underlying associations among the coping items, exploratory factor analysis (EFA) was conducted using Mplus software version 8.0 (Muthén & Muthén, 2012). EFA is designed to examine the unknown structure of data and therefore does not require the researcher to specify the factors (Matsunaga, 2010). Items are allowed to cross-load onto multiple factors in EFA (Brown, 2006). Following recommendations outlined by Fabrigar and colleagues (1999), maximum likelihood (ML) extraction method and a Geomin (oblique) rotation were performed. Several global fit statistics ( $\chi^2$  goodness-of-fit test, root mean square error of approximation [RMSEA], comparative fit index [CFI], the standardized root mean square residual [RMSR]), as well as parallel analysis, modification indices (MI), and patterns of factor loadings (i.e., theoretical feasibility) were examined to determine the most defensible factor structure underlying the data. In parallel analysis, eigenvalues from the sample data are compared with eigenvalues generated by random data to assist in factor retention (Brown, 2006). For the fit statistics, the following guidelines were used to evaluate which model fit the data best:  $\chi^2$  goodness-of-fit test:  $p > .05$  good; RMSEA:  $< .05$  good; CFI:  $> .95$  good; SRMR:  $< .08$  good. Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values were also examined; for both criteria, lower values indicate a better fit. Lastly, with regard to the qualitative responses provided by participants in the write-in field, these were examined for common themes and for behaviors that had not been assessed with the 26 coping questions.

***Aim 2.*** To determine whether there are developmental shifts in coping that occur during emerging adulthood, a total breadth of coping score was calculated by summing

each coping item that was endorsed as *some* or *a lot*. The breadth of coping score was used as a continuous variable with scores ranging between 0-26. Further, the sum for each coping family was calculated for each participant. A total of eight correlation analyses were run to examine associations between coping (i.e., total breadth of coping and the seven coping families) and age.

**Aim 3.** To examine whether certain coping families are associated with adaptation and maladaptation, respectively, six hierarchical regressions were conducted. In the first step, ethnicity, age, and gender were entered into the model; personality was entered in the second step. Stress and ACEs scores were entered in steps three and four, respectively. In the final step, all coping families were entered into the model to predict the outcome variable of interest. To examine the potential moderating role of gender and stress, interaction terms (i.e., gender X coping; stress X coping) were created and added to the models as an additional step. Standardized beta coefficients and  $R^2$  change values were examined across steps to determine the contribution of coping behaviors on the given outcome examined in each of the models. Significant interaction terms were decomposed and simple slopes were examined (Aiken & West, 1991; Dawson, 2013).

## **Results**

Among the 425 participants who completed the study, less than 0.5% of data were missing at the item level; no participant had missing data for an entire scale or subscale. Based on tests of predictors of missingness, data were treated as missing at random. Correlations between the main study variables are presented in Table 3.

Table 3  
*Zero-order Correlations Between the Main Study Variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Gender	-										
2. Age	.07	-									
3. ACE	-.19**	-.01	-								
4. Stress	-.22**	-.14**	.36**	-							
5. Harter Social	.13**	.04	-.19**	-.40**	-						
6. Harter Parent	.03	.09	-.40**	-.39**	.24**	-					
7. Harter Romantic	.02	.06	-.14**	-.36**	.60**	.26**	-				
8. Harter Job	-.13*	.11	.04	-.31**	.44**	.29**	.44**	-			
9. Cannabis	-.02	-.06	.19**	.09	.05	-.06	.08	.03	-		
10. AUDIT	.08	.04	.10*	.15**	.01	-.09	.06	-.07	.27**	-	
11. DASS	-.09	-.18**	.35**	.75**	-.40**	-.39	-.34**	-.31**	.09	.26**	-

*Note.* \* $p < .05$ . \*\* $p < .01$ . Gender was coded 0 = Female and 1 = Male.

Zero-order correlations among the main study variables were generally in the expected direction and strength. For example, ACEs scores were significantly and negatively associated with adaptive functioning (e.g., Harter Social, Harter Parent) and stress was significantly and positively associated with maladaptive outcomes (e.g., AUDIT score, DASS score). Further, adaptive outcomes (e.g., Harter Social, Harter Parent, Harter Romantic, Harter Job) were all significantly and positively associated with one another. Gender was significantly related to ACE scores and stress, such that women reported higher levels than men on both of these variables. Age was significantly and negatively correlated with stress and DASS scores: older participants in this sample reported lower levels of both stress and psychological symptoms).

Measures for emerging adulthood identity, childhood adversity, stress, and psychological symptoms provided important descriptive information for this sample. IDEA-8 scores suggested that, on average, this sample experienced some of the typical features of emerging adulthood. For example, on average, this sample *somewhat agreed* that this period of their life was a time of Experimentation/Possibilities ( $M = 3.25$ ,  $SD = .72$ ). IDEA-8 scores also indicated that participants *somewhat agreed* that this period of their life was one of Negativity/Instability ( $M = 3.0$ ,  $SD = .86$ ), Identity Exploration ( $M = 3.23$ ,  $SD = .70$ ), and Feeling “in-between” ( $M = 3.30$ ,  $SD = .72$ ). With regard to childhood adversity, this sample had a mean ACEs score of 2.44 ( $SD = 2.36$ ); the median ACEs score was a 2. Based on participant responses on the Perceived Stress Scale (PSS-10), on average study participants reported feeling ‘moderate levels’ of stress ( $M = 19.9$ ,  $SD = 8.2$ ). Responses provided by participants on the DASS-21 suggested that, on average, this sample was experiencing ‘mild’ levels of stress ( $M = 15.38$ ,  $SD = 10.91$ ),

‘moderate’ levels of anxiety ( $M = 10.43$ ,  $SD = 10.12$ ), and ‘moderate’ levels of depression ( $M = 13.93$ ,  $SD = 12.09$ ).

### *Aim 1*

In EFA, parallel analysis, goodness of fit statistics, modification indices, and patterns of loadings/cross loadings were all examined to determine how many factors should be retained. Patterns of loadings and cross-loadings of the Geomin oblique rotations suggested that two items did not load clearly onto any of the examined factors. As such, item 4 (“You went off to be by yourself [or to be alone]”) and item 17 (“You did something to distract yourself [e.g., exercise, listen to music]”) were dropped from the analysis because they exhibited a loading of  $<.30$  across all factors (Child, 2006; Schmitt, 2011). The ensuing EFA analyses were performed without items 4 and 17. Item 4 had been selected to reflect the coping family isolation and may have had poor factor loadings because, unlike other items used for that coping family (e.g., item 22: “You tried to hide it”), it described social withdrawal rather than concealment. Item 17 had been included as an item for the coping family accommodation and, unlike several other items for that coping family (e.g., item 23: “You tried to notice or think about the good things in your life”), item 17 described a behavior rather than a cognitive process. As such, the poor factor loadings of items 4 and 17 could be explained by their content, which appeared to differ from the content of the other items included for the given coping family.

In parallel analysis (PA), eigenvalues from completely random data are generated and then compared to eigenvalues generated by the observed data (Brown, 2006; Matsunaga, 2010). PA has been shown to be a powerful tool to determine the number of factors underlying data (Fabrigar et al., 1999; Henson & Roberts, 2006). A comparison of

eigenvalues from the sample correlation matrix with eigenvalues from the PA (95<sup>th</sup> percentile), suggested that a 4-factor model fit the data best (see Table 4). Specifically, whereas the eigenvalue for the sample data (2.033) was larger than the eigenvalue for the PA data (1.321) for the 4<sup>th</sup> factor, the eigenvalue for the sample data (1.083) was *smaller* than the eigenvalue for the PA data (1.266) for the 5<sup>th</sup> factor.

Next, fit statistics for the 4-, 5-, 6-, and 7-factor models were examined (Table 4). The  $\chi^2$  statistic “indicates the degree of discrepancy between the data’s variance/covariance pattern and that of the model being tested” (Matsunaga, 2010, p. 106). Of note, the  $\chi^2$  test statistic is dependent on the sample size such that the  $\chi^2$  value increases with an increasing sample size (Russell, 2002; Schermelleh-Engel, Moosbrugger, & Müller, 2003). Consequently, plausible models may be rejected based on significant  $\chi^2$  statistics (Schermelleh-Engel et al., 2003). Due to the large sample size used in the present study, the  $\chi^2$  statistic was examined cautiously. Not surprisingly, the model  $\chi^2$  statistics for the 4-, 5-, 6-, and 7-factor models were all statistically significant (Table 4). For the RMSEA criteria, the 7-factor model was the only model with a value of  $<.05$ . Similarly, for the CFI, the 7-factor model was the only model that obtained a value  $>.95$ . The 4-, 5-, 6-, and 7-factor models all had a value of  $<.08$  for the SRMR, indicating potentially good model fit. The 7-factor model received the lowest value for the AIC; the 6-factor model received the lowest value for the BIC.

Table 4

*Model Fit Statistics by Factor Solution from the Exploratory Factor Analysis*

Factors	$\chi^2$	<i>df</i>	<i>p</i>	RMSEA (90% CI)	CFI	SRMR	AIC	BIC	Eigenvalues for sample data	Eigenvalues from PA
4	680.18	227	< .001	0.07 (0.06-0.07)	0.89	0.04	26988.09	27595.90	2.033	1.321
5	534.74	205	< .001	0.06 (0.06-0.07)	0.92	0.03	26886.65	27583.60	1.083	1.266
6	404.95	184	< .001	0.05 (0.05-0.06)	0.95	0.03	26798.86	27580.92	0.996	1.231
7	290.18	164	< .001	0.04 (0.03-0.05)	0.97	0.02	26724.09	27587.19	0.885	1.187

*Note.* RMSEA = root mean square error of approximation. CFI = comparative fit index. TLI = Tucker-Lewis index. SRMR = standardized root mean square residual. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. Eigenvalue = Total unit of standard variance explained by a factor. PA = parallel analysis (95<sup>th</sup> percentile eigenvalues are depicted). Items 4 and 17 have been dropped from this EFA analysis.



Modification Indices (MI) “provide an estimate in the change in the  $\chi^2$  value that results from relaxing model restriction by freeing parameters that were fixed in the initial specification” (Schermelel-Engel et al., 2003, p. 55). Although a cutoff value of  $>10.0$  is commonly used (Muthén & Muthén, 2010), a larger value of  $>20.0$  was chosen for inspection in the present study due to the large sample size and the complexity of the tested models. Using this arbitrary cutoff of  $> 20.0$  for MI, the 5-factor model included five values that were greater than 20.0, the 6-factor model included three values that were greater than 20.0, and the 7-factor model included no values that were greater than 20.0. Given that the 4- and 5-factor models were inferior to the 6- and 7-factor models based on these fit statistics, the 4- and 5-factor models were no longer considered as candidate models in subsequent EFA analyses.

As a final step, loadings and cross-loadings of the Geomin oblique rotations for the 6-factor and 7-factor models were assessed for magnitude of loadings. The Geomin rotated loadings for the 6-factor and 7-factor models are presented in Tables 5 and 6, respectively. Examination of these factor loadings and cross-loadings yielded support for a 7-factor model because most items loaded significantly with an absolute value of greater than  $>.30$  onto a single factor. To examine the robustness of the model, the 7-factor model was re-run in Mplus using a different oblique rotation method, Promax. The loading patterns obtained through Promax also yielded support for the 7-factor model.

Table 5

*Exploratory Factor Analysis Results for a 6-Factor Solution*

Items (Abbreviated Question)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
1. Worked on solving problem	-0.024	0.723	0.049	0.010	-0.012	-0.045
2. Tried to get away from situation	0.036	-0.309	-0.023	0.274	0.047	0.397
3. Sought the support of someone	0.760	-0.117	0.057	0.056	0.010	0.026
5. Tried to accept the situation	0.097	0.109	0.044	-0.063	-0.049	0.487
6. Not even worth trying to deal	0.038	-0.288	-0.057	0.091	0.029	0.501
7. Changed what you did	0.038	0.691	-0.107	0.084	0.048	0.119
8. Avoided thinking about problem	0.001	-0.055	-0.084	-0.003	0.030	0.605
9. Let other people know	0.671	0.077	-0.024	0.016	-0.098	-0.070
10. Did not tell anyone about it	-0.471	0.162	0.050	0.013	0.372	0.264
11. Things are going pretty well	0.025	0.132	0.639	-0.154	0.048	0.024
12. Thinking about it over and over	-0.024	0.007	0.018	0.829	-0.048	-0.023
13. Thought about how to handle it	0.065	0.605	0.084	0.115	-0.019	-0.031
14. Wished bad things didn't happen	-0.060	0.066	0.056	0.623	-0.037	0.113
15. Told others how you would solve	0.620	0.192	0.083	-0.004	0.059	-0.050
16. Kept people from finding out	0.040	-0.014	-0.041	-0.035	0.940	-0.037
18. Could not get out of head	0.052	0.027	-0.066	0.765	0.074	-0.048
19. Did something to solve problem	0.014	0.728	0.024	-0.020	-0.012	-0.023
20. Wished it would stop or go away	0.012	-0.076	0.004	0.564	0.069	0.066
21. Talked to someone	0.810	0.037	-0.006	-0.037	-0.023	0.146
22. Tried to hide it	-0.059	-0.039	-0.003	0.062	0.639	0.138
23. Think about good things in life	0.010	-0.033	0.867	0.041	-0.040	-0.033
24. Did nothing	-0.074	-0.317	0.062	0.045	0.187	0.407
25. Spend time with someone else	0.528	0.042	0.236	0.013	0.024	0.082
26. Did not think about it	-0.060	-0.016	0.009	-0.108	-0.015	0.727

*Note.* Geomin Rotated Loadings.

Table 6

*Exploratory Factor Analysis Results for a 7-Factor Solution*

Items (Abbreviated Question)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
1. Worked on solving problem	-0.022	0.719	0.051	0.020	-0.013	-0.002	-0.042
2. Tried to get away from situation	0.045	-0.293	-0.025	0.036	0.064	0.316	0.341
3. Sought the support of someone	0.760	-0.118	0.054	0.031	0.007	0.017	0.021
5. Tried to accept the situation	0.101	0.093	0.044	0.026	-0.022	-0.116	0.498
6. Not even worth trying to deal	0.043	-0.297	-0.055	0.056	0.055	0.060	0.475
7. Changed what you did	0.040	0.703	-0.108	-0.001	0.051	0.121	0.097
8. Avoided thinking about problem	-0.006	-0.044	-0.074	-0.120	0.005	0.191	0.573
9. Let other people know	0.668	0.064	-0.021	0.065	-0.117	-0.052	-0.058
10. Did not tell anyone about it	-0.466	0.158	0.047	0.046	0.414	-0.047	0.260
11. Things are going pretty well	0.021	0.119	0.663	-0.110	0.036	-0.010	0.016
12. Thinking about it over and over	-0.034	-0.046	0.013	0.990	-0.016	0.011	0.022
13. Thought about how to handle it	0.069	0.595	0.086	0.121	-0.007	0.014	-0.035
14. Wished bad things didn't happen	-0.061	0.122	0.052	0.167	-0.061	0.650	0.055
15. Told others how you would solve	0.622	0.184	0.085	-0.008	0.050	-0.004	-0.055
16. Kept people from finding out	0.029	-0.022	-0.040	-0.014	0.894	0.000	-0.037
18. Could not get out of head	0.073	0.039	-0.101	0.563	0.134	0.195	-0.022
19. Did something to solve problem	0.018	0.724	0.027	-0.015	-0.013	0.000	-0.027
20. Wished it would stop or go away	0.019	-0.024	0.011	0.008	0.037	0.819	-0.055
21. Talked to someone	0.812	0.037	-0.006	-0.066	-0.032	0.020	0.132
22. Tried to hide it	-0.048	-0.040	-0.004	-0.012	0.679	0.100	0.082
23. Think about good things in life	0.020	-0.022	0.845	0.010	-0.028	0.053	-0.025
24. Did nothing	-0.067	-0.326	0.064	0.024	0.218	0.029	0.385
25. Spend time with someone else	0.531	0.030	0.234	0.064	0.030	-0.071	0.097
26. Did not think about it	-0.064	-0.022	0.017	-0.071	-0.011	-0.024	0.730

*Note.* Geomin Rotated Loadings. Factor labels: 1 = Support-Seeking; 2 = Problem-Solving; 3 = Cognitive Restructuring; 4 = Rumination; 5 = Concealment; 6 = Wishful Thinking; 7 = Avoidance.

Taken together, a 7-factor model seemed to best fit the data. Specifically, the overall goodness of fit statistics indicated good model fit for a 7-factor model,  $\chi^2(164) = 290.18$ ,  $p < .00$ , RMSEA = 0.04 (90% CI = 0.03 – 0.05), SRMR = .02, CFI = 0.97, AIC = 26724, BIC = 27587. Table 2 includes information on how each item from the original six coping families loaded onto the final 7-factor model that emerged in this EFA. In this model, items 3, 9, 15, 21, and 25 loaded onto factor 1, which was labelled Support-Seeking based on the item content. Items 1, 7, 13, and 19 loaded most clearly onto factor 2, which was labelled Problem-Solving. These two factors aligned with the coping families of support-seeking and problem-solving, as outlined by Skinner and colleagues (2003). Two items (11, 23) loaded most clearly onto factor 3 and were labelled as Cognitive Restructuring based on their item content. Factor 4 consisted of items 12 and 18 and was labelled Rumination based on the item content. Items 16 and 22 loaded onto the 5<sup>th</sup> factor, which was labelled Concealment and items 14 and 20 loaded most clearly onto the 6<sup>th</sup> factor, which was labelled as Wishful Thinking. Factor 7 included items 5, 6, 8, 24, and 26 and was labelled Avoidance. Whereas item 24 (“You did nothing”) had not loaded clearly (i.e., with an absolute value of  $>.30$ ) onto any of the factors using Geomin rotation, it did load clearly onto the 7<sup>th</sup> factor using Promax rotation. Item 24 was included in the Avoidance factor because the inclusion of this item increased the Cronbach’s alpha from .68 to .74. Further, the content of item 24 aligned conceptually with the other items in that factor<sup>4</sup>.

Importantly, only two of these seven factors (i.e., Support-Seeking, Problem-

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<sup>4</sup> The seven coping factors identified in this EFA will hereafter be referred to as Support-Seeking, Problem-Solving, Cognitive Restructuring, Rumination, Concealment, Wishful Thinking, and Avoidance to distinguish them from related constructs.

Solving) aligned with the original coping families framework (Skinner et al. 2003). Five factors that emerged in this EFA—that is, factors 3 through 7—did not directly correspond with any of the other primary coping families, as outlined by Skinner and colleagues (2003). However, some of the factors identified in this EFA were included *within* one of the original coping families. Cognitive Restructuring, for example, had been included within the original coping family of accommodation. Likewise, Rumination had been included as a coping behavior within the original coping family of submission and Concealment had been included as a coping behavior within the original coping family of isolation. Lastly, the factor Wishful Thinking that was identified in this EFA was included within the original coping family of escape. As such, EFA results from this study only partially supported Skinner’s original coping family framework

As is depicted in Table 6, items 2 and 10 did not load clearly onto any of the factors of the final 7-factor model. Item 2 had been included to measure the coping family escape and asked participants whether they “tried to get away from the situation as fast as possible.” In the present study, this item had the strongest loadings on the Wishful Thinking factor (factor 6) and the Avoidance factor (factor 7). Item 10 assessed the coping behavior “you did not tell anyone about it” and had been included to reflect the coping family isolation. This item most strongly loaded onto the factor labelled as Concealment (factor 5) in the present study. Items 2 and 10 were not included on any of the factors because the strength of the loadings was weak and/or they did not load conclusively onto one of the seven factors.

The Cronbach’s alpha values for the seven coping factors<sup>5</sup> were as follows: .84

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<sup>5</sup>Cronbach’s alpha values are only reported for the three factors that consisted of three or more items; bivariate correlations are reported for factors that consisted of two items.

for Support-seeking, .79 for Problem-Solving, and .74 for Avoidance. Bivariate correlations for two-item factors were .69 for Rumination, .68 for Concealment, .60 for Cognitive Restructuring, and .60 for Wishful Thinking. Table 7 includes zero-order correlations between the seven coping factors. These intercorrelations all fell within the expected direction. Coping factors identified in the prior literature as being adaptive were significantly and positively correlated with one another. For example, the correlation between Support-Seeking and Problem-Solving was  $r = .40, p < .001$ . Likewise, coping factors previously identified as maladaptive were significantly and positively correlated with one another. For example, the correlation between Wishful Thinking and Rumination was  $r = .54, p < .001$ . Importantly, the strength of the correlations suggests that the coping families were measuring distinct behaviors, thereby yielding further support for the final 7-factor structure identified through EFA.

Table 7

*Zero-order Correlations between the Seven Coping Factors*

	1	2	3	4	5	6	7	8	9
1. Gender	-								
2. Age	.07	-							
3. Support-seeking	-.04	-.06	-						
4. Problem-solving	.04	.02	.40**	-					
5. Cognitive restruct.	.06	-.06	.29**	.39**	-				
6. Avoidance	.11*	.05	-.13**	-.35**	-.08	-			
7. Rumination	-.19**	-.10	.10*	.07	-.10*	.13**	-		
8. Concealment	.07	-.04	-.19**	-.20**	-.07	.49**	.25**	-	
9. Wishful Thinking	-.16**	.01	.02	.03	-.03	.19**	.54**	.29**	-

Note. \* $p < .05$ . \*\* $p < .01$ . Gender was coded 0 = Female and 1 = Male.  
Cognitive restruct. = Cognitive restructuring

Further, zero-order correlations between the seven coping factors and the six primary outcomes examined in this study fell within the expected direction (see Table 8). For example, the three coping factors previously associated with adaptive functioning—Support-Seeking, Problem-Solving, Cognitive Restructuring—were all positively and

significantly associated with the three positive outcomes (psychological/interpersonal satisfaction, Harter Parent, Harter Job). Further, the four coping factors previously associated with maladaptive outcomes—Avoidance, Rumination, Concealment, Wishful Thinking—were all positively and significantly associated with symptoms of depression and anxiety (as measured by the DASS). Of interest, all four maladaptive coping factors were also significantly and negatively associated with positive outcomes, such as psychological/interpersonal satisfaction and the Harter Parent.

Table 8

*Zero-order Correlations between Seven Coping Factors and Primary Outcomes*

	Psych/Inter Satisfaction	Harter Parent	Harter Job	Cannabis	AUDIT	DASS
1. Support-Seeking	.28**	.15**	.25**	.06	-.04	.01
2. Problem-Solving	.32**	.18**	.32**	.08	-.01	-.09
3. Cognitive restruct.	.39**	.20**	.31**	.08	-.03	-.25**
4. Avoidance	-.25**	-.14**	-.24**	.05	.10	.34**
5. Rumination	-.25**	-.15**	-.05	-.04	.04	.40**
6. Concealment	-.20**	-.17**	-.15**	.02	.06	.37**
7. Wishful Thinking	-.24**	-.10*	.02	.05	.11*	.37**

Note. \* $p < .05$ . \*\* $p < .01$ . Psych/Inter Satisfaction = Psychological/Interpersonal Satisfaction. Cognitive restruct. = Cognitive restructuring

The following four items did not load onto any of the seven factors: “you tried to get away from the situation as fast as possible” (item 2), “you went off to be by yourself” (item 4), “you did not tell anyone about it” (item 10), and “you did something to distract yourself (exercise, listen to music)” (item 17). All four items were significantly and positively associated with negative outcomes. Bivariate correlations between these four items and the six outcomes (see Table 9) suggest that these items were positively associated with two of the negative items, alcohol use and symptoms of depression and anxiety. Further, all four items were negatively associated with some adaptive outcomes.

Table 9

*Bivariate Correlations between Four Excluded Coping Items and Six Outcomes*

	Psych/Inter Satisfaction	Harter Parent	Harter Job	Cannabis	AUDIT	DASS
2. Tried to get away from situation	-.29**	-.21**	-.10	-.04	.12*	.36**
4. Went off to be by yourself	-.28**	-.12*	-.05	-.03	.06	.23**
10. Did not tell anyone about it	-.14**	-.13**	-.17**	.02	.13**	.17**
17. Did something to distract	-.11*	.02	.02	.07	.12*	.20**

Note. \* $p < .05$ . \*\* $p < .01$ . Psych/Inter Satisfaction = Psychological/Interpersonal Satisfaction.

Qualitative coping responses were also examined. This write-in field had asked participants whether they had engaged in another coping behavior (“You did something else [please specify]”). Sixty-two participants (14.6 %) provided a response in this write-in field. A qualitative review suggested that common additional coping behaviors included: exercising/walking ( $n = 6$ ), playing video games/watching TV ( $n = 5$ ), talking about the problem with someone else ( $n = 4$ ), and talking about the problem with the person associated with the problem ( $n = 4$ ). Additional information for the write-in responses can be found in Table 10. It is of interest that some of the write-in responses provided by participants appear to strongly resemble one of the 26 coping items. For example, talking about the problem with someone else appears to have similarities with many of the Support-Seeking items (e.g., item 21: “You talked to someone who could help you figure out what to do”). Participant responses in the write-in field suggest that they may be communicating their problems with someone *without* the goal of seeking a solution to the problem. Further, exercising/walking seems to be similar to item 17: “You did something to distract yourself (e.g., exercise, listen to music).”



Table 10

*Qualitative Coping Responses Provided Through Write-In Field*

Type of Coping Behavior	# of Participants Using this Strategy
Exercise/walking	6
Video games/TV	5
Talking about it with someone else	4
Hobby/enjoyment	3
Substance use	3
Being productive in other ways	2
Spending time with pets	2
Praying	2
Going for a drive	2
Therapy	2
Other:	
• "I made tea"	1
• "Cried a lot"	1
• "I shut down"	1
• "I tried not to make a big deal of it to the other person"	1

*Note.* The table does not provide an exhaustive overview of participants' responses.

Finally, participants' responses to the question "Do you drink to cope with stress?" suggested that a subset of the sample endorsed using alcohol to manage stress. Specifically, 61.2% of participants reported *never* drinking to cope with stress, 22.8% of participants reported *less than monthly* drinking to cope with stress, 7.5% of participants reported drinking *monthly* to cope with stress, 7.3% of participants reported drinking *weekly* to cope with stress, and 1.2% of participants reported *daily or almost daily* drinking to cope with stress. Given that 16% of the sample reported drinking at least monthly to cope with stress (i.e., combining participants who endorsed drinking *monthly* [7.5%], *weekly* [7.3%], or *daily or almost daily* [1.2%]) and considering that the coping questionnaire asked participants to reflect on coping behaviors "in the last month," future assessment of coping in emerging adults could consider including an item that asks specifically about alcohol consumption as a means to cope with stress.

### ***Aim 2***

The bivariate correlation between age and breadth of coping was not statistically significant ( $r = -.04, p = .42$ ). Similarly, age was not significantly correlated with any of the seven coping factors (Support-Seeking:  $r = -.06, p = .22$ ; Problem-Solving:  $r = .02, p = .64$ ; Cognitive Restructuring:  $r = -.06, p = .25$ ; Avoidance:  $r = .05, p = .26$ ; Rumination:  $r = -.10, p = .05$ ; Concealment:  $r = -.04, p = .40$ ; Wishful Thinking:  $r = .01, p = .82$ ).

These results suggest that, within the examined sample, self-reported coping behaviors did not change significantly as a function of age. Of note, the breadth of coping score was significantly and positively correlated with several adaptive outcomes (e.g., psychological/interpersonal well-being) and maladaptive outcomes (e.g., cannabis use, DASS score), suggesting that a wider array of coping behaviors was not, as previously expected, associated exclusively with adaptive functioning in this sample.

### ***Aim 3***

Linear regression analyses assessed whether the seven coping families, as identified through EFA in Aim 1, predicted the six outcomes of interest. Covariates were associated with outcomes as expected. For example, extraversion was significantly correlated with psychological/interpersonal satisfaction ( $r = .58, p < .001$ ) and depression and anxiety (i.e., DASS score;  $r = -.19, p < .001$ ). Further, childhood adversity (i.e., ACEs score) was significantly correlated with psychological/interpersonal satisfaction ( $r = -.25, p < .001$ ), cannabis use ( $r = .19, p < .001$ ), depression and anxiety ( $r = .35, p < .001$ ), and Harter Parent ( $r = -.40, p < .001$ ). As such, covariates (e.g., personality, gender) were included in the first steps of the regression models to statistically account for their impact on the examined outcome variables. In the first step, ethnicity, age, and gender were entered into

the model; personality was entered in the second step. Stress and childhood adversity (i.e., ACEs scores) were entered in steps three and four, respectively. In the final step of each of the six regression models, all seven coping factors were added to examine their unique contributions to the given dependent variable.

The first three models focused on the adaptive outcomes: psychological/interpersonal satisfaction, Harter Parent, and Harter Job (see Table 11). The final model for psychological/interpersonal satisfaction was statistically significant,  $F(17, 399) = 37.35$ ,  $p < .001$ ,  $R^2 = .61$ . For this model, Problem-Solving ( $\beta = .10$ ,  $p = .015$ ), Cognitive Restructuring ( $\beta = .12$ ,  $p = .002$ ), and Concealment ( $\beta = .09$ ,  $p = .025$ ) emerged as significant predictors. The final regression model for the Harter Parent variable was also statistically significant,  $F(17, 398) = 9.80$ ,  $p < .001$ ,  $R^2 = .30$ . However, in this model, none of the coping behaviors emerged as statistically significant predictors for the dependent variable. The third model, predicting Harter Job, was also statistically significant,  $F(17, 308) = 8.484$ ,  $p < .001$ ,  $R^2 = .32$ . In this model, only Cognitive Restructuring ( $\beta = .12$ ,  $p = .027$ ) emerged as a significant predictor.

Table 11  
*Regression Models for Adaptive Outcomes*

Variable	Psychological/Interpersonal Satisfaction				Harter Parent				Harter Job			
	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>	.02				.01				.03*			
Age		.01	.01	.05		.02	.02	.05		.01	.01	.06
Gender <sup>1</sup>		-.13	.06	-.08*		-.18	.09	-.10*		-.21	.07	-.16*
Ethnicity <sup>2</sup>		-.01	.06	-.01		-.10	.08	-.05		-.10	.07	-.08
<b>Step 2</b>	.52**				.13**				.20**			
Extraversion		.36	.03	.44**		-.01	.04	-.01		.06	.03	.10
Agreeableness		.04	.04	.04		-.01	.06	-.01		.02	.04	.02
Conscientiousness		.03	.03	.04		.05	.05	.06		.05	.04	.07
Neuroticism		-.14	.04	-.17*		-.04	.06	-.04		-.04	.05	-.06
Intellect		.01	.04	.01		.03	.05	.02		.13	.05	.16*
<b>Step 3</b>	.03**				.04**				.01*			
Stress		-.23	.06	-.25**		-.25	.08	-.23*		-.19	.07	-.23*
<b>Step 4</b>	.00				.09**				.01*			
ACE		-.33	.12	-.09*		-1.28	.17	-.34**		.25	.14	.09
<b>Step 5</b>	.04**				.03*				.06**			
Support-seeking		.06	.04	.05		.10	.06	.09		.10	.05	.11*
Problem-solving		.12	.05	.10*		.12	.07	.10		.08	.06	.09
Cog restructuring		.11	.04	.12*		.05	.05	.05		.09	.04	.12*
Avoidance		-.10	.05	-.08		.05	.07	.03		-.08	.06	-.08
Wishful thinking		-.03	.04	-.03		.09	.05	.09		.07	.05	.09
Concealment		.08	.04	.09*		-.01	.05	-.01		.02	.04	.03
Rumination		.03	.04	.03		-.01	.05	-.01		.01	.05	.02
<b>Total R<sup>2</sup></b>	.61**				.30**				.32**			

Note. \* $p < .05$ . \*\* $p < .01$ . ACE=Adverse Childhood Experiences. Cog Restructuring = Cognitive Restructuring.

<sup>1</sup>Gender was coded 0 = Female and 1 = Male.

<sup>2</sup>Ethnicity was coded 0 = Caucasian and 1 = Other.

The next three regression models focused on the maladaptive outcomes: the AUDIT score, cannabis use score, and DASS score (see Table 12). The final regression model predicting the AUDIT score was statistically significant,  $F(17, 399) = 3.38, p < .01, R^2 = .09$ . However, none of the seven coping behaviors emerged as significant predictors for the AUDIT score. The final model for cannabis use was also statistically significant,  $F(17, 398) = 3.35, p < .001, R^2 = .13$ , and Rumination emerged as the only significant predictor for cannabis use, albeit in the negative direction ( $\beta = -.17, p = .004$ ). Lastly, the model predicting the DASS score was statistically significant,  $F(17, 399) = 50.35, p < .001, R^2 = .68$ . For this model, four of the seven coping behaviors emerged as significant predictors for the dependent variable. Specifically, Support-Seeking ( $\beta = .12, p = .001$ ), Problem-Solving ( $\beta = .14, p < .001$ ), Cognitive Restructuring ( $\beta = -.08, p = .017$ ), and Avoidance ( $\beta = .11, p = .003$ ) all significantly predicted the DASS score.

Table 12

*Regression Models for Maladaptive Outcomes*

Variable	Cannabis				AUDIT				DASS			
	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>	.01				.01				.04**			
Age		-.03	.03	-.04		.01	.01	.06		-.02	.01	-.08**
Gender <sup>1</sup>		-.12	.19	-.03		.12	.06	.11*		.11	.05	.07*
Ethnicity <sup>2</sup>		-.35	.18	-.09		-.08	.06	-.07		.03	.05	.02
<b>Step 2</b>	.06**				.05**				.51**			
Extraversion		.19	.09	.11*		.07	.03	.13*		-.02	.02	-.02
Agreeableness		-.06	.12	-.03		-.01	.04	-.02		-.09	.03	-.10**
Conscientiousness		-.27	.10	-.15**		-.05	.03	-.08		-.08	.03	-.11**
Neuroticism		-.03	.13	-.02		.05	.04	.09		.21	.03	.31**
Intellect		.31	.11	.15**		.01	.04	.01		.00	.03	.00
<b>Step 3</b>	.00				.01				.09**			
Stress		.21	.18	.10		.07	.06	.10		.36	.05	.40**
<b>Step 4</b>	.02**				.01				.01**			
ACE		1.16	.38	.16**		.16	.12	.07		.26	.10	.08*
<b>Step 5</b>	.03				.01				.04**			
Support-seeking		.01	.13	.01		-.05	.04	-.07		.11	.03	.12**
Problem-solving		.21	.15	.08		.04	.05	.05		.15	.04	.14**
Cog restructuring		.12	.11	.06		.01	.04	.02		-.07	.03	-.08*
Avoidance		.18	.16	.07		.04	.05	.05		.12	.04	.11*
Wishful thinking		.05	.12	.03		.06	.04	.09		.02	.03	.03
Concealment		-.05	.11	-.03		-.04	.04	-.06		.05	.03	.07
Rumination		-.33	.12	-.17**		-.04	.04	-.07		-.03	.03	-.04
<b>Total R<sup>2</sup></b>	.08**				.09**				.68**			

Note. \* $p < .05$ . \*\* $p < .01$ . ACE = Adverse Childhood Experiences. Cog Restructuring = Cognitive Restructuring.

<sup>1</sup>Gender was coded 0 = Female and 1 = Male.

<sup>2</sup>Ethnicity was coded 0 = Caucasian and 1 = Other.

Taken together, regression analyses results yielded partial support for the hypothesis that some coping behaviors would be associated with adaptive outcomes whereas others would be associated with maladaptive outcomes. With regard to adaptive outcomes, Problem-Solving, Cognitive Restructuring, and Concealment emerged as significant predictors for some, but not all, positive outcomes. It is of note that Problem-Solving and Cognitive Restructuring have previously been linked with favorable outcomes, whereas this is not generally the case for Concealment (e.g., Skinner et al., 2003; Skinner et al., 2007). With regard to maladaptive outcomes, Rumination significantly predicted cannabis use, such that greater levels of Rumination predicted a decrease in cannabis use score. Focusing on DASS scores, greater levels of the following four coping factors were associated with a significant increase in DASS scores: Support-Seeking, Problem-Solving, Avoidance, and Concealment. Cognitive Restructuring also significantly predicted DASS scores such that greater levels of Cognitive Restructuring were associated with lower DASS scores.

It is of note that the coping factor Wishful Thinking did not emerge as a significant predictor for any of the six outcomes. Further, and contrary to what had been hypothesized, some coping behaviors were significantly associated with both adaptive and maladaptive outcomes. For example, greater levels of Support-Seeking were associated with higher scores on both psychological/interpersonal satisfaction (adaptation) and DASS scores (maladaptation). It is also of note that some outcome variables (e.g., Harter Parent, AUDIT) were not predicted by any of the coping variables. In contrast, outcomes that directly assessed psychological well-being (e.g., DASS score) were predicted by several coping behaviors.

To examine whether stress and gender moderated the association between coping and the six outcome variables, additional regression analyses with interaction terms were run. Steps one through five remained the same (as described above) and in the sixth step, the seven coping interaction terms were added. Four significant interactions emerged, which were then decomposed to aid interpretation of the two-way interaction effects (Aiken & West, 1991; Dawson, 2013).

Focusing on the stress X coping interactions first, in the regression model predicting psychological/interpersonal satisfaction, the stress X Avoidance interaction emerged as statistically significant ( $\beta = .288, p = .043$ ). Decomposition of this interaction (Figure 1a) indicated that, at high levels of stress, there was no significant association between Avoidance and psychological/interpersonal satisfaction. The unstandardized simple slope for participants 1 *SD* above the mean for stress ('high stress') was 0.01 ( $p = .89$ ). However, at low levels of stress, there was a negative association between Avoidance and psychological/interpersonal satisfaction. The unstandardized simple slope for participants 1 *SD* below the mean for stress ('low stress') was -0.16 ( $p < .01$ ).

In the regression model predicting Harter Job, the stress X Wishful Thinking interaction term was statistically significant ( $\beta = .208, p = .004$ ). As is illustrated in Figure 1b, at low levels of stress there was a negative association between Wishful Thinking and the Harter Job score; the unstandardized simple slope for participants 1 *SD* below the mean for stress ('low stress') was -0.21 ( $p < .05$ ). However, the unstandardized simple slope for participants 1 *SD* above the mean for stress ('high stress') was not statistically significant, 0.20 ( $p = .07$ ).



The stress X Rumination interaction term emerged as statistically significant in the model predicting cannabis ( $\beta = -.137, p = .026$ ). Figure 1c suggests that, at low levels of stress, there was no association between Rumination and cannabis use; in contrast, at high levels of stress, there was a negative association between Rumination and cannabis use. The unstandardized simple slope for participants 1 *SD* below the mean for stress ('low stress') was  $-0.08 (p = .83)$ , and the unstandardized simple slope for participants 1 *SD* above the mean for stress ('high stress') was  $-0.32 (p = .35)$ .

For the gender X coping interactions, only one of the six regression models included a significant interaction term. In the regression model predicting Harter Parent, the gender X Rumination interaction term emerged as statistically significant ( $\beta = -.148, p = .026$ ). As is illustrated in Figure 1d, decomposition of this interaction indicated that for women there was no relationship between the independent variable, Rumination, and the dependent variable, Harter Parent. The simple slope for females was not significantly different from zero (i.e., simple slope for females =  $0.07, p = .29$ ). In contrast, there appeared to be a negative relationship between Rumination and the Harter Parent for men in this sample. However, the simple slope for males also was not significantly different from zero (simple slope for males =  $-0.18, p = .05$ ).

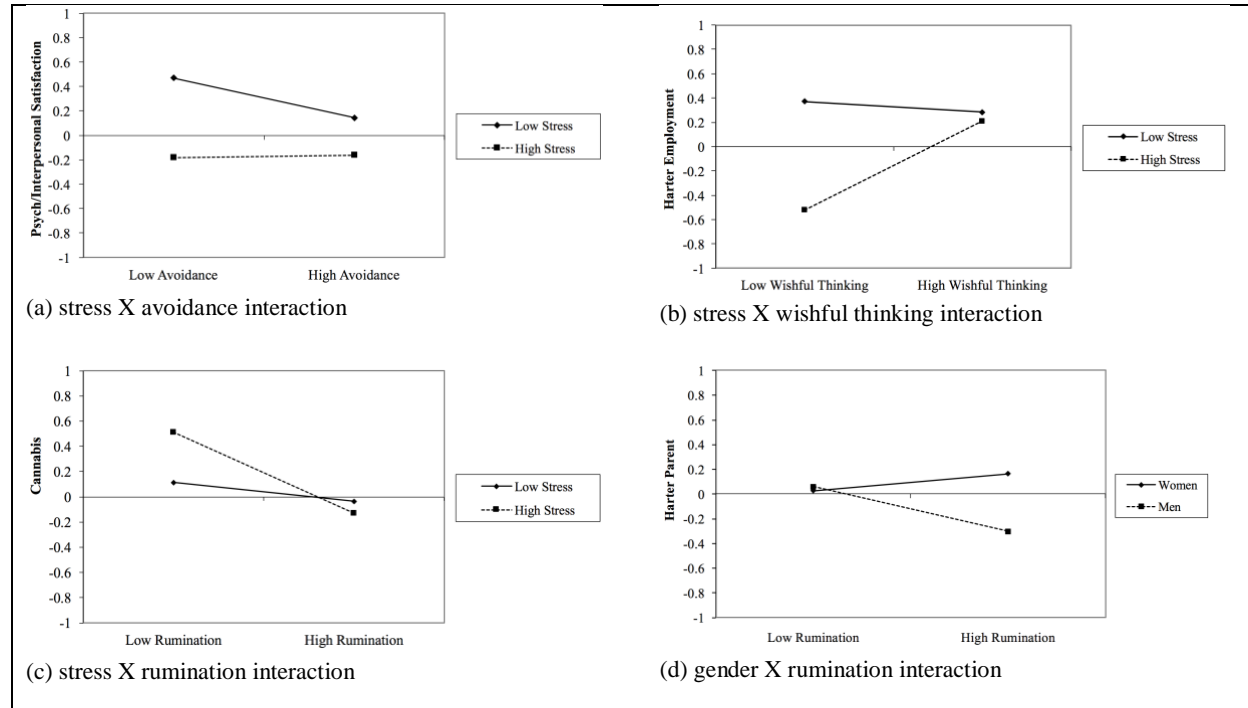


Figure 1. Decomposition of Significant Interactions.

Further, bivariate correlations were run to examine associations between the seven coping factors and emerging adulthood identity. Support-Seeking, Problem-Solving, Cognitive Restructuring, Rumination, and Wishful Thinking were all significantly and positively correlated with the mean score for emerging adulthood identity. Correlations between the coping families and the IDEA scores are presented in Table 13.

Table 13

*Bivariate Correlations between Coping Families and IDEA scores*

	IDEA Mean	IDEA Experimentation	IDEA Negativity	IDEA Identity Exploration	IDEA Feeling "In Between"
Support-seeking	.15**	.15**	.01	.13**	.10*
Problem-solving	.19**	.28**	-.03	.14**	.15**
Cognitive restructuring	.16**	.30**	-.19**	.24**	.14**
Avoidance	-.08	-.24**	.13**	-.15**	.01
Rumination	.27**	-.01	.45**	.05	.15**
Concealment	.09	-.11*	.22**	.03	.06
Wishful thinking	.31**	.00	.38**	.15**	.24**

Finally, exploratory analyses were run to examine potential differences in the seven coping factors as a function of demographic characteristics. Independent samples t-tests tested for potential differences in coping as a function of the following demographic variables: gender (female/male), educational status (currently student/not currently student), employment status (currently employed/not currently employed), relationship status (currently in a romantic relationship/not currently in a romantic relationship), and parenthood (children/no children). Significant group differences emerged as a function of gender, such that men had higher levels of Avoidance than women,  $t(420) = -2.21, p = .03, d = 0.22$ , and women had higher levels of Rumination,  $t(420) = 4.06, p < .001, d = 0.41$ , and Wishful Thinking,  $t(420) = 3.30, p = .001, d = 0.33$ , than men. Significant group differences also emerged as a function of educational status. Students had

significantly higher levels than non-students on Rumination,  $t(420) = -2.23, p = .03, d = 0.23$ , and Concealment,  $t(420) = -2.77, p = .006, d = 0.28$ . With regard to relationship status, individuals who reported currently being in a romantic relationship had significantly higher levels of Problem-Solving relative to individuals who were not currently in a romantic relationship,  $t(330) = -3.2, p = .002, d = 0.32$ . Further, those who were not currently in a romantic relationship had higher levels of Avoidance  $t(423) = 3.83, p < .001, d = 0.38$ , and Concealment  $t(338) = 3.17, p = .002, d = 0.32$ , than those who were currently in a romantic relationship. No significant group differences in any of the seven coping factors emerged as a function of employment status or parenthood.

### **Discussion**

Coping behaviors occur on a daily basis and can serve as a buffer against stress (e.g., Compas & Reeslund, 2009; Curtis & Cicchetti, 2007). Despite the importance of coping in human functioning, researchers have often disagreed on how to define and study this construct. As such, our understanding of the normative development of coping is somewhat limited to date (Skinner & Zimmer-Gembeck, 2016). The primary aim of this study was to examine the structure and function of coping in emerging adults. Specifically, this study examined the factor structure of coping in emerging adults to determine whether there is support for the six primary coping families (Aim 1). A second goal was to determine whether there are developmental shifts in coping that occur during emerging adulthood (Aim 2). A third goal was to conduct a functional analysis of the coping families and to determine which coping behaviors are associated with adaptive and maladaptive outcomes, respectively (Aim 3). The following sections discuss these results and integrated them within the existing body of knowledge.

## **The Structure of Coping (Aim 1)**

Results from EFA yielded partial support for the six coping families, as described by Skinner and colleagues (2003). Specifically, goodness of fit statistics, modification indices, and patterns of loadings and cross-loadings supported a 7-factor model of coping in this sample of emerging adults. Although parallel analysis results favored a 4-factor model, this factor extraction procedure can sometimes be arbitrary (Fabrigar et al., 1999) and was therefore interpreted cautiously in the context of other factor extraction results that were obtained in this EFA. Examination of the seven coping factors suggested some overlap between the seven coping factors from this study and the original coping families (Skinner et al., 2003). Most notably, Problem-Solving and Support-Seeking were two coping families that had been described by Skinner and colleagues (2003) and that also emerged as robust factors in this examination. It is important to consider that the robustness of these two coping factors could, at least partially, be explained by the nature of these two coping behaviors: both describe specific and narrow behaviors that may be more readily assessed than some other coping behaviors. As such, it may be easier for study participants to reflect on these coping behaviors, relative to other coping behaviors, such as cognitive restructuring.

Although there was some overlap between the six original coping families and the seven coping factors from this study, there were also some notable differences. For example, in this study, the two items “you reminded yourself that things were going pretty well for you overall” (item 11) and “you tried to notice or think about the good things in your life” (item 23) loaded onto the factor Cognitive Restructuring. In the original coping family conceptualization, these two questions had been included within

the coping family accommodation—a coping family that also included other behaviors, such as distraction and acceptance. The existence of the narrow Cognitive Restructuring factor in this emerging adult sample supports the view that important cognitive growth (e.g., abstract reasoning, planning, attention) occurs during late adolescence and the early twenties (e.g., Caballero, Granberg & Tseng, 2016; Craik & Bialystok, 2006; Yurgelun-Todd, 2007). Stated differently, unlike younger samples, emerging adults may have a greater ability to use cognitive coping strategies based on important brain maturation processes that occur during this age. Such developmental processes may, at least partially, help explain why EFA results from this study yielded support for a Cognitive Restructuring factor.

Similarly, this study also found support for a Rumination coping factor, consisting of the two items “you kept thinking about it over and over” (item 12) and “you could not get it out of your head” (item 18). The existence of the Rumination coping factor also represents a point of divergence from the original coping family conceptualization. In the original coping family framework, these two items had been included within the broader coping family submission. The emergence of a distinct Rumination factor in this study supports the view that ruminative processes may be occurring with greater frequency during emerging adulthood than during other developmental periods (Nolen-Hoeksema & Aldao, 2011). In fact, prior research suggests that, across adolescence, ruminative thinking becomes more stable (or trait-like) and also that rumination as a coping strategy increases (Hampel & Petermann, 2005; Rood, Roelofs, Bögels, Nolen-Hoeksema, & Schouten, 2009). Given that rumination has consistently been linked to depression in adolescent and adult samples (Garnefski, Boon, & Kraaij, 2003; Garnefski, Teerds,

Kraaij, Legerstee, & van Den Kommer, 2004; Nolen-Hoeksema, 2000), the salience of the Rumination factor amongst emerging adults has relevance for applied work. Although the Rumination coping factor did not predict outcome variables as expected in regression analyses in this study, this coping behavior was significantly and positively correlated with depression and anxiety symptoms, as measured with the DASS (see Table 8). As such, applied work may consider targeting and reducing ruminative processes in emerging adult samples.

The coping factor Avoidance (i.e., items 5, 6, 8, 24, 26) supported by EFA analyses in this study also represents a deviation from the original coping family framework. In fact, the Avoidance factor that emerged in this study consisted of items from three different coping families, as described by Skinner and colleagues (2003): accommodation, submission, and escape. For example, item 5 (“You tried to just accept the situation”) had initially been conceptualized as an adaptive coping behavior and had been included within the original coping family accommodation. As such, it was surprising that item 5 loaded onto the Avoidance factor in this study. A potential explanation for this unexpected finding is that the wording of this item—*trying* to accept the situation—implied that the attempt to accept the situation was not actually successful. Future research could consider rephrasing item 5 from “You tried to just accept the situation” to “You just accepted the situation.” This wording change could more accurately describe an accommodation coping behavior. Taken together, the coping factor Avoidance that was found in this study did not support the original coping family framework.

Surprisingly, four items (i.e., items 2, 4, 10, 17) did not load onto any of the seven

factors and it was notable that all four items were generally positively associated with negative developmental outcomes (see Table 9). Further, all four items were negatively associated with some adaptive outcomes, such as psychological/interpersonal satisfaction. Although the cross-sectional data collection methods used in this study cannot provide insight into directions of effects, it is possible that these coping behaviors are maladaptive when used by emerging adults. In fact, these results generally align with prior theory and research as three of the four items (i.e., items 2, 4, and 10) had been included in the coping measure to assess maladaptive coping behaviors (escape and isolation; see Table 2). In contrast, item 17 (“you did something to distract yourself [exercise, listen to music]”) had been included to within the original coping family accommodation, which was generally viewed as an adaptive coping response.

Although item 17 (“you did something to distract yourself [exercise, listen to music]”) did not load clearly onto any of the seven factors, responses provided by participants in the write-in field suggested that behavioral distraction *is*, in fact, a commonly-used coping response amongst emerging adults. Sixty-two participants (14.6 %) provided a response in this write-in field and, as is reviewed in Table 9, participants described using a wide range of additional coping behaviors, such as exercise/walking ( $n = 6$ ), playing video games/watching television ( $n = 5$ ), pursuing a hobby/enjoyment ( $n = 3$ ) and several others. The frequency with which additional coping behaviors were described in the write-in field supports the view that coping measures should ask about behavioral distraction. It is possible that participants felt compelled to use the write-in field because item 17 included only two examples of behavioral distraction and mentioned these behaviors in parentheses; this phrasing could have de-emphasized the



importance of the specific examples. Future research on coping could consider including more examples of behavioral distraction within the question itself rather than in parentheses. For example, item 17 could be re-written in the following way: “you did something to distract yourself, such as exercise, listen to music, or play a video game”.

Finally, it is also of interest to briefly examine how the 6-factor model split into the 7-factor model in this EFA analysis. Whereas the 6-factor model consisted of a broader maladaptive coping factor—a factor consisting of items 12, 14, 18, 20—this broad factor split into two factors in the 7-factor model. These two new factors that emerged in the 7-factor model described more specific maladaptive coping behaviors: Rumination (items 12, 18) and Wishful Thinking (items 14, 20). Although both of these factors describe cognitive processes, these two internal processes appear to be qualitatively distinct from one another. In fact, according to the original coping family framework (Skinner et al. 2003), wishful thinking and rumination were conceptualized as two coping behaviors that occur within two distinct coping families.<sup>6</sup> As such, the 7-factor structure more closely resembles the original coping families approach than does the 6-factor structure.

### **The Development of Coping (Aim 2)**

The second aim of this study was to examine potential developmental shifts in coping that occur during emerging adulthood. Contrary to a priori predictions, results from this study did not support the view that breadth of coping—that is, the use of a wide range of coping behaviors—increases during emerging adulthood. These results did not align with prior research showing that the breadth of coping strategies generally increases across development (Zimmer-Gembeck & Skinner, 2011). Indeed, results from this study

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<sup>6</sup>As is illustrated in Table 2, Skinner and colleagues (2003) originally considered rumination within the coping family submission and wishful thinking within the coping family escape.

suggest that the developmental trend of diversifying coping behaviors does not appear to continue during emerging adulthood. Further, age was not significantly correlated with any of the seven coping factors that had emerged in EFA analyses. Although prior research had suggested that two specific types of coping—problem-solving and rumination—increase during adolescence (Zimmer-Gembeck & Skinner, 2011), data from this study did not support the view that this developmental trend continues during emerging adulthood. Taken together, these results tentatively support the view that the development of coping during emerging adulthood is, in some respects, different from the development of coping during earlier developmental periods, such as adolescence. Specifically, whereas coping appears to change as a function of age during childhood and adolescence, this does not appear to be the case during emerging adulthood. Given that age was not significantly correlated with any of the seven coping factors, coping appeared to be rather stable in this sample of 18-29 year-olds.

### **The Function of Coping (Aim 3)**

Hierarchical linear regression results yielded partial support for the hypothesis that adaptive coping behaviors would be associated with positive outcomes. For example, Problem-Solving significantly predicted psychological/interpersonal satisfaction after statistically accounting for several potentially-confounding variables. Further, Cognitive Restructuring emerged as a significant predictor for two adaptive outcomes: psychological/interpersonal satisfaction and Harter Job. Unexpectedly, Support-Seeking did not emerge as a significant predictor in any of the three regression models predicting the three positive outcomes.

With regard to maladaptive outcomes, Rumination significantly and negatively

predicted cannabis use. Further, four coping behaviors emerged as significant predictors in the regression model for the DASS score. Higher levels of Cognitive Restructuring were predictive of lower DASS scores, supporting the view that cognitive restructuring represents an adaptive coping behavior. Avoidance coping, which is generally viewed as a maladaptive coping behavior, emerged as a significant and positive predictor for DASS score. Higher levels of Support-Seeking and Problem-Solving were both predictive of higher levels of DASS scores. These findings were unexpected given that Support-Seeking and Problem-Solving have traditionally been viewed as adaptive coping behaviors. Given that data were collected cross-sectionally, they do not inform about directions of effects. As such, it is possible that anxiety and depressive symptoms, as assessed by the DASS, preceded coping behaviors, such as Support-Seeking and Problem-Solving (rather than vice versa). For example, participants in this sample who were experiencing psychological distress may have been more likely to reach out to friends and family relative to participants who were experiencing relatively lower levels of depression, anxiety, and stress (as measured by the DASS).

With regard to the moderating role of stress, moderated multiple regression analyses results did not support the view that stress would moderate the association between coping and emerging adult outcomes. These results were unexpected given that relevant theory and prior research have suggested that coping occurs in the context of stress (Frydenberg, 2014; Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck et al., 2014). As was described in greater detail above, only three stress X coping interaction terms were statistically significant in regression models. Decomposition of these interaction terms suggested that coping behaviors appeared to have greater salience in the context of

low versus high levels of stress—a finding that does not align with prior theory and research on coping. As an illustrative example: in the regression model predicting psychological/interpersonal satisfaction, the stress X Avoidance interaction emerged as statistically significant. Decomposition of this interaction (Figure 1a) indicated that, at high levels of stress, there was no significant association between Avoidance and psychological/interpersonal satisfaction. However, at low levels of stress, there was a negative association between Avoidance and psychological/interpersonal satisfaction. Similarly, in the regression model predicting Harter Job, the stress X Wishful Thinking interaction was statistically significant. Whereas the relationship between Wishful Thinking and the Harter Job was not statistically significant at high levels of stress, there was a significant and negative association between Wishful Thinking and the Harter Job at low levels of stress.

A possible explanation for these non-significant results could be that, on average, participants in this study were experiencing low levels of stress. However, closer examination of Perceived Stress Scale scores did not support that view. In fact, based on cut-off scores provided by the PSS-10 manual (Cohen et al., 1983; Cohen & Williamson, 1988), participants in this study endorsed, on average, ‘moderate levels’ (i.e.,  $M = 19.9$ ;  $SD = 8.2$ ) of stress<sup>7</sup>. It may be of relevance that the Perceived Stress Scale assessed participants’ overall levels of perceived stress by evaluating how unpredictable, uncontrollable, and overwhelming respondents felt in the past month. Given that the coping questions asked specifically about one domain of stress—interpersonal

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<sup>7</sup>According to the PSS-10 manual, scores ranging from 0-13 are considered low stress, scores ranging from 14-26 are considered moderate stress, and scores ranging from 27-40 are considered high stress.

problems—the Perceived Stress Scale might not have accurately captured participants’ stress as it related to participants’ interpersonal lives. In line with prior research (e.g., Brougham et al., 2009), women in this study reported significantly higher levels of stress relative to men.

Closer examination of the item content of the Perceived Stress Scale also suggested that this measure may have been measuring participants’ sense of coping *efficacy*, rather than their perceived levels of stress. Items, such as “In the last month, how often have you felt confident about your ability to handle your personal problems?” (item 4) and “In the last month, how often have you found that you could not cope with all the things you had to do?” illustrate this point. In these questions, participants are asked to reflect on their perceived ability to manage stress, rather than on the magnitude of perceived stress. As such, the item content of the Perceived Stress Scale could also explain the unexpected interaction results.

Only one gender interaction emerged as significant in this examination. In the regression model predicting Harter Parent, a significant gender x Rumination interaction emerged. For women, there was a slightly positive relationship between the independent variable, Rumination, and the dependent variable, Harter Parent. In contrast, there appeared to be a negative relationship between Rumination and the Harter Parent for male in participants. However, neither of these simple slopes were significantly different from zero.

It is also of interest that the breadth of coping score—that is, the number of coping items across all domains endorsed as being used at least some of the time—was significantly and positively associated with negative outcomes. This finding challenges

the notion that the use of a wide range of coping behaviors is adaptive (Skinner & Zimmer-Gembeck, 2007; Zimmer-Gembeck & Skinner, 2008). Specifically, in this study, broader coping did not necessarily indicate better coping. This finding could be explained by the fact that the breadth of coping score included both adaptive and maladaptive coping behaviors.

### **Implications**

Results from this study have important implications for basic research and applied work. With regard to basic research, it is important to understand whether and how coping behaviors develop across emerging adulthood. Prior work has documented considerable normative change in coping across childhood and adolescence (Zimmer-Gembeck & Skinner, 2011). Results from this study support the view that coping during emerging adulthood is continuous from prior developmental stages in some respects; emerging adults in this sample appeared to use Support-Seeking and Problem-Solving—two coping behaviors that are commonly used by children and adolescents (Zimmer-Gembeck & Skinner, 2011). However, there also appears to be some discontinuity in coping; new coping behaviors, such as Cognitive Restructuring and Rumination were found amongst this emerging adult sample. Further, it appears that no considerable change in coping occurred in this sample as a function of age. This tentatively supports the view that coping remains relatively stable during emerging adulthood. It is important to acknowledge that the cross-sectional data collection methods used in this study did not allow for an examination of change in coping across time. Future research with longitudinal study designs are needed to substantiate the tentative findings reported herein.

This study also has implications for applied work. Skinner & Zimmer-Gembeck (2016) recently called for the need to identify ‘good news’ and ‘bad news’ for different developmental periods in an effort to foster healthy development (p. 42). Identifying coping strategies that are most commonly used by emerging adults and that are associated with adaptation and negative outcomes, respectively, can inform prevention and intervention efforts. Given that most prior work has focused on negative developmental outcomes, it is particularly important to identify stress responses that are associated with adaptation (Skinner & Zimmer-Gembeck, 2016).

This study expands what is known about coping behaviors and adaptive functioning in important ways; the two coping factors Problem-Solving and Cognitive Restructuring were both associated with adaptive outcomes in this sample of emerging adults. In hierarchical linear regression analyses, Problem-Solving significantly predicted psychological/interpersonal satisfaction and Cognitive Restructuring significantly predicted psychological/interpersonal satisfaction and the Harter Parent. Cognitive Restructuring was also a significant predictor of lower DASS scores. These results provide preliminary support for the view that Problem-Solving and Cognitive Restructuring are adaptive ways to cope with interpersonal stress during emerging adulthood.

In an effort to support adaptive development, applied work could explicitly target and strengthen problem-solving and cognitive restructuring in emerging adults. These results directly align with general principles of evidence-based treatments, such as Cognitive Behavioral Therapy (CBT; e.g., Beck, 2011; Beck, Rush, Shaw & Emery, 1979). CBT targets maladaptive thinking patterns in an effort to reduce psychological

distress and clinical symptoms (e.g., Beck, 2011; Beck, Rush, Shaw & Emery, 1979). Various evidence-based clinical interventions for children and adolescents include modules to teach/strengthen problem-solving skills. Specifically, basic problem-solving interventions teach individuals to 1) identify the problem, 2) generate a list of possible solutions, 3) evaluate options, and 4) implement the best solution (see Friedberg & McClure, 2015). Similarly, many evidence-based CBT interventions for youth and adults (e.g., *Treating Anxious Children and Adolescents*, Rapee, Wignall, Hudson, & Schniering, 2000; *Unified Protocol for Transdiagnostic Treatment of Emotional Disorders*, Barlow et al., 2017) teach cognitive restructuring through concepts, such as ‘cognitive flexibility’ and ‘thinking traps.’ Further, the ‘contrasting coaches’ tool, which has been used effectively in the *Treatment of Adolescents With Depression Study* (TADS; see TADS Team, 2003, 2005), could be used to encourage emerging adults to cognitively restructure self-criticism with self-encouragement. Given that CBT can be delivered effectively in individual and group settings (e.g., Chen et al., 2003; Manassis et al., 2002; Marques & Formigoni, 2001), problem-solving and cognitive restructuring could be taught and practiced in individual and group psychotherapy settings.

Findings from this study also inform prevention efforts. Recent research suggests that brief prevention workshops present an effective way to teach emerging adults useful emotion management skills. Bentley and colleagues (2018) demonstrated that that a single-session preventative intervention that teaches at-risk college students adaptive emotion management skills can result in small, but statistically significant, reductions in neuroticism and experiential avoidance. Such findings suggest that young adults who are at risk for developing anxiety and depressive symptoms may benefit from completing a



single-session workshop that teaches adaptive emotion management (Bentley et al., 2018). Results from this study tentatively suggest that modules on problem-solving and cognitive-restructuring could be helpful to emerging adults. Given that preventative web-based approaches for college students also appear to be acceptable and effective (Eustis, Hayes-Skelton, Orsillo, & Roemer, 2018), prevention efforts could also be delivered online to ensure that a wide range of emerging adults, including those not currently enrolled at postsecondary institutions, can benefit from such prevention efforts.

### **Strengths and Limitations**

This study included several strengths and limitations. Focusing first on study strengths, the sample used herein represents a notable strength. Unlike many prior studies, which recruited small and/or demographically non-representative samples of college students, this study was based on a large and demographically representative sample of emerging adults. These sample characteristics allowed for the use of powerful statistical tools, such as EFA, and allowed for greater generalizability of study results. Further, a wide range of potential confounds (e.g., personality, age, childhood adversity) were considered and statistically controlled for in these analyses (e.g., hierarchical regression). Finally, this study considered a range of emerging adult outcomes, including those related to adaptive functioning. This represents a strength given that many prior examinations on coping in emerging adults had focused primarily on maladaptive outcomes, such as anxiety and depressive symptoms. Consideration of how coping relates to a wide range of outcomes yielded important information for applied work.

This study also included several limitations, which warrant attention. First, although this examination focused on developmental processes, which are best studied with

longitudinal research designs (Miller, 2017), cross-sectional data collection was employed in this study. This is problematic in that data cannot identify changes in coping in the same individuals across time. Further, data cannot establish whether certain coping strategies precede and cause outcomes of interest, such as competence. A second limitation relates to assessment procedures: all variables were assessed using self-report questionnaires. Although self-report measures can provide meaningful insight into an individual's cognitive processes, self-report can be inaccurate (e.g., difficulty recalling information, reluctance to report maladaptive coping responses; Compas et al., 2001). Multi-informant assessments provide advantages for assessment of children and adults (Achenbach, Krukowski, Dumenci, & Ivanova, 2005; Kraemer et al., 2003); however, it was not feasible to corroborate emerging adults' self-report with parent, peer, or other objective ratings (e.g., achievement test scores) in the present study. A third limitation pertains to the particular eligibility criteria used in this study, such as the requirement that participants have a 90% prior HIT approval. It is possible that this MTurk criterion led to the recruitment of a sample that was more conscientious, attentive, and rule-abiding as compared to a population sample.

Finally, the measurement of the main variable of interest, coping, also included some shortcomings. For example, although initial studies by Skinner and colleagues identified 12 coping families (e.g., Skinner et al., 2003), the present study only assessed six coping families. The focus on these six coping families was deemed warranted on the basis of their prevalent use and their relevance to the emerging adulthood developmental period. Further, the coping questionnaire asked participants to report how they cope with interpersonal problems, such as arguing with a friend/parent, fighting with a romantic

partner, or having a conflict with a coworker. Although emerging adults commonly experience social stress (e.g., Aldridge-Gerry et al., 2011), thereby justifying the focus on this type of stress, results from this study may therefore be limited to coping with this specific type of stress. Stated differently, it is possible that emerging adults use different coping behaviors when managing other forms of stress (e.g., academic, financial). In fact, in line with the view of ‘situation-specific coping’ (Moos et al., 2003) and prior research showing that individuals use different coping behaviors in response to different types of stress (Compas, et al., 1988; Zimmer-Gembeck et al., 2013), it is plausible that emerging adults in this sample are using different coping behaviors in other areas of their lives. Further, the coping measure neither asked participants to identify which interpersonal stressor they were thinking of when completing the coping questions, nor assessed how participant perceived this stressor (e.g., intensity of stress, perceived controllability of stress, familiarity with stress).

## **Conclusions**

These limitations notwithstanding, this study made a meaningful contribution to the current knowledge base and has helped pave the way for future research on coping. Results from this study suggest that the factor structure of coping may deviate in important ways from the original coping family framework (Skinner et al., 2003) in emerging adults and that this age group may be coping with stress in a way that is somewhat specific to their developmental stage (e.g., relying more heavily on cognitive restructuring). As such, the use of the original six coping families (Skinner et al., 2003) may fall short of accurately assessing stress management strategies in 18-29 year olds. Future studies should consider longitudinal data collection to examine change in coping

across time. Further, multi-informant data collection could corroborate self-reports provided by emerging adult participants. Lastly, future examinations on coping may benefit from assessing all 12 coping families to gain a more complete picture of coping in emerging adults.

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## Appendices

### Appendix A. Demographic Information.

1. **Your sex**
  - Male
  - Female
  - Other (please specify): \_\_\_\_\_
  
2. **What race/ethnicity do you primarily identify as (check one)**
  - Black or African-American
  - White
  - Asian
  - Hispanic or Latino(a)
  - American Indian or Alaska Native
  - Native Hawaiian or Other Pacific Islander
  - Other (please specify): \_\_\_\_\_
  
3. **Month of Birth:** \_\_\_\_\_
4. **Year of Birth:** \_\_\_\_\_
  
5. **Highest level of education completed**
  - Some high school
  - Completed high school
  - Some college
  - Completed 2-year college
  - Completed 4-year college
  - Some graduate school
  - Completed graduate school
  
6. **Current educational status**
  - Not currently enrolled as a student
  - Currently enrolled as a part-time student
  - Currently enrolled as a full-time student
  
7. **Current employment status**
  - Not currently employed
  - Currently employed
  - [If currently employed]: How many hours of work per week: \_\_\_\_\_
  
8. **What is your best estimate of your total income last year (before taxes)?**  
\$ \_\_\_\_\_
  
9. **Current living situation**
  - Living with parents
  - Living with roommate(s)
  - Living with romantic partner
  - Living alone
  - Other (please specify): \_\_\_\_\_
  
10. **Relationship status**



- Single
- In casual relationship
- In romantic relationship
- Divorced
- Other (please specify): \_\_\_\_\_

**11. Do you have children?**

- Yes
- No

## Appendix B. Mini IPIP.

Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Indicate for each statement whether it is:

very inaccurate	moderately inaccurate	neither accurate nor inaccurate	moderately accurate	very accurate
1	2	3	4	5

1. Am the life of the party.	1	2	3	4	5
2. Sympathize with others' feelings.	1	2	3	4	5
3. Get chores done right away.	1	2	3	4	5
4. Have frequent mood swings.	1	2	3	4	5
5. Have a vivid imagination.	1	2	3	4	5
6. Don't talk a lot. ®	1	2	3	4	5
7. Am not interested in other people's problems. ®	1	2	3	4	5
8. Often forget to put things back in their proper place. ®	1	2	3	4	5
9. Am relaxed most of the time. ®	1	2	3	4	5
10. Am not interested in abstract ideas. ®	1	2	3	4	5
11. Talk to a lot of different people at parties.	1	2	3	4	5
12. Feel others' emotions.	1	2	3	4	5
13. Like order.	1	2	3	4	5
14. Get upset easily.	1	2	3	4	5
15. Have difficulty understanding abstract ideas. ®	1	2	3	4	5
16. Keep in the background. ®	1	2	3	4	5
17. Am not really interested in others. ®	1	2	3	4	5
18. Make a mess of things. ®	1	2	3	4	5
19. Seldom feel blue. ®	1	2	3	4	5
20. Do not have a good imagination. ®	1	2	3	4	5

## Appendix C. Adverse Childhood Experience (ACE) Questionnaire.

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household **often** ...  
Swear at you, insult you, put you down, or humiliate you?  
**or**  
Act in a way that made you afraid that you might be physically hurt?  
Yes: \_\_\_\_ No: \_\_\_\_
2. Did a parent or other adult in the household **often** ...  
Push, grab, slap, or throw something at you?  
**or**  
**Ever** hit you so hard that you had marks or were injured?  
Yes: \_\_\_\_ No: \_\_\_\_
3. Did an adult or person at least 5 years older than you **ever**... Touch or fondle you or have you touch their  
body in a sexual way?  
**or**  
Try to or actually have oral, anal, or vaginal sex with you?  
Yes: \_\_\_\_ No: \_\_\_\_
4. Did you **often** feel that ... No one in your family loved you or thought you were important or special?  
**or**  
Your family didn't look out for each other, feel close to each other, or support each other?  
Yes: \_\_\_\_ No: \_\_\_\_
5. Did you **often** feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to  
protect you?  
**or**  
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?  
Yes: \_\_\_\_ No: \_\_\_\_
6. Were your parents **ever** separated or divorced?  
Yes: \_\_\_\_ No: \_\_\_\_
7. Was your mother or stepmother **often** pushed, grabbed, slapped, or had something thrown at her?  
**or**  
**Sometimes or often** kicked, bitten, hit with a fist, or hit with something hard?  
**or**  
**Ever** repeatedly hit over at least a few minutes or threatened with a gun or knife?  
Yes: \_\_\_\_ No: \_\_\_\_
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?  
Yes: \_\_\_\_ No: \_\_\_\_
9. Was a household member depressed or mentally ill or did a household member attempt suicide?  
Yes: \_\_\_\_ No: \_\_\_\_
10. Did a household member go to prison?  
Yes: \_\_\_\_ No: \_\_\_\_

## Appendix D. Coping.

When you had interpersonal problems in the last month (e.g., arguing with a friend/parent, fighting with a romantic partner, having conflict with a coworker), please indicate how often you did or felt the following:

Not at all	A little	Some	A lot
0	1	2	3

1. You worked on solving the problem.	0 1 2 3
2. You tried to get away from the situation as fast as possible.	0 1 2 3
3. You went and sought the support or help of someone close to you (e.g., parent, friend).	0 1 2 3
4. You went off to be by yourself (or to be alone).	0 1 2 3
5. You tried to just accept the situation.	0 1 2 3
6. You felt like it was not even worth trying to deal with the situation.	0 1 2 3
7. You tried to make things better by changing what you did.	0 1 2 3
8. You avoided thinking about the problem.	0 1 2 3
9. You let other people know how you felt.	0 1 2 3
10. You did not tell anyone about it.	0 1 2 3
11. You reminded yourself that things were going pretty well for you overall.	0 1 2 3
12. You kept thinking about it over and over.	0 1 2 3
13. You thought about which things are best to handle the problem.	0 1 2 3
14. You wished that bad things wouldn't happen.	0 1 2 3
15. You told others how you would like to solve the problem.	0 1 2 3
16. You tried to keep people from finding out.	0 1 2 3
17. You did something to distract yourself (e.g., exercise, listen to music).	0 1 2 3
18. You couldn't get it out of your head.	0 1 2 3
19. You did something to solve the problem.	0 1 2 3
20. You wished it would just stop or go away.	0 1 2 3
21. You talked to someone who could help you figure out what to do.	0 1 2 3
22. You tried to hide it.	0 1 2 3
23. You tried to notice or think about the good things in your life.	0 1 2 3
24. You did nothing.	0 1 2 3
25. You spent time with someone who cheered you up.	0 1 2 3
26. You just didn't think about it.	0 1 2 3
27. You did something else (please specify) _____	

## Appendix E. Perceived Stress Scale.

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

	Never	Almost Never	Some- times	Fairly often	Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?					
2. In the last month, how often have you felt that you were unable to control the important things in your life?					
3. In the last month, how often have you felt nervous and “stressed”?					
4. In the last month, how often have you felt confident about your ability to handle your personal problems?					
5. In the last month, how often have you felt that things were going your way?					
6. In the last month, how often have you found that you could not cope with all the things that you had to do?					
7. In the last month, how often have you been able to control irritations in your life?					
8. In the last month, how often have you felt that you were on top of things?					
9. In the last month, how often have you been angered because of things that were outside of your control?					
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					

**Appendix F. Short form of the Inventory of Dimensions of Emerging Adulthood (IDEA-8)**

Think of this time in your life. By “time in your life” we refer to the present time, plus the last few years that have gone by, and the next few years to come, as you see them. In short, think of a roughly five-year period, with the present in the middle.

Is this period of your life...

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
1. ... a time of many possibilities?				
2. ... a time of exploration?				
3. ... a time of feeling stressed out?				
4. ... a time of high pressure?				
5. ... a time of defining yourself?				
6. ... a time of deciding your own beliefs and values?				
7. ... a time of feeling adult in some ways but not others?				
8. ... a time of gradually becoming an adult?				

## Appendix G. Self-Perception Profile for College Students

We are interested in what you are like as a person. This profile contains statements that allow you to describe yourself. This is *not* a test. There are no right or wrong answers. For each statement, pick one response option that best describes you.

0	1	2	3
Describes me very poorly	Describes me quite poorly	Describes me quite well	Describes me very well

### Social acceptance

1. I think my social skills are just fine.	0	1	2	3
2. I am able to make new friends easily.	0	1	2	3
3. I like the way I interact with other people.	0	1	2	3
4. I feel that I am socially accepted by many people.	0	1	2	3

### Parent relationship

5. I like the way I act when I am around my parents.	0	1	2	3
6. I find it easy to act naturally when I am around my parents.	0	1	2	3
7. I feel comfortable being myself around my parents.	0	1	2	3
8. I am able to get along with my parents.	0	1	2	3

### Romantic relationship

9. I think that people I like romantically will be attracted to me.	0	1	2	3
10. I don't have difficulty establishing romantic relationships.	0	1	2	3
11. I have the ability to develop romantic relationships.	0	1	2	3
12. I feel that when I am romantically interested in someone, that person will like me back.	0	1	2	3

### Job competence (*\*\*only to be completed by individuals who are currently employed*)

13. I am very proud of the work I do on my job.	0	1	2	3
14. I feel that I am very good at my job.	0	1	2	3
15. I feel confident about my ability to do a new job I haven't tried before.	0	1	2	3
16. I am quite satisfied with the way I do my job.	0	1	2	3

## Appendix H. Well-Being.

Please answer the following questions about how you have been feeling during the past month. Please select the response that best represents how often you have experienced or felt the following:

Never	Once or twice	About once a week	About 2 or 3 times a week	Almost every day	Every day
0	1	2	3	4	5

- \_\_\_ 1. happy
- \_\_\_ 2. interested in life
- \_\_\_ 3. satisfied with life
- \_\_\_ 4. that you had something important to contribute to society
- \_\_\_ 5. that you belonged to a community (like a social group, or your neighborhood)
- \_\_\_ 6. that our society is a good place, or is becoming a better place, for all people
- \_\_\_ 7. that people are basically good
- \_\_\_ 8. that the way our society works makes sense to you
- \_\_\_ 9. that you liked most parts of your personality
- \_\_\_ 10. good at managing the responsibilities of your daily life
- \_\_\_ 11. that you had warm and trusting relationships with others
- \_\_\_ 12. that you had experiences that challenged you to grow and become a better person
- \_\_\_ 13. confident to think or express your own ideas
- \_\_\_ 14. that your life has a sense of direction or meaning to it



## Appendix I. The Depression Anxiety and Stress Scale (DASS)

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me to a considerable degree, or a good part of time	Applied to me very much, or most of the time
0	1	2	3

1. I found it hard to wind down.	0	1	2	3
2. I was aware of dryness of my mouth.	0	1	2	3
3. I couldn't seem to experience any positive feelings at all.	0	1	2	3
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	0	1	2	3
5. I found it difficult to work up the initiative to do things.	0	1	2	3
6. I tended to over-react to situations.	0	1	2	3
7. I experienced trembling (e.g., in the hands).	0	1	2	3
8. I felt that I was using up a lot of nervous energy.	0	1	2	3
9. I was worried about situations in which I might panic and make a fool of myself.	0	1	2	3
10. I felt that I had nothing to look forward to.	0	1	2	3
11. I found myself getting agitated.	0	1	2	3
12. I found it difficult to relax.	0	1	2	3
13. I felt down-hearted and blue.	0	1	2	3
14. I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
15. I felt I was close to panic.	0	1	2	3
16. I was unable to become enthusiastic about anything.	0	1	2	3
17. I felt I wasn't worth much as a person.	0	1	2	3
18. I felt that I was rather touchy.	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0	1	2	3
20. I felt scared without any good reason.	0	1	2	3
21. I felt that I was meaningless.	0	1	2	3

## Appendix J. The Alcohol Use Disorders Identification Test (AUDIT).

*Please read the questions and circle the appropriate items based on your use of alcoholic beverages during this past year.*

1. How often do you have a drink containing alcohol?
  - Never [skip questions 9-10]
  - Monthly or less
  - 2 to 4 times a month
  - 2 to 3 times a week
  - 4 or more times a week
  
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
  - 1 or 2
  - 3 or 4
  - 5 or 6
  - 7, 8, or 9
  - 10 or more
  
3. How often do you have six or more drinks on one occasion?
  - Never
  - Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
  
4. How often during the last year have you found that you were not able to stop drinking once you had started?
  - Never
  - Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
  
5. How often during the last year have you failed to do what was normally expected from you because of drinking?
  - Never
  - Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
  
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
  - Never
  - Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
  
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
  - Never

- Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
- Never
  - Less than monthly
  - Monthly
  - Weekly
  - Daily or almost daily
9. Have you or someone else been injured as a result of drinking?
- No
  - Yes, but not in the last year
  - Yes, during the last year
10. Has a relative or a friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?
- No
  - Yes, but not in the last year
  - Yes, during the last year

Coping with alcohol use:

Do you drink to cope with stress?

- Never
- Less than monthly
- Monthly
- Weekly
- Daily or almost daily

Cannabis use:

During the past 6 months, how often did you use cannabis?

- Never
- Not used in the past 6 months
- A few times
- Monthly
- Weekly
- Daily